

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Patent of: F. Gavin McMillan
U.S. Patent No.: 12,063,402 Attorney Docket No.: 57824-0003IP1
Issue Date: August 13, 2024
Appl. Serial No.: 18/600,254
Filing Date: March 8, 2024
Title: METHODS AND APPARATUS TO CORRELATE CENSUS
MEASUREMENT DATA WITH PANEL DATA

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**PETITION FOR *INTER PARTES* REVIEW OF UNITED STATES PATENT
NO. 12,063,402 PURSUANT TO 35 U.S.C. §§ 311–319, 37 C.F.R. § 42**

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LIST OF EXHIBITS

VA-1001	U.S. Patent No. 12,063,402 to F. Gavin McMillan (“the ’402 Patent”)
VA-1002	Prosecution History of the ’402 patent (“the Prosecution History”)
VA-1003	Declaration and Curriculum Vitae of Dr. Tim Williams
VA-1004	Complaint, <i>The Nielsen Company (US), LLC v. VideoAmp, Inc.</i> , 1-25-cv-00408 (DDE), filed April 2, 2025
VA-1005	U.S. Patent Publication No. 2016/0029155 A1 to Kerr et al. (“Kerr”)
VA-1006	U.S. Patent Publication No. 2010/0331016 A1 to Dutton et al. (“Dutton”)
VA-1007	Universal Mobile Telecommunications System (UMTS) 3G TS 23.101 version 3.0.1, Released 1999
VA-1008	U.S. Patent Publication No. 2009/0164577 A1 to Parkes et al. (“Parkes”)
VA-1009	U.S. Patent Publication No. 2013/0036117 A1 to Fisher et al. (“Fisher”)
VA-1010	U.S. Patent Publication No. 2012/0284333 A1 to Neff (“Neff”)
VA-1011	U.S. Patent Publication No. 2011/0040612 A1 to Simmons et al. (“Simmons”)
VA-1012	Cambridge Advanced Learner’s Dictionary, Fourth Edition
VA-1013	Merriam-Webster’s Collegiate Dictionary, Eleventh Edition

VA-1014	Complaint, <i>The Nielsen Company (US), LLC v. VideoAmp, Inc.</i> , 1-24-cv-00123-1 (DDE), filed January 31, 2024
VA-1015	Memorandum, Interim Processes for PTAB Workload Management (USPTO March 26, 2025) (“Stewart Memorandum”)
VA-1016	3GPP2 S.R0048-A Version 4.0, 3G Mobile Equipment Identifier (MEID) Stage 1 (“3GPP2 S.R0048-A”), June 23, 2005
VA-1017	U.S. Patent Publication No. 2009/0239584 A1 to Jheng et al. (“Jheng”)
VA-1018	U.S. Patent Publication No. 2013/0273941 A1 to Grokop (“Grokop”)
VA-1019	U.S. Patent Publication No. 2008/0313239 A1 to Byler (“Byler”)
VA-1020	U.S. Patent No. 6,754,470 B2 to Hendrickson et al. (“Hendrickson”)
VA-1021	U.S. Patent Publication No. 2014/0025432 A1 to Thomassen et al. (“Thomassen”)
VA-1022	U.S. Patent Publication No. 2009/0006145 A1 to Duggal et al. (“Duggal”)
VA-1023	Stipulation Letter dated March 17, 2026

LISTING OF CHALLENGED CLAIMS

Claim 1	
[1pre]	A computing system comprising:
[1.1]	a processor; and
[1.2]	a non-transitory computer-readable storage medium, having stored thereon program instructions that, upon execution by the processor, cause performance of a set of operations comprising:
[1.3]	accessing demographic information indicative of a characteristic of an audience member associated with a mobile phone located within a reference area associated with a reference location during a time interval, wherein the demographic information is based on a server:
[1.4]	receiving a message sent from the mobile phone associated with the audience member, wherein the message comprises a geographic location of the mobile phone and an identifier associated with the mobile phone, wherein the identifier is associated with the demographic information, and wherein the geographic location of the mobile phone is derived from a positioning system of the mobile phone; and
[1.5]	determining that the geographic location of the mobile phone is within the reference area associated with the reference location by comparing the geographic location of the mobile phone to the reference area associated with the reference location, wherein the reference location is stored in a reference database;
[1.6]	accessing media identifying information associated with media content presented within the reference area during at least a portion of the time interval; and
[1.7]	associating the media identifying information with the demographic information responsive to determining that the media content was presented within the reference area during at least the portion of the time interval.

Claim 2	
[2]	The computing system of claim 1, wherein the positioning system of the mobile phone is a global positioning system.
Claim 3	
[3]	The computing system of claim 1, wherein the positioning system of the mobile phone is a wireless network positioning system.
Claim 4	
[4]	The computing system of claim 1, wherein the reference area is defined by a geographic boundary that encompasses the reference location, and wherein the reference area is shaped as at least one of: a circle or a polygon.
Claim 5	
[5]	The computing system of claim 1, wherein the reference location is a gym.
Claim 6	
[6]	The computing system of claim 1, wherein the reference location is a place of business.
Claim 7	
[7]	The computing system of claim 1, wherein the reference area defines a media exposure environment associated with the reference location, and wherein the media identifying information is associated with media content presented at the media exposure environment while the mobile phone is within the reference area.
Claim 8	
[8]	The computing system of claim 1, wherein the reference database further comprises an indication of a building type associated with the reference location, and wherein the set of operations further comprises determining the reference area based on the building type.

Claim 9	
[9]	The computing system of claim 1, wherein the set of operations further comprises retrieving the media identifying information corresponding to media content accessed at the reference location while the mobile phone is within the reference area.
Claim 10	
[10]	The computing system of claim 1, wherein the set of operations further comprises associating a timestamp with the media identifying information, wherein the timestamp indicates a time at which media content corresponding to the media identifying information is accessed at the reference location.
Claim 11	
[11]	The computing system of claim 1, wherein the set of operations further comprises estimating a quantity of impressions of media content corresponding to the media identifying information based on the associating.
Claim 12	
[12.pre]	A non-transitory computer-readable storage medium, having stored thereon program instructions that, upon execution by a processor, cause performance of a set of operations comprising:
[12.1]	accessing demographic information indicative of a characteristic of an audience member associated with a mobile phone located within a reference area associated with a reference location during a time interval, wherein the demographic information is based on a server:
[12.2]	receiving a message sent from the mobile phone associated with the audience member, wherein the message comprises a geographic location of the mobile phone and an identifier associated with the mobile phone, wherein the identifier is associated with the demographic information, and wherein the geographic location of the mobile phone is derived from a positioning system of the mobile phone; and

[12.3]	determining that the geographic location of the mobile phone is within the reference area associated with the reference location by comparing the geographic location of the mobile phone to the reference area associated with the reference location, wherein the reference location is stored in a reference database;
[12.4]	accessing media identifying information associated with media content presented within the reference area during at least a portion of the time interval; and
[12.5]	associating the media identifying information with the demographic information responsive to determining that the media content was presented within the reference area during at least the portion of the time interval.
Claim 13	
[13]	The non-transitory computer-readable storage medium of claim 12, wherein the reference area is defined by a geographic boundary that encompasses the reference location, and wherein the reference area is shaped as at least one of: a circle or a polygon.
Claim 14	
[14]	The non-transitory computer-readable storage medium of claim 12, wherein the reference location is a gym.
Claim 15	
[15]	The non-transitory computer-readable storage medium of claim 12, wherein the reference location is a place of business.
Claim 16	
[16]	The non-transitory computer-readable storage medium of claim 12, wherein the reference area defines a media exposure environment associated with the reference location, and wherein the media identifying information is associated with media content presented at the media exposure environment while the mobile phone is within the reference area.

Claim 17	
[17]	The non-transitory computer-readable storage medium of claim 12, wherein the reference database further comprises an indication of a building type associated with the reference location, and wherein the set of operations further comprises determining the reference area based on the building type.
Claim 18	
[18]	The non-transitory computer-readable storage medium of claim 12, wherein the set of operations further comprises retrieving the media identifying information corresponding to media content accessed at the reference location while the mobile phone is within the reference area.
Claim 19	
[19]	The non-transitory computer-readable storage medium of claim 12, wherein the set of operations further comprises associating a timestamp with the media identifying information, wherein the timestamp indicates a time at which media content corresponding to the media identifying information is accessed at the reference location.
Claim 20	
[20]	The non-transitory computer-readable storage medium of claim 12, wherein the set of operations further comprises estimating a quantity of impressions of media content corresponding to the media identifying information based on the associating.
Claim 21	
[21.pre]	A method comprising:
[21.1]	accessing demographic information indicative of a characteristic of an audience member associated with a mobile phone located within a reference area associated with a reference location during a time interval, wherein the demographic information is based on a server:
[21.2]	receiving a message sent from the mobile phone associated with the audience member, wherein the message comprises a geographic

	location of the mobile phone and an identifier associated with the mobile phone, wherein the identifier is associated with the demographic information, and wherein the geographic location of the mobile phone is derived from a positioning system of the mobile phone; and
[21.3]	determining that the geographic location of the mobile phone is within the reference area associated with the reference location by comparing the geographic location of the mobile phone to the reference area associated with the reference location, wherein the reference location is stored in a reference database;
[21.4]	accessing media identifying information associated with media content presented within the reference area during at least a portion of the time interval; and
[21.5]	associating the media identifying information with the demographic information responsive to determining that the media content was presented within the reference area during at least the portion of the time interval.
Claim 22	
[22]	The method of claim 21, wherein the positioning system of the mobile phone is a global positioning system.
Claim 23	
[23]	The method of claim 21, wherein the reference area is defined by a geographic boundary that encompasses the reference location, and wherein the reference area is shaped as at least one of: a circle or a polygon.
Claim 24	
[24]	The method of claim 21, wherein the reference location is a gym.

Claim 25	
[25]	The method of claim 21, wherein the reference location is a place of business.
Claim 26	
[26]	The method of claim 21, wherein the reference area defines a media exposure environment associated with the reference location, and wherein the media identifying information is associated with media content presented at the media exposure environment while the mobile phone is within the reference area.
Claim 27	
[27]	The method of claim 21, wherein the reference database further comprises an indication of a building type associated with the reference location, and further comprising determining the reference area based on the building type.
Claim 28	
[28]	The method of claim 21, further comprising retrieving the media identifying information corresponding to media content accessed at the reference location while the mobile phone is within the reference area.
Claim 29	
[29]	The method of claim 21, further comprising associating a timestamp with the media identifying information, wherein the timestamp indicates a time at which media content corresponding to the media identifying information is accessed at the reference location.
Claim 30	
[30]	The method of claim 21, further comprising estimating a quantity of impressions of media content corresponding to the media identifying information based on the associating.

VideoAmp Inc. (“**Petitioner**” or “**VideoAmp**”) petitions for *Inter Partes* Review (“**IPR**”) of claims 1-30 (“**the Challenged Claims**”) of U.S. Patent No. 12,063,402 (“**the ’402 patent**”) because there exists a reasonable likelihood that Petitioner will prevail with respect to at least one of the Challenged Claims.

I. REQUIREMENTS FOR IPR

A. Grounds for Standing

Petitioner certifies that the ’402 patent is available for IPR. This petition is being filed within one year of service of a complaint against VideoAmp. VA-1004. VideoAmp is not barred or estopped from requesting this review challenging the Challenged Claims on the below-identified grounds.

B. Challenge and Relief Requested

Petitioner requests an IPR of the Challenged Claims on the grounds below. Dr. Williams provides supporting testimony. VA-1003, ¶¶1-120.

Ground	Claims	Basis for Rejection (§103)
1A	1-7, 9-10, 12-16, 18-19, 21-26, 28-29	Obvious over Kerr
1B	8, 17, 27	Obvious over Kerr in view of Thomassen
1C	11, 20, 30	Obvious over Kerr in view of Parkes
2A	1-7, 9-10, 12-16, 18-19, 21-26, 28-29	Obvious over Kerr in view of Dutton
2B	8, 17, 27	Obvious over Kerr in view of Dutton and Thomassen
2C	11, 20, 30	Obvious over Kerr in view of Dutton and Parkes

The '402 patent claims priority to a number of continuation applications and provisional application, the earliest of which was filed on April 24, 2013. VA-1001, Cover. Petitioner does not concede April 24, 2013 is the priority date that should be afforded to the '402 patent, but for the purposes of this proceeding, the references asserted in this Petition qualify as prior art under 35 USC §102(a)(1) or (a)(2) (as shown in the table below) even if the April 24, 2013 date of the provisional application is used as the priority date (“**the Benefit Date**”)¹:

Reference	Filing Date	Publication Date
Kerr	Mar. 15, 2013	Jan. 28, 2016
Dutton	May 27, 2010	Dec. 30, 2010
Thomassen	Dec. 30, 2010	Jan. 23, 2014
Parkes	Feb. 6, 2009	Jun. 25, 2009

C. Claim Construction

All claim terms should be construed according to the *Phillips* standard. *Phillips v. AWH Corp.*, 415 F.3d 1303 (Fed. Cir. 2005); 37 C.F.R. §42.100; VA-1003, ¶¶12-18. Petitioner submits no claim terms need be construed to resolve

¹ Patent Owner advanced a priority date of January 29, 2016 in the co-pending litigation. VA-1004, 14.

issues of controversy in the present Petition. *Wellman, Inc. v. Eastman Chem. Co.*, 642 F.3d 1355, 1361 (Fed. Cir. 2011). Petitioner reserves the right to respond to any constructions offered by Patent Owner or adopted by the Board. Petitioner is not conceding that each challenged claim satisfies all statutory requirements (e.g., §112 requirements), nor is Petitioner waiving any arguments concerning claim scope or grounds that can only be raised in district court.

D. Level of Ordinary Skill in the Art

A person of ordinary skill in the art (“POSITA”) relating to the subject matter of the ’402 patent would have had (1) a bachelor’s degree in computer engineering, electrical engineering, or a related field, and (2) two years of industry experience in distributed computer network systems or content serving systems. VA-1003, ¶¶19-21. Additional graduate education could substitute for professional experience, and *vice versa*. *Id.*

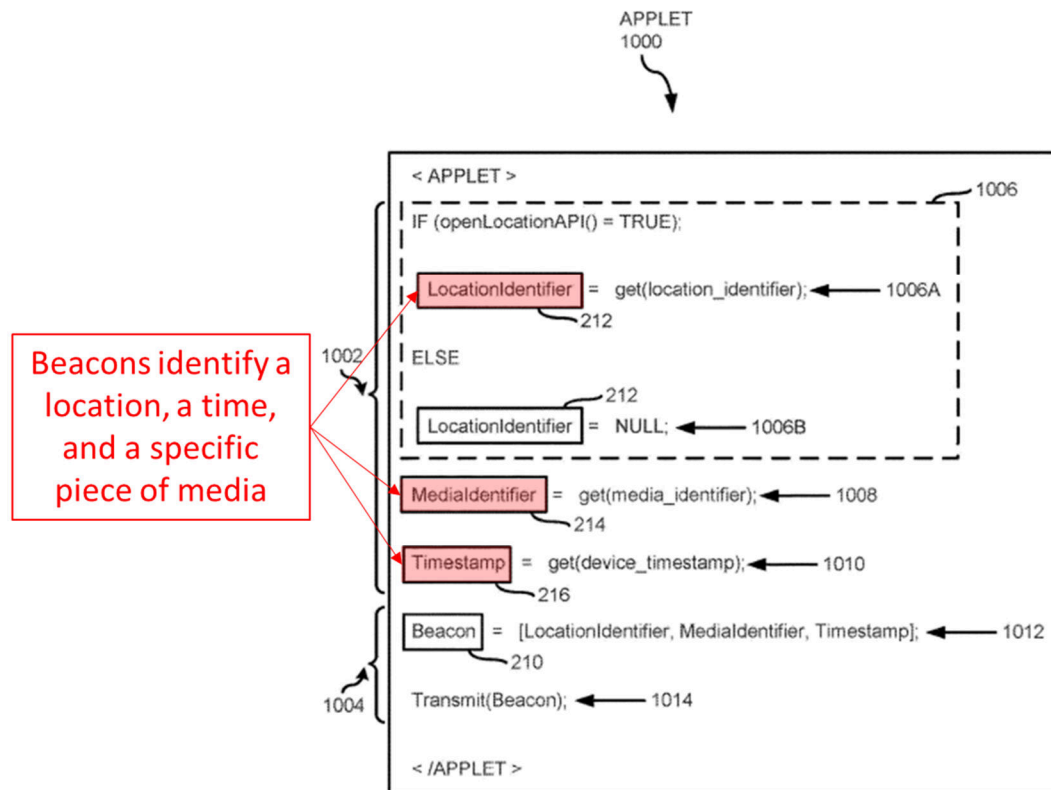
II. SUMMARY OF THE ’402 PATENT

A. Brief Description

The ’402 patent describes techniques to “measure audience exposure and/or interaction with online media accessed by users,” to include “[m]onitoring impressions of online media.” VA-1001, 2:30-67. An impression, according to the ’402 patent, “represents a home or an individual having been exposed to media.” *Id.*; VA-1003, ¶25.

A mobile device can request content from a “media provider,” which then provisions the content to the mobile device. VA-1001, 2:30-67. Media is displayed on a “user device” (or “mobile device”) with a means of rendering media, for example, a “browser that renders media or a non-browser based application.” *Id.* An example of content includes “an Internet address defined by a uniform resource locator (URL).” *Id.*; VA-1003, ¶26.

“Tags” (also referred to as “beacons”) can be embedded in this content, which enable “monitoring data reflecting information about the media access to be tracked.” VA-1001, 3:1-55. This monitored data is described as “census data.” *Id.* Additionally, the ’402 patent describes that it is desirable to correlate census data from a mobile device to “demographic information,” which includes the location of a user. VA-1001, 3:56-4:34; VA-1003, ¶27. FIG. 10 of the ’402 patent illustrates an example beacon.



VA-1001, FIG. 10².

To correlate census data (e.g., the viewing of media by a user) with demographic information (e.g., a location), beacons sent from a mobile device include a “location identifier” that is used to “associate the corresponding monitoring information (e.g., media impression) with a panelist.” VA-1001, 5:18-26. The location identifier represents the location of the mobile device (and thus the panelist) and is compared to a “reference location,” for example, a panelist home or place of business. VA-1001, 5:18-52, 12:14-13:10, FIG. 3A, Claims 6,

² Annotations to figures are shown in color.

15, 25. Reference locations are associated with “reference areas” that correspond to a geographic area around a reference location. VA-1001, 11:12-38; VA-1003, ¶28. FIG. 3A of the ’402 patent illustrates example reference locations and reference areas.

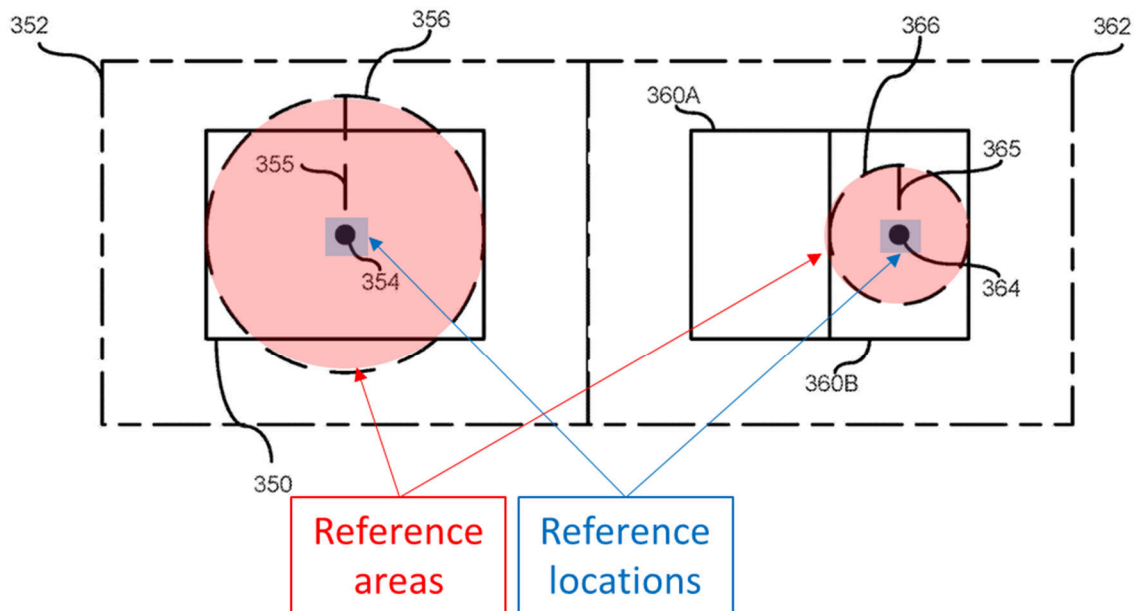


FIG. 3A

VA-1001, FIG. 3A.

B. Summary of the Prosecution History of the ’402 patent

U.S. 12,063,402 issued on August 13, 2024 from U.S. Patent Application No. 18/600,254 (“the ’254 application”), which was filed on March 8, 2024. VA-1002. A single office action with a double-patenting rejection was the only rejection made during prosecution of the ’254 application, which was allowed after the filing of a terminal disclaimer. VA-1002, 727-739. In the notice of allowance,

the Examiner cited limitations [1.4]-[1.7] of claim 1 as being the reason for allowance. VA-1002, 275-279; VA-1003, ¶29.

III. THE CHALLENGED CLAIMS ARE UNPATENTABLE

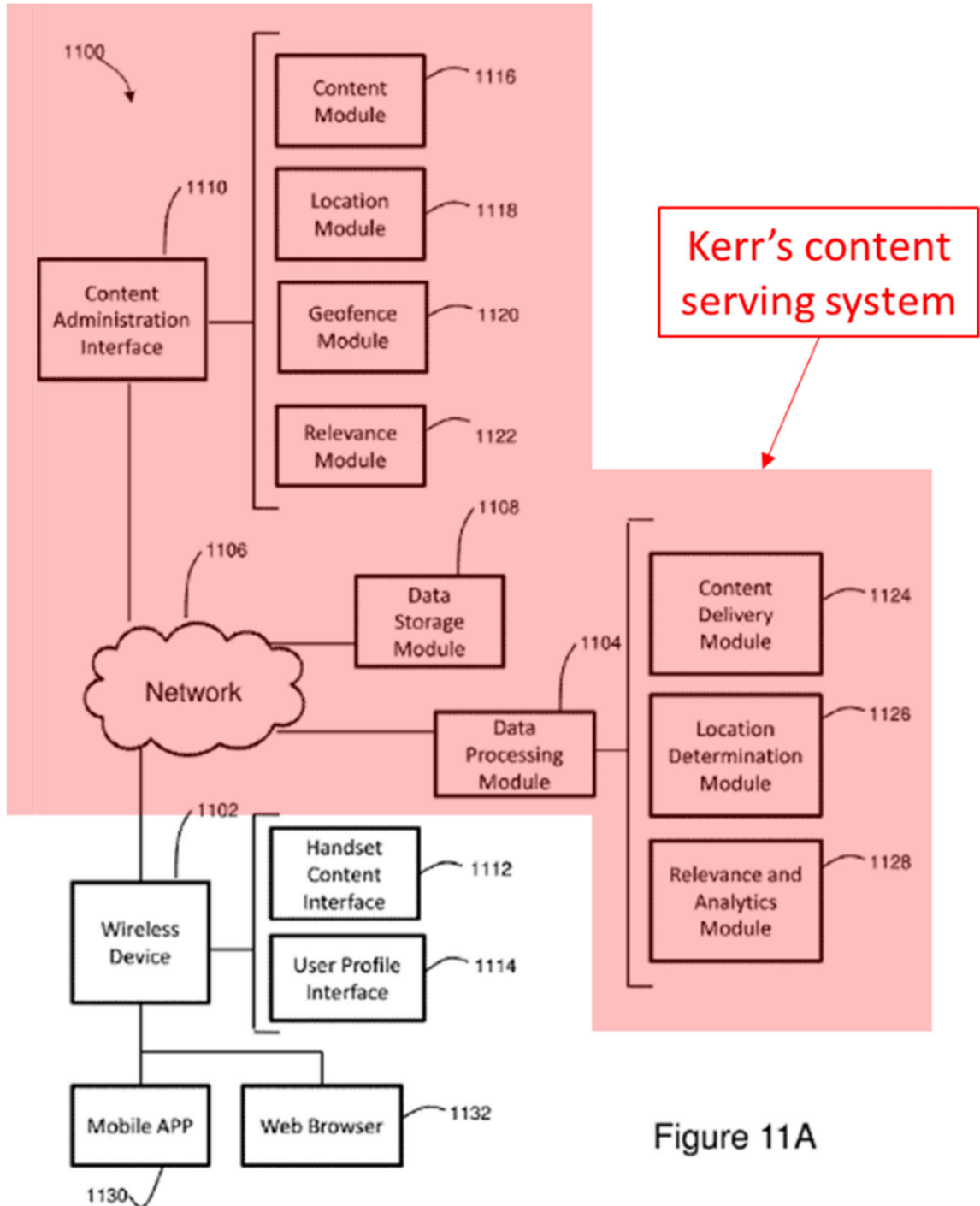
A. [GROUNDS 1A/2A] – Claims 1-7, 9-10, 12-16, 18-19, 21-26, and 28-29 are rendered obvious by Kerr, and claims 1-7, 9-10, 12-16, 18-19, 21-26, 28-29 are rendered obvious by Kerr-Dutton

Below, the Petition presents a first ground based on Kerr alone and a second based on the combination of Kerr and Dutton. Under the first ground 1A, the Petition explains why Kerr alone renders the claims obvious. In the second ground 2A, Kerr is combined with Dutton, to further address limitations 1.2 (“*non-transitory computer-readable storage medium*”), 1.7 (“*associating the media identifying information with the demographic information*”), and claim 5 (“*the reference location is a gym*”). Although these claims are rendered obvious by Kerr alone as explained below, Petitioner has also advanced the Kerr-Dutton combination to the extent Patent Owner argues that a POSITA would not have found the claims obvious based on Kerr’s disclosure. VA-1003, ¶¶30-31.

1. Kerr

Kerr discloses a content serving system for executing “location-based marketing” by serving relevant content to a user based on the location of a user’s mobile device. VA-1005, Abstract, ¶¶[0012]-[0028], [0082]-[0092], FIG. 11A; VA-1003, ¶32. Kerr’s content serving system includes various computing

“modules” that operate over a network, an example of which is shown in FIG. 11A below.



VA-1005, FIG. 11A.

Kerr determines the location of a particular mobile phone (and relatedly the user) by analyzing “location messages” received from the mobile phone. VA-1005, ¶¶[0218]-[0221], [0248], [0255]-[0257], [0301], [0305]. The location message includes various information regarding the location of the mobile phone, including “Global Positioning System (GPS) or other geographical coordinates,” a “signal strength” of discovered Wi-Fi “beacons,” and a “Location_ID” that is particular to a location. *Id.* Kerr describes that specific locations can be defined by a “geofence,” or “content bubble,” that represents the boundaries of a distinct environment. VA-1005, ¶¶[0091]-[0092], [0098], [0111]-[0112], [0213], [0218], [0242]-[0255], [0275]-[0282], [0301], [0305], FIGS. 16-20; VA-1003, ¶33. An example environment with multiple geofences is shown in Kerr’s FIG. 16 below.

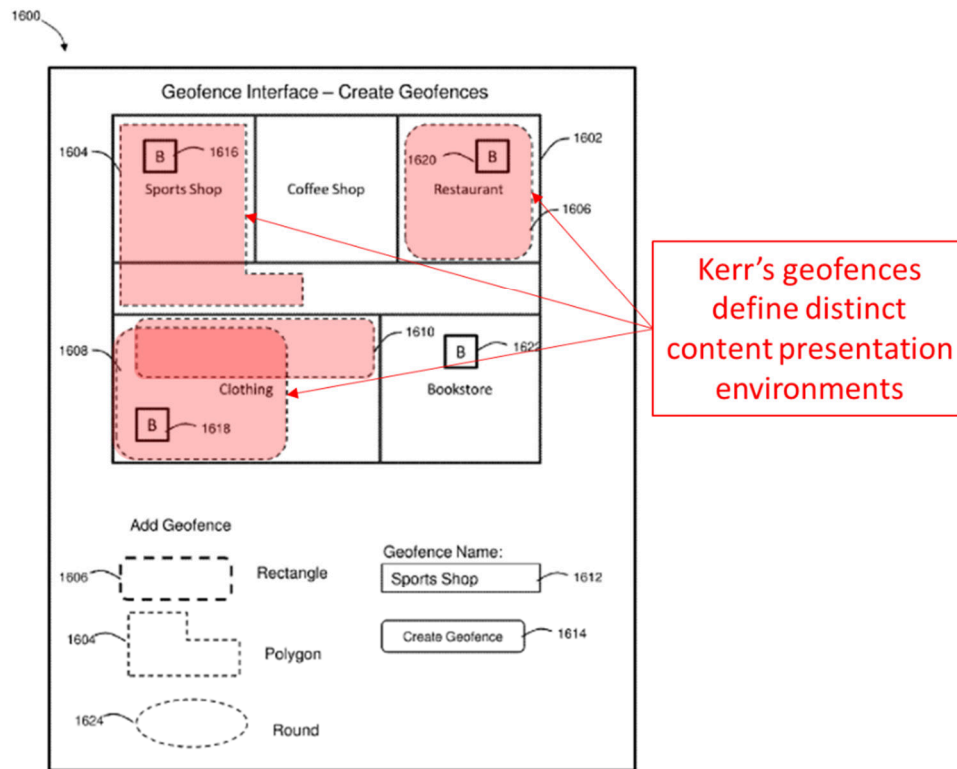


Figure 16

VA-1005, FIG. 16.

Kerr determines content relevant to particular geofences, and accordingly, when a user is determined to be present within a geofence, content relevant to that geofence is served to the user's mobile phone. VA-1005, ¶¶[0091]-[0092], [0111]-[0112], [0213], [0218], [0242]-[0255], [0275]-[0282], [0301], [0305], FIG. 22. For example, Kerr discloses an example where a "Sports Shop" geofence is associated with a content item for "10% Off Ski Equipment" and other sports content. VA-1005, ¶[0243]. As another example, Kerr describes that a coupon content item can be pushed to a user's mobile phone when they are determined to be within a

clothing store. VA-1005, ¶[0101] (“For example, if a 30-year-old female enters a CONTENT BUBBLE in a woman’s clothing store, the MADGUI™ may push a 20% off coupon to entice her to make a purchase”); VA-1003, ¶34. FIG. 22 depicts an example process where relevant content is served to a mobile phone responsive to determining that the phone is within a geofence.

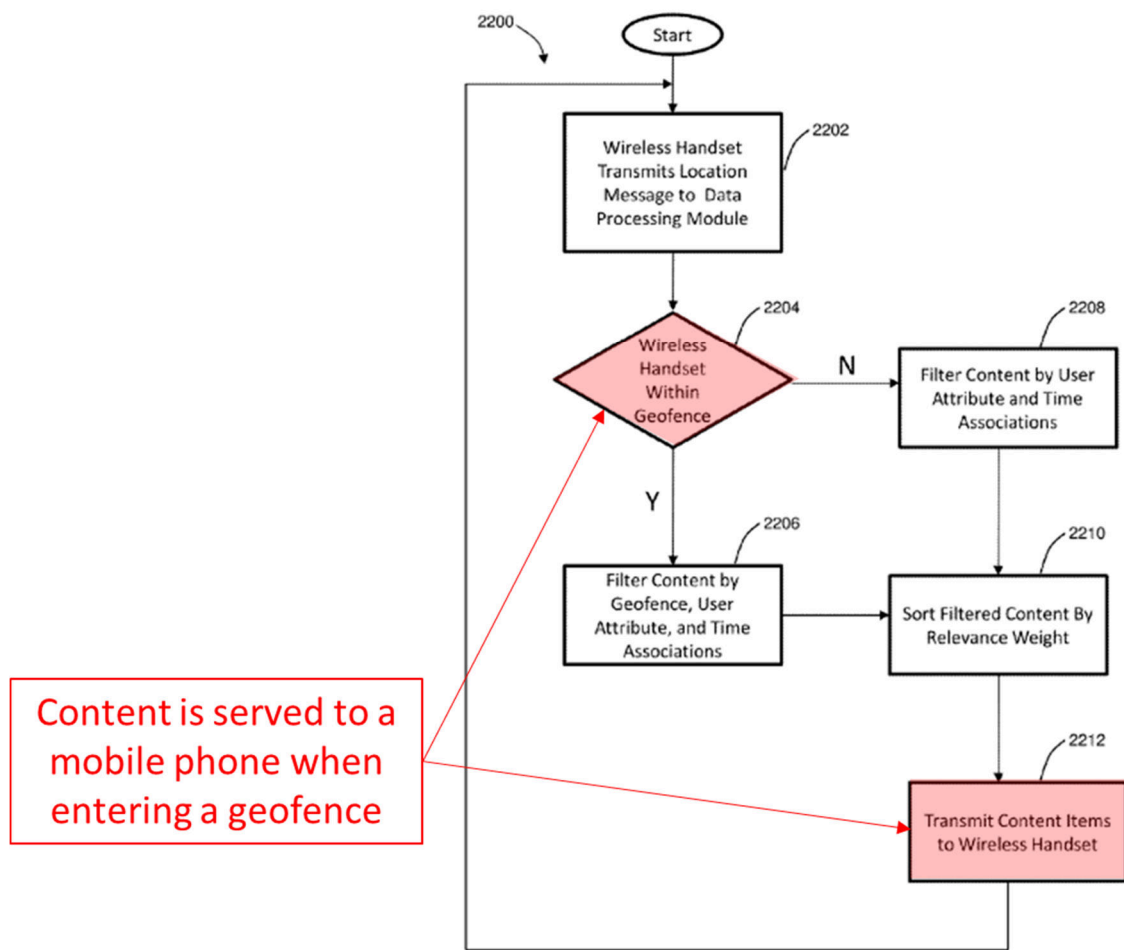


Figure 22

VA-1005, FIG. 22.

Kerr also discloses that the relevance of content to a geofence changes based on user “feedback,” and specifically, that the relevance of a content item can be adjusted “in association with a location in which a wireless device is located.” VA-1005, ¶¶[0288], [0295], FIG. 36. For example, after receiving positive feedback from the viewer, Kerr’s system adjusts the “relevance weight value” of the content item with respect to the location. *Id.*; VA-1003, ¶35. An example process is depicted in FIG. 36 below.

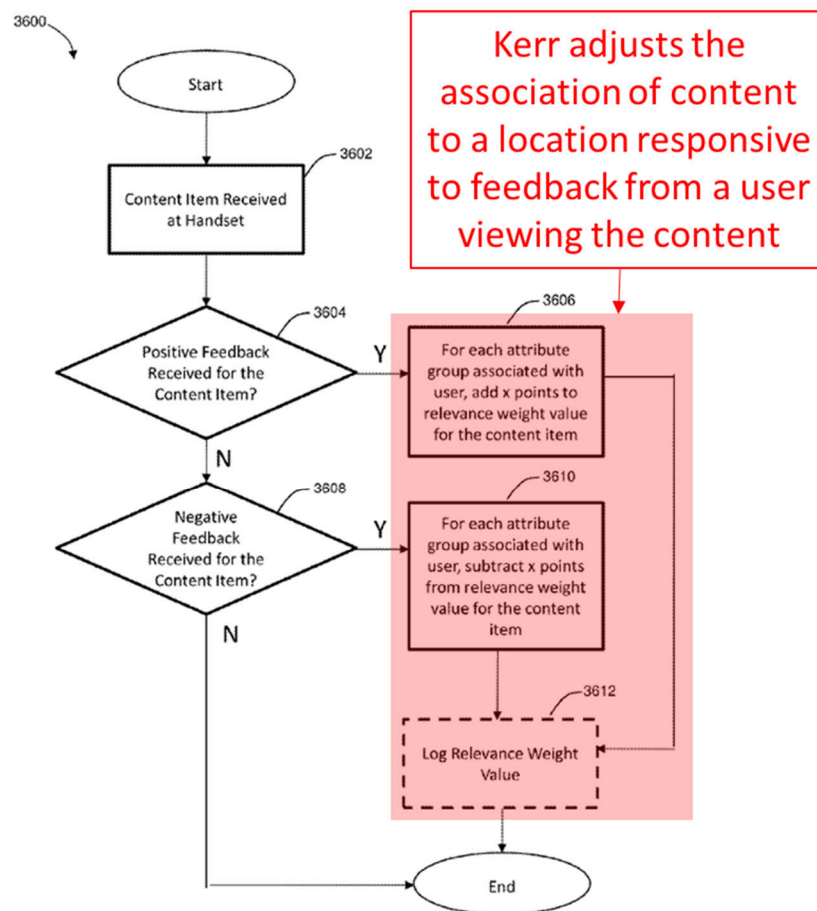


Figure 36

VA-1005, FIG. 36.

Kerr also discloses that it was known that the relevance of content to a location would have continued to change over time, and that the corresponding relevance weight can be quantified and tracked. VA-1005, ¶¶[0285]-[0286], FIG. 35B; VA-1003, ¶36.

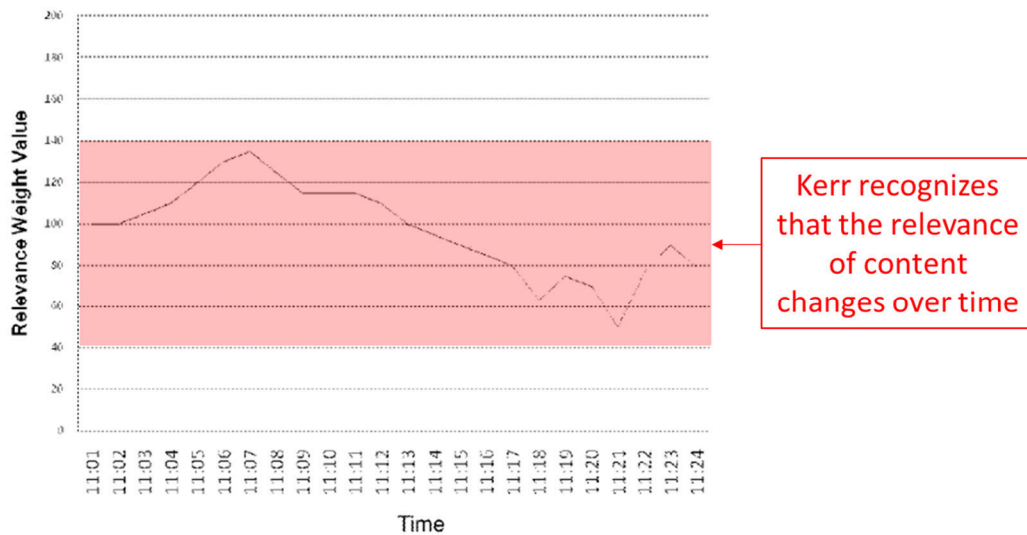


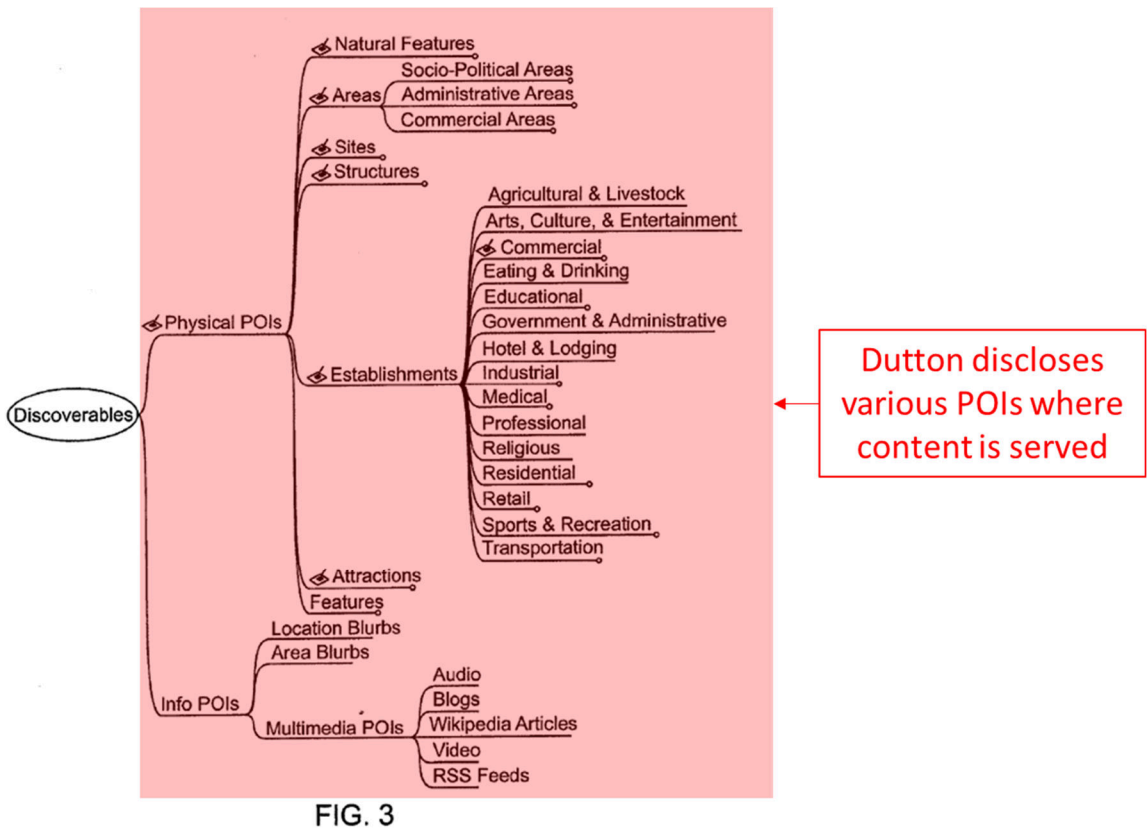
Figure 35B

VA-1005, FIG. 35B.

2. Dutton

Similar to Kerr, Dutton discloses techniques for “dynamic, contextual promotions for a mobile device based on a location and context of the mobile device.” VA-1006, ¶¶[0022]-[0028]. Dutton discloses that these locations are “Places of Interest” (“POIs”), which can be assigned different taxonomic levels of abstraction (e.g., “Coffee shop” compared to “Starbucks”). VA-1006, ¶¶[0060]-[0062], FIG. 3; VA-1003, ¶37. FIG. 3 depicts examples of POIs according to

Dutton.



VA-1005, FIG. 3.

Dutton also discloses techniques for “learning” the relevance of content to a specific POI or location. VA-1006, ¶¶[0063], [0067]-[0072], [0094]. For example, Dutton discloses an example where beverage-related content is associated to a “transportation hub.” *Id.* Accordingly, like Kerr, Dutton recognizes that content can be associated with a location, and further, that this association can be discovered without any preexisting knowledge. *Id.*; VA-1005, ¶¶[0222], [0234], [0267], [0287]-[0308], FIGS. 34, 36-39; VA-1003, ¶38.

3. Combination of Kerr and Dutton

- (a) Kerr and Dutton are analogous art to the '402 patent

Kerr and Dutton are analogous art to the '402 patent, which is generally directed to “audience measurement.” VA-1001, 1:25-27 (Field of the Disclosure). Kerr is generally related to “a system and method for serving relevant ... content to a wireless device,” and Dutton is generally related to “a mobile communications network that provides dynamic and contextual discovery of geo-tagged items of interest.” VA-1005, ¶¶[0011]-[0028]; VA-1006, ¶¶[0002]-[0009]; *Graham v. John Deere Co.*, 383 U.S. 1 (1966). Accordingly, Kerr and Dutton are both directed to the field of audience measurement at least because Kerr and Dutton are concerned with serving relevant content to a user of a mobile device (an audience member) and evaluating the user’s response to that content (e.g., measuring the audience member’s response). *See, e.g.*, VA-1005, ¶¶[0017]-[0028]; VA-1006, ¶¶[0063], [0068], [0094]; VA-1003, ¶41. Moreover, like the '402 patent, Kerr discloses tracking the relevance of a particular piece of content for a plurality of demographic profiles that viewed that content (a number of “impressions,” as described by the '402 patent). VA-1005, ¶[0332], FIG. 46; *see, e.g.*, VA-1001, 2:35-44; VA-1003, ¶41. Kerr’s FIG. 46 below depicts how the relevance of a particular piece of content changes over time for a number of users. *Id.* Dutton

similarly describes that it collects “usage patterns” for a plurality of user “affinity profiles,” which a POSITA would have understood and found obvious is indicative of content impressions. VA-1006, ¶[0026]; VA-1003, ¶41.

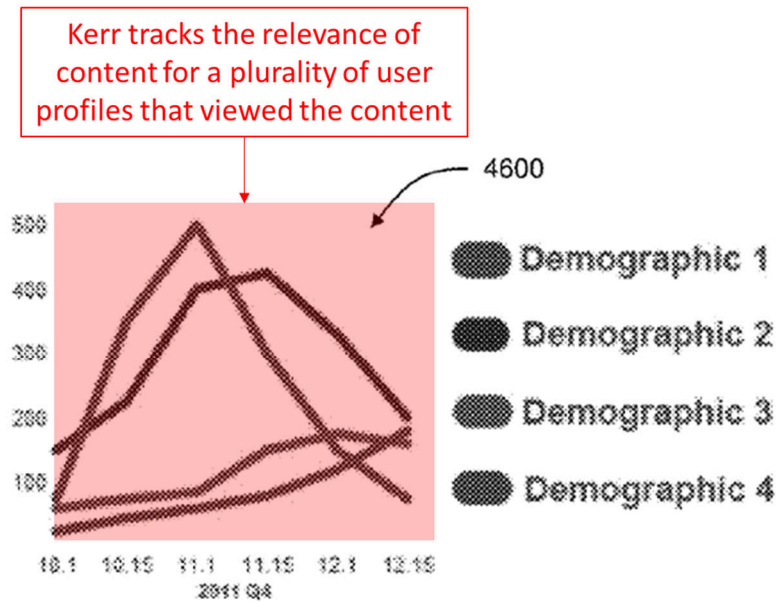


Figure 46

VA-1005, FIG. 46.

Moreover, Kerr and Dutton also reasonably pertinent to the problem the '402 patent purports to solve, for example, measuring “audience exposure and/or interaction with online media accessed by users.” VA-1001, 2:30-34; VA-1005, ¶¶[0011]-[0028], [0332], FIG. 46; VA-1006, ¶¶[0002]-[0009]; *Circuit Check, Inc. v. QXQ Inc.*, 795 F.3d 1331, 1335 (Fed. Cir. 2015) (“Prior art is analogous . . . if it is reasonably pertinent to the particular problem the inventor is trying to solve.”); VA-1003, ¶41.

(b) A POSITA would have been motivated to combine
Kerr and Dutton

Kerr's techniques associate content items with various attributes, to include user location. VA-1005, ¶¶[0092], [0117], [0122], [0211]-[0214], [0222]. Kerr also acknowledges that the estimated relevance of a content item can change based on user feedback, and specifically that its techniques "log changes in the relevance weight value for a content item in association with one or more parameters such as ... location." *Id.* Kerr thus acknowledges that the location of where content is presented can be used to glean insight into the relevance of that content item to a user, and that the relevance of content to a location may develop over time. *Id.* Accordingly, in view of at least Kerr's disclosure, a POSITA would have recognized and found obvious that the relevance of a content item would have changed based on location. *Id.*; *see also* VA-1020, 2:25-43, 4:20-5:6, 6:54-7:10, 10:1-12, 11:45-53; VA-1003, ¶42.

Additionally, Dutton explicitly discloses that the relevance of a content item can be determined by discovering where the content was presented to a user (what Dutton refers to as "learning"). VA-1006, ¶¶[0063], [0067]-[0072], [0094]. For example, Dutton discloses that you can discover that a particular location is relevant to a particular piece of content. *Id.* ("in Airports a users [*sic*] always has a high interest in ordering beverages" and thus "this affinity may be recognized

specifically when the user is in a transportation hub.”). Thus, to the extent Kerr alone would not have rendered obvious the association of content to a location, particularly in cases where an initial relevance may be unknown, Dutton renders this obvious as well. *Id.*; VA-1003, ¶43.

It would have been obvious for a POSITA to combine Kerr and Dutton such that (1) Dutton’s techniques of learning a location’s relevance to served content would have been implemented in Kerr’s content serving system and (2) Dutton’s additional implementation details would have enhanced Kerr’s existing techniques (e.g., non-transitory computer-readable storage medium, additional reference locations). VA-1005, ¶¶[0011]-[0028]; VA-1006, ¶¶[0002]-[0009], 0063], [0067]-[0072], [0094]; VA-1003, ¶44. A POSITA would have been motivated to combine Kerr and Dutton for the following reasons.

First, Dutton discloses additional organizational techniques for Kerr’s relevance and analytics module, which adjusts the relevance of content based on location. VA-1005, ¶¶[0222], [0234], [0267], [0287]-[0308], FIG. 11A. For example, Dutton discloses taxonomy techniques that would have been beneficial in classifying and organizing Kerr’s monitored locations to achieve a particular desired focus. VA-1006, ¶¶[0026], [0048], [0060]-[0063]. For example, Dutton discloses that taxonomic hierarchy can be used to discover a user’s affinity for a particular “chain” by distinguishing a particular type of establishment (e.g.,

“Starbucks”) from a group of similar establishments (e.g., “Coffee Shop”). VA-1006, ¶[0063]. Dutton explains that this hierarchical structure allows it to “drill down” on different taxonomic levels to discover particular details about a location’s relevance to a particular piece of content (e.g., beverage content is relevant to a transportation hub). VA-1006, ¶¶[0064], [0094]; VA-1003, ¶45.

Second, Dutton provides many additional examples of environments where Kerr’s techniques can be deployed. VA-1006, ¶¶[0022]-[0023], [0060], FIG. 3; VA-1003, ¶46. Dutton discloses “places of interest” (“POIs”) where users consume media, and additionally explains that “taxonomy” techniques can be used to classify POIs at different levels of granularity, such that the relevance of content can be determined at these different levels. *Id.* A POSITA would have recognized and found obvious that these additional POIs and techniques would have been applicable to a similar Kerr technique. *Id.*; VA-1003, ¶46.

Third, Dutton provides additional implementation details that would have been beneficial to a POSITA looking to implement Kerr’s techniques. VA-1006, ¶¶[0100]-[0107]; VA-1003, ¶47. For example, Dutton provides additional detail on how its computing system is implemented, which a POSITA would have recognized and found obvious would have been applicable to a similar Kerr computing system (e.g., the use of non-transitory computer-readable storage medium to provide instructions to a processor). *Id.*; VA-1003, ¶47.

(c) A POSITA would have expected success in
combining Kerr and Dutton

Incorporating Dutton's techniques into Kerr's system would have been predictable and foreseeable with a reasonable expectation of success because, like Dutton, Kerr similarly discloses a system for evaluating the relevance of content to a location and Kerr explicitly indicates that its described embodiments can be "expanded on" using additional techniques (e.g., Dutton's learning techniques, additional POIs, and implementation details). VA-1005, ¶¶[0092], [0117], [0122], [0211]-[0214], [0222], [0336]; VA-1006, ¶¶[0063], [0067]-[0072], [0094]. Additionally, such machine learning techniques were commonplace as of the Critical Date and would have been part of a POSITA's general knowledge, specifically in the field of content serving and advertising, as confirmed by Simmons. VA-1011, Cover, ¶¶[0005]-[0009], [0068], [0073], [0111], [0119] (describing machine learning techniques for an advertising economic valuation model); VA-1003, ¶48.

A POSITA would also have found the combination of Kerr and Dutton obvious and predictable because incorporating Dutton's techniques into Kerr would have been nothing more than:

- (1) the application of known techniques (e.g., Dutton's machine learning techniques) to a known structure (e.g., Kerr's context aware relevance

- engine) to yield predictable results (e.g., using machine learning to predict an association of content to a location based on user interactions)
- (2) the use of known techniques to improve similar devices (methods, or products) in the same way (applying Dutton’s techniques to a similar Kerr system and method)
- (3) applying a known technique (e.g., Dutton’s machine learning techniques) to a known device (e.g., Kerr’s context aware relevance engine) ready for improvement to yield predictable results (e.g., using machine learning to predict an association of content to a location based on user interactions)

KSR Int’l Co. v. Teleflex Inc., 550 U.S. 398, 417 (2007); *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966); VA-1003, ¶¶49-50. For instance, one predictable result of incorporating Dutton’s teachings into Kerr’s system would have been the improvement in the accuracy of associating locations with content, as explained above. VA-1006, ¶¶[0026], [0048], [0060]-[0063].

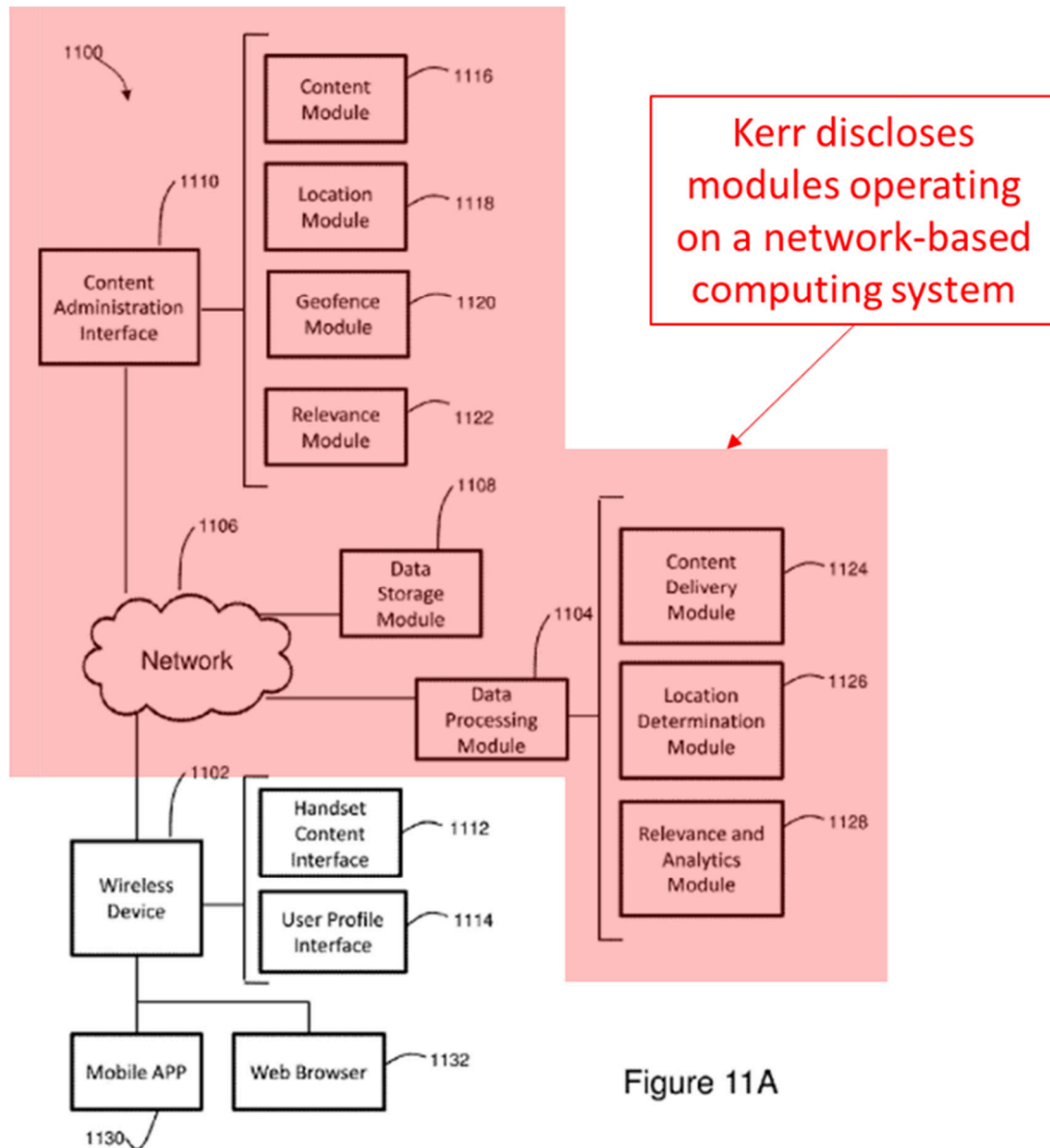
4. Analysis

[1pre] A computing system comprising:

Ground 1A

Kerr discloses that its techniques are performed by various network based “modules” that together form a **computing system** (depicted below in FIG. 11A). VA-1005, ¶¶[0205]-[0218], FIG. 11A. Kerr describes that these modules run “on a

processor of a server or other computing device communicatively coupled to [a] network,” structure which a POSITA would have understood are part of a computer-based system, and that applications that perform its techniques “run on a processor of a computer or other computing device.” *Id.* Kerr’s network “facilitate[s] communication among computers and wireless communication devices” that form its *computing system*. *Id.*; VA-1003, ¶51.



VA-1005, FIG. 11A.³

Ground 2A

Additionally, Dutton corroborates Kerr and discloses that “computer software, firmware, or hardware” can be implemented in a “computing

³ All annotations to figures are shown in color.

environment,” further corroborating that a POSITA would have known that Kerr’s techniques would have been implemented in a computing system. VA-1006, ¶¶[0099]-[0101] (e.g., “[s]ome or all of the functional operations described in this specification can be implemented in digital electronic circuitry, or in computer software, firmware, or hardware, including the structures disclosed in this specification and their structural equivalents, or in combinations of them”), FIG. 1; VA-1003, ¶52.

[1.1] a processor; and

Ground 1A

Kerr explicitly discloses that computing system includes at least one “processor” (“***a processor***”) running on a server. VA-1005, ¶¶[0205]-[0218], FIG. 11; *supra*, [1.pre]; VA-1003, ¶53.

Ground 1B

Additionally, as discussed above in [1.pre], Dutton corroborates that a POSITA would have known that computing systems, like Kerr’s, typically included a processor for executing instructions. VA-1006, ¶¶[0100]-[0107] (e.g., “The term ‘data processing apparatus’ encompasses all apparatus, devices, and machines for processing data, including by way of example a programmable processor, a computer, or multiple processors or computers.”); *supra*, [1.pre]; VA-1003, ¶54.

[1.2] a non-transitory computer-readable storage medium, having stored thereon program instructions that, upon execution by the processor, cause performance of a set of operations comprising:

Ground 1A

Kerr discloses that its computing system includes a form of storage in the form of a “data storage module” (a “***storage medium***”), depicted below in FIG. 11A, which a POSITA would have recognized and found obvious would have included machine-readable instructions for executing Kerr’s computer-based techniques (“***a non-transitory computer-readable storage medium, having stored thereon program instructions***”). VA-1005, ¶¶[0210], [0215], [0223], FIG. 11A-11B. Kerr also discloses several forms of memory well known before the Benefit Date (“flash memory, ROM memory, and hard drive memory”) that a POSITA would have recognized and found obvious are additional examples of “***a non-transitory computer-readable storage medium.***” VA-1005, ¶[0141], FIG. 5. Finally, Kerr acknowledges that memory is typically “communicatively coupled to a processor for running applications” (“***program instructions that, upon execution by the processor, cause performance of a set of operations***”). VA-1005, ¶[0223]; VA-1003, ¶55.

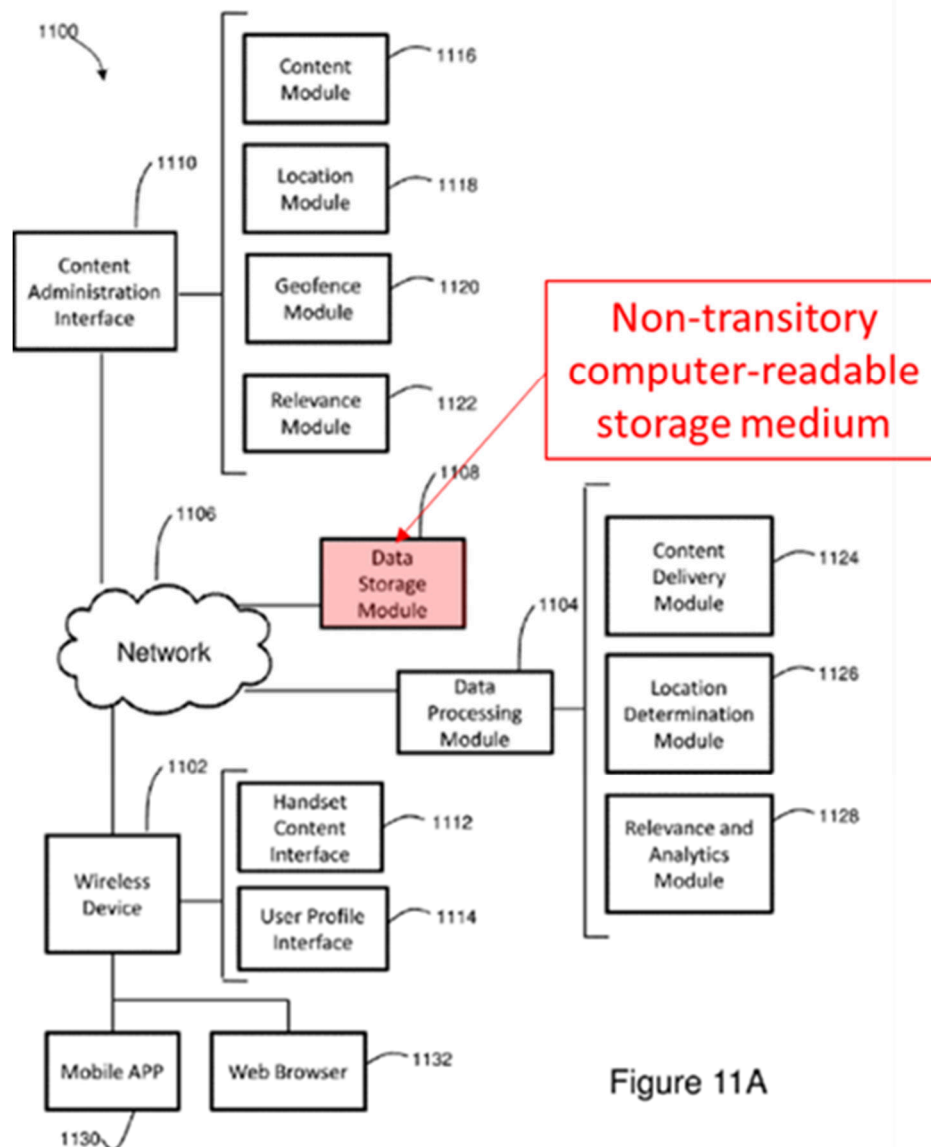


Figure 11A

VA-1005, FIG. 11A.

Ground 2A

Additionally, as discussed above in [1.pre]-[1.1], Dutton corroborates Kerr's disclosure and explicitly discloses that processors execute "computer program instructions" ("*... program instructions that, upon execution by the processor, cause performance of a set of operations*") which are stored on a

“machine readable storage medium” (“*a non-transitory computer-readable storage medium, having stored thereon ...*”). VA-1006, ¶¶[0100]-[0107], *supra*, [1.pre]-[1.1]; VA-1003, ¶56.

[1.3] accessing demographic information indicative of a characteristic of an audience member associated with a mobile phone located within a reference area associated with a reference location during a time interval, wherein the demographic information is based on a server:

Grounds 1A&2A

Demographic information

As an initial matter, the '402 patent discloses that “*demographic information*” includes the “location” of a panelist. VA-1001, 4:18-34 (“The demographic information (e.g., ... location”). The '402 patent also illustrates a Table 600 (reproduced below) that is described as including demographic information, which includes the locations of monitored panelists. VA-1001, 17:60-18:19, FIGS. 6-7. Accordingly, the “*demographic information*” as recited in the '402 patent would have been understood by a POSITA as encompassing a location of a user. VA-1003, ¶57. Dr. Williams provides additional analysis of this term with respect to the claims of the '402 patent in his declaration. VA-1003, ¶60.

Examples of
demographic
information

	602 PANELIST IDENTIFIER	603 REFERENCE TYPE	604 REFERENCE LOCATION	605 REFERENCE AREA	606 GENDER	608 AGE	610 CITY OF RESIDENCE	612 RELATIONSHIP STATUS
616 →	10001	DUPLEX	41.87989, -87.637160	RADIUS = 12 FEET	M	50-54	CHICAGO ILLINOIS	MARRIED
618 →	10002	HOUSE	41.748056, -88.165556	RADIUS = 30 FEET	F	35-39	NAPERVILLE ILLINOIS	MARRIED
620 →	10003	APARTMENT	39.739166, -104.984720	RADIUS = 13 FEET	F	18-34	DENVER COLORADO	SINGLE
622 →	10003	GYM	39.711433, -104.938967	RADIUS = 45 FEET	F	18-34	DENVER COLORADO	SINGLE
624 →	10003	VACATION HOME	28.415833, -81.298889	RADIUS = 36 FEET	F	18-34	ORLANDO FLORIDA	SINGLE

FIG. 6

VA-1001, FIG. 6.

accessing demographic information indicative of a characteristic of an audience member associated with a mobile phone

Kerr determines user location based on a location of a mobile phone associated with a user for the purpose of serving the user relevant content. VA-1005, ¶¶[0198], [0205]-[0221], FIG. 11A. Specifically, Kerr's computing system includes a "location determination module 1126" that accesses location information of a mobile phone based on a "location message" received from the mobile phone ("**accessing demographic information**"). *Id.* As discussed

above with respect to demographic information, the location of a user associated with a mobile phone is indicative of a “*characteristic of an audience member associated with a mobile phone*,” specifically, the audience member’s location. VA-1005, ¶¶[0222], [0234], [0267], [0287]-[0308]; VA-1001, 4:18-34; VA-1003, ¶58.

To the extent Patent Owner argues that the location must be a “home” location, it would have been obvious to a POSITA that Kerr’s techniques would have been able to determine home locations, as location messages include suitable identifying information for a home (“Global Positioning System (GPS) or other geographical coordinates” – analogous data to what the ’402 patent depicts in FIG. 6). VA-1005, ¶[0219]; VA-1001, FIG. 6; VA-1003, ¶59. Additionally, Dutton also explicitly discloses that POIs (geofences in the combination of Kerr-Dutton) can be a “house.” VA-1006, ¶[0039]. Finally, it was well known before the Benefit Date that identifying information, such as the information in Kerr’s location messages, could be used to identify a residential address. VA-1019, ¶¶[0034]-[0038]; VA-1003, ¶59. For example, Byler discloses techniques for determining a “street address” from “latitude and longitude coordinates.” *Id.*; *KSR*, 550 U.S. 398, 421 (“When there is a design need or market pressure to solve a problem and there are a finite number of identified, predictable solutions, a person of ordinary skill has good reason to

pursue the known options within his or her technical grasp.”).

Shown below is Kerr’s FIG. 11A, which depicts an example location determination module.

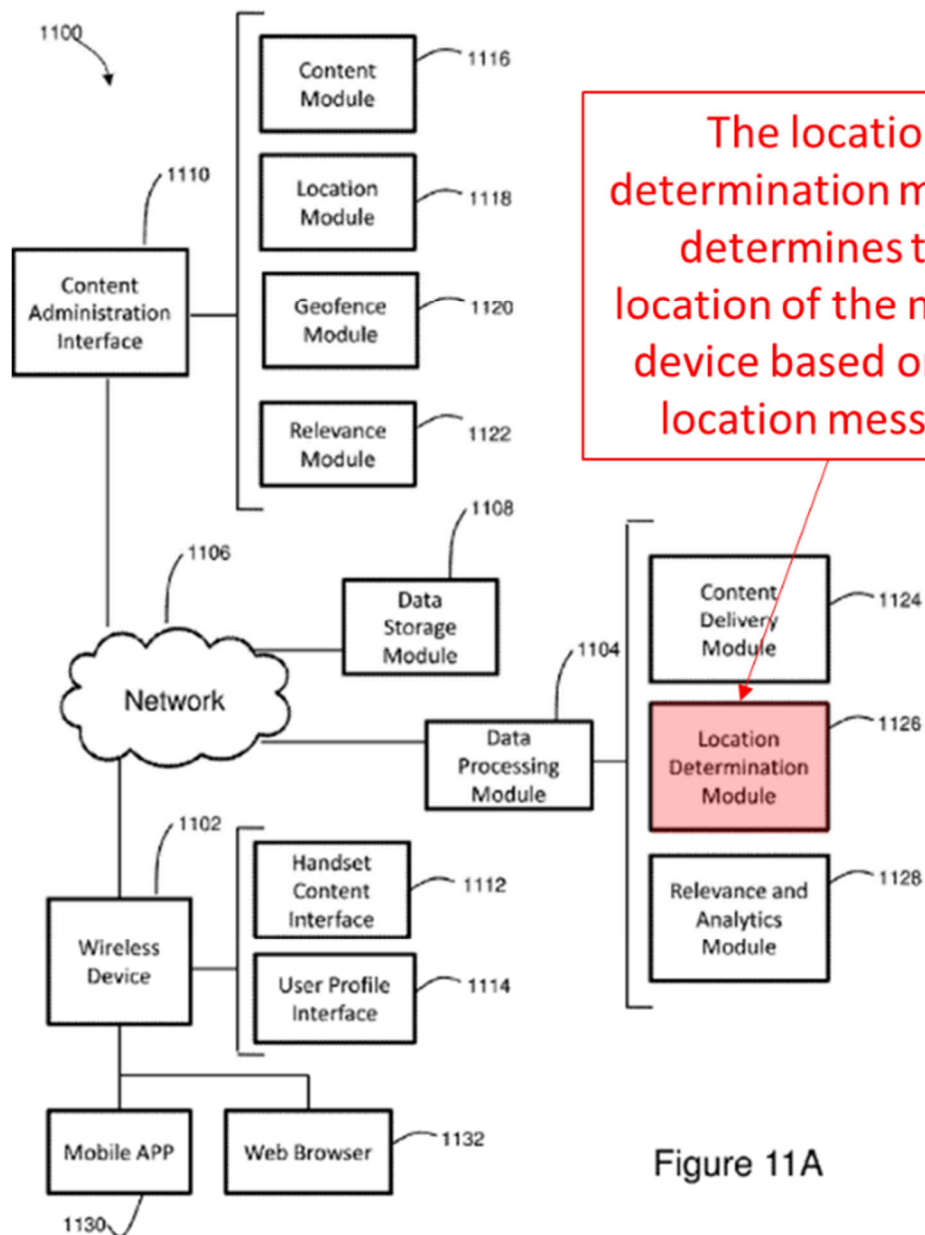


Figure 11A

VA-1005, FIG. 11A.

located within a reference area associated with a reference location

In Kerr, a location message sent from a mobile phone is used to determine the location of the device based on the proximity of beacons with associated geofences (“*reference areas*”) related to a business or place of interest. VA-1005, ¶¶[0242]-[0243], FIG. 16; VA-1003, ¶61. FIG. 16 below depicts an example environment in Kerr that includes a plurality of geofences (“*reference areas*”) and beacon locations (“*reference locations*”).

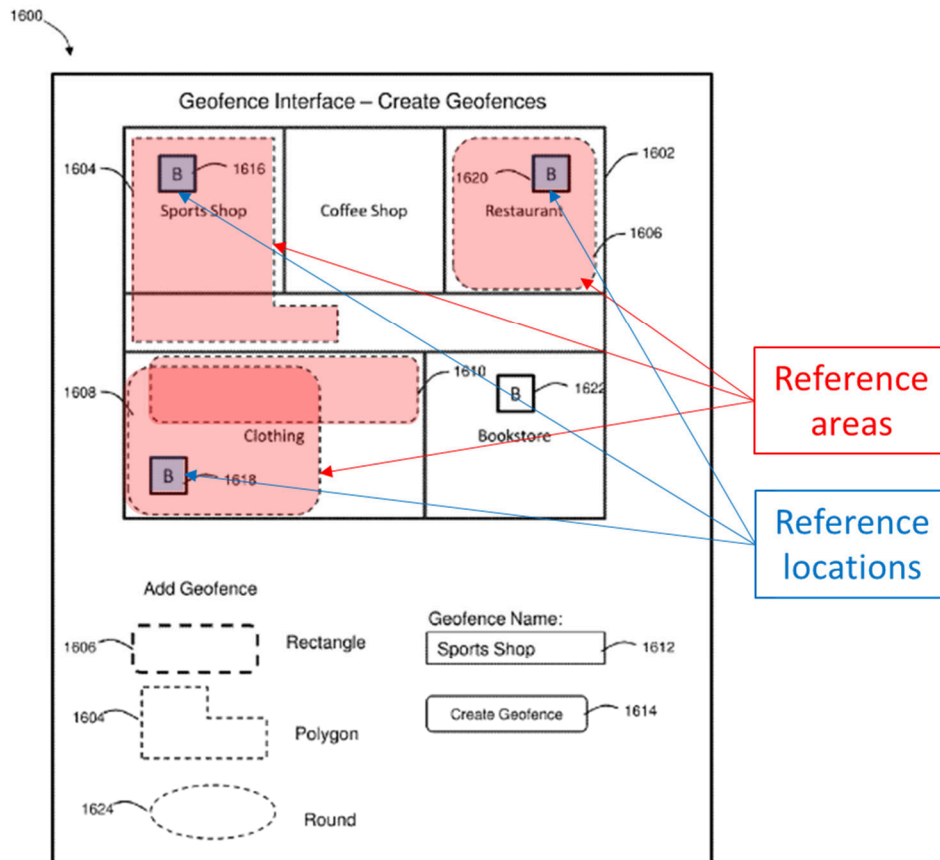


Figure 16

VA-1005, FIG. 16.

Kerr's disclosure is consistent with the '402 patent, which depicts an example environment in FIG. 3A (depicted below) that includes multiple reference areas (356 and 366) and reference locations (354 and 364). VA-1001, 12:14-43, FIG. 3A. Like Kerr, the '402 patent's reference locations are installed in, and associated with, a particular location (e.g., a household). *Id.*; VA-1003, ¶62.

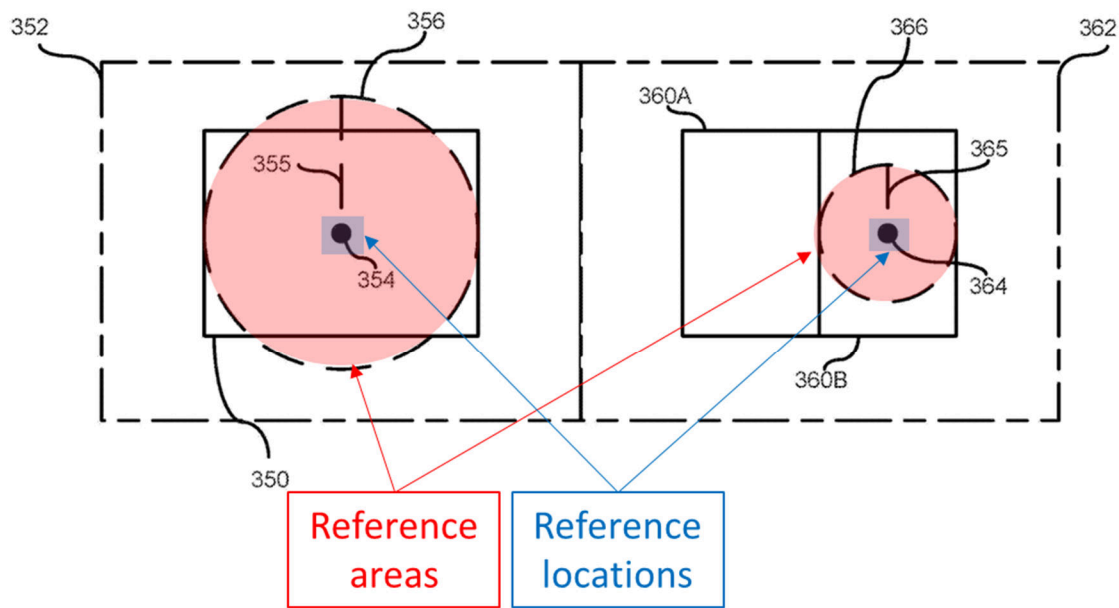


FIG. 3A

VA-1001, FIG. 3A.

during a time interval

Kerr renders this feature obvious in multiple ways. First, Kerr discloses that a “wireless device may transmit location messages at predefined intervals, such as one second intervals to one minute intervals, e.g. five second intervals” (“*a time interval*”). VA-1005, ¶¶[0217]-[0220], FIGS. 35A-35B. The location messages

indicate the location of the mobile phone for the defined time interval (and any content that was viewed during the time interval). *Id.* A POSITA would have understood that when the wireless device is located within a reference area associated with a reference location (e.g., a geofence associated with an establishment) it would transmit location messages at certain time intervals. *Id.*; VA-1003, ¶63. For example, with respect to FIG. 39 shown below, Kerr discloses an example where it is determined that a location message has been received while the mobile phone is “within a geofence,” and in response, “one or more content items associated with the geofence are displayed on the device content interface.” VA-1005, ¶¶[0305]-[0308], FIG. 39; VA-1003, ¶63.

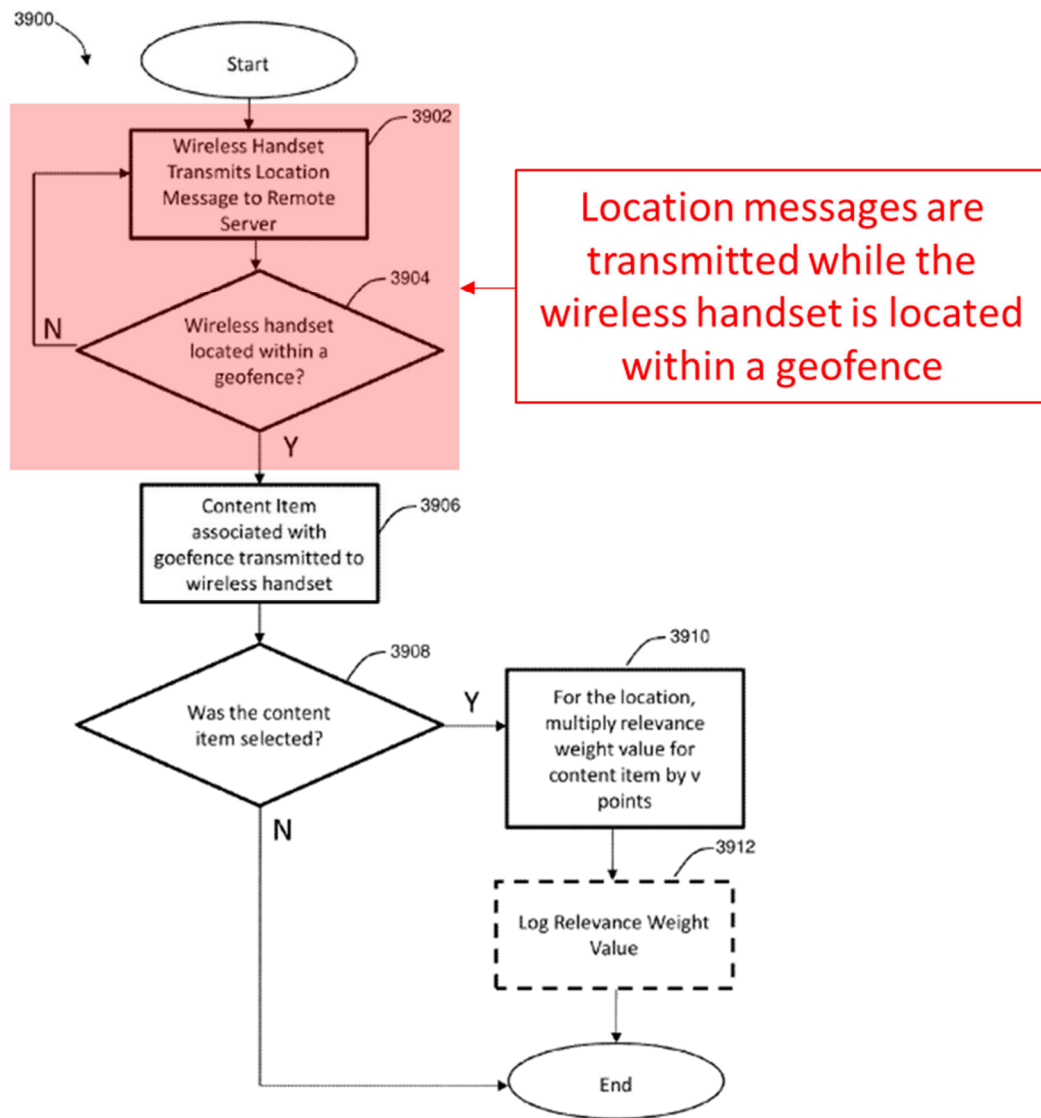


Figure 39

VA-1005, FIG. 39.

Second, Kerr discloses that a “content administrator” can define a time interval content is to be displayed within a geofence, which can take the form of “a time, date, time range, date range, day of the week, or other indication of time” (examples of “*a time interval*”). VA-1005, ¶¶[0230]-[0234], FIG. 13. Recall from

above in [1.3] that presented content is particular to a specific geofence. VA-1005, ¶¶[0213] (“if the wireless device is located within a geofence, content delivery module 1124 transmits content associated with the geofence to wireless device 1102”), [0242] (“When the wireless device location is determined to be within one of the geofences, content associated with the geofence is transmitted to the wireless device to define a content bubble.”); VA-1003, ¶64. FIG. 13 depicts example time intervals within which content is presented.

1300

Content Association Interface

Content Item

10% Off Ski Equipment

10% Off Ski Equipment

Entertainment Options Display

Entertainment Previews Video

Penguin Paddock Event

Restaurant List Menu

1302

User Attribute Category

Sport

No User Attribute Filter

Age

Age Range

Gender

Sport

1304

User Attribute Value

Skiing

Basketball

Croquet

Skiing

1306

Time

No Time Filter

No Time Filter

8 AM - Noon

Noon - 6 PM

6 PM - 10 PM

1308

Relevance Weighting

90

1310

Create Association

1312

Time intervals within which content is displayed

Figure 13

VA-1005, FIG. 13.

wherein the demographic information is based on a server:

Kerr's determination of a user's location is based on the operation of the "location determination module 1126," which "determines a location of the wireless device based on information received from or regarding wireless device 1102." VA-1005, ¶[0218], FIG. 11. Location determination module is part of "data processing module 1104," which "runs on a processor of a server." VA-1005, ¶¶[0216]-[0218], FIG. 11. Accordingly, because Kerr's accessing of user location ("**demographic information**") is based on the operation of computer modules on a server, "**the demographic information is based on a server**" performing the operations described below in [1.4]-[1.5]. *Id.*; VA-1003, ¶65.

[1.4] receiving a message sent from the mobile phone associated with the audience member, wherein the message comprises a geographic location of the mobile phone and an identifier associated with the mobile phone, wherein the identifier is associated with the demographic information, and wherein the geographic location of the mobile phone is derived from a positioning system of the mobile phone; and

Grounds 1A&2A

receiving a message sent from the mobile phone associated with the audience member

The user's mobile phone in Kerr periodically sends a "location message" to its computing system ("**a message sent from the mobile phone associated with the audience member**"). VA-1005, ¶¶[0218]-[0221], [0248], [0255]-[0257], [0301], FIGS. 22, 39. The mobile phone is a device owned by or is possessed by a

user in Kerr, and thus, is “*associated with the audience member.*” *Id.*; see also VA-1005, ¶¶[0013], [0016], [0098] (all describing the “user’s” smartphone); VA-1003, ¶66. Kerr’s “location determination module” receives the location message and determines the location of the user’s mobile phone based on the information in the location message (“*receiving a message sent from the mobile phone*”). VA-1005, ¶¶[0213], [0217]-[0219], FIG. 11A.

FIG. 39 below illustrates Kerr’s process of determining a user’s location based on a received location message, and FIG. 11A illustrates the location determination module in Kerr’s computing system.

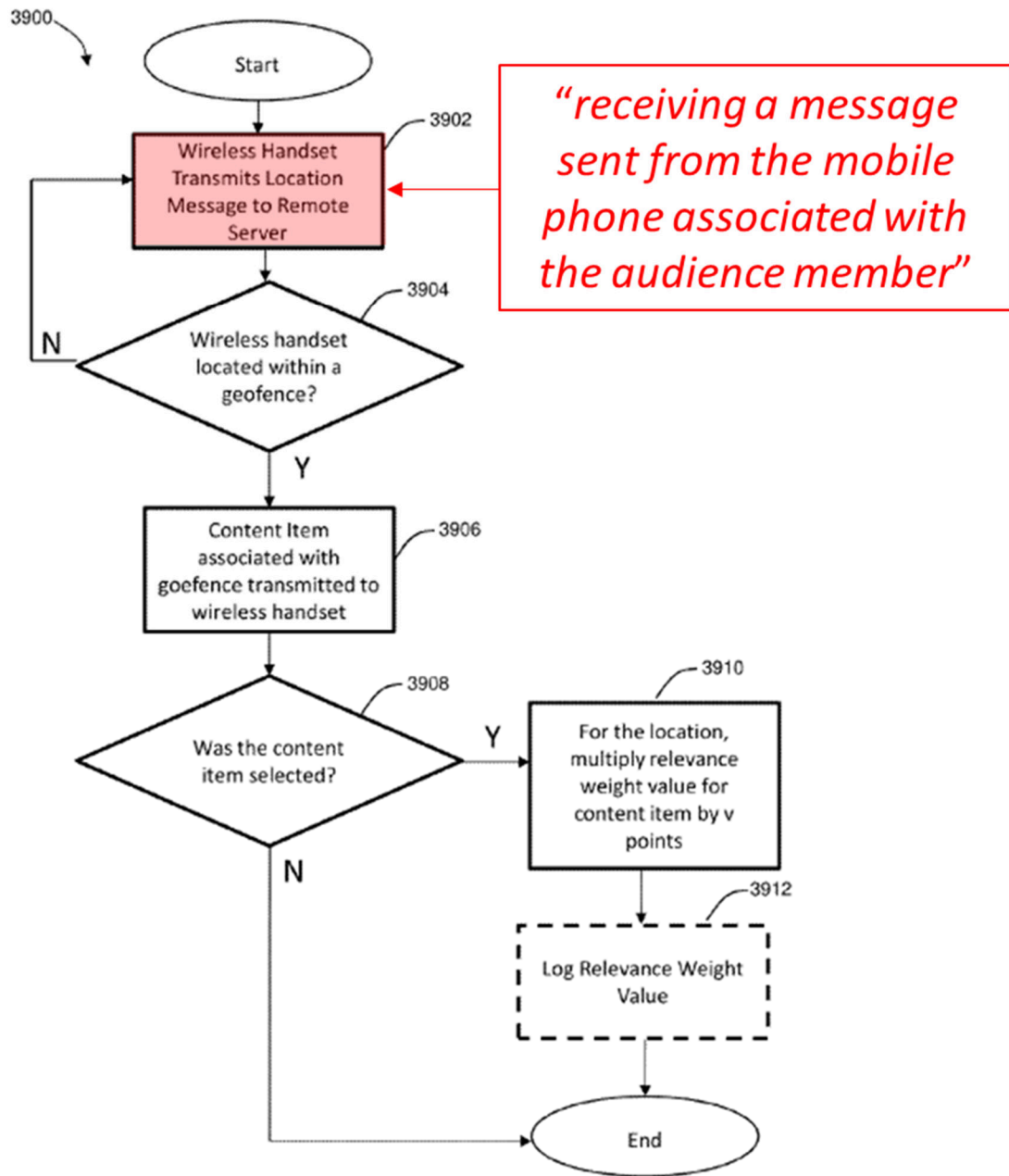


Figure 39

VA-1005, FIG. 39.

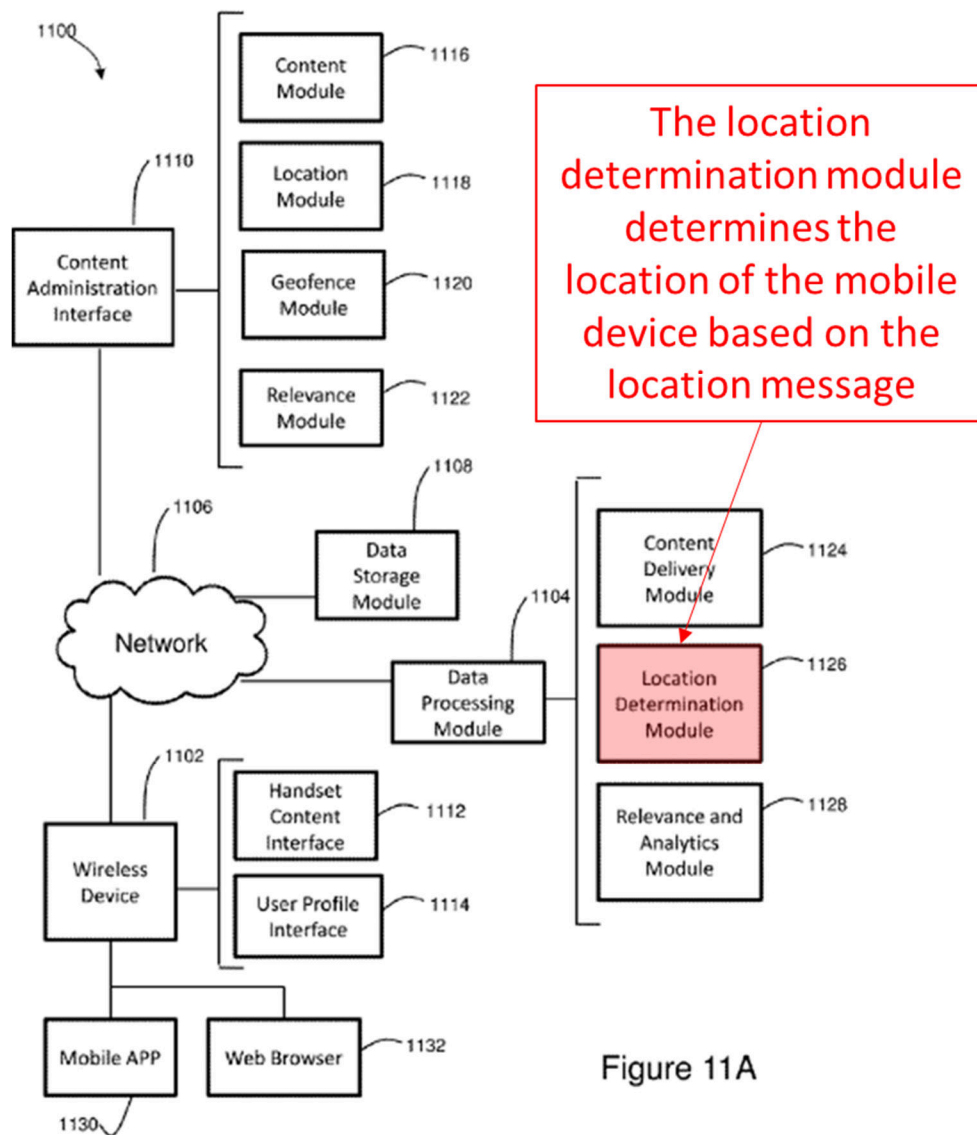


Figure 11A

VA-1005, FIG. 11A.

wherein the message comprises a geographic location of the mobile phone ... wherein the geographic location of the mobile phone is derived from a positioning system of the mobile phone

Kerr renders this feature obvious in multiple ways. First, in Kerr, the mobile phone's Global Positioning System ("GPS") system is used to provide GPS coordinates representing the user's location in a location message, which includes

“location information such as a Zip code, city, Global Positioning System (GPS) or other geographical coordinates.” (*“wherein the message comprises a geographic location of the mobile phone ... the geographic location of the mobile phone is derived from a positioning system of the mobile phone”*). VA-1005, ¶¶[0109], [0154], [0157], [0179], [0219], [0283], FIGS. 5-6. Kerr discloses that wireless devices included a “GPS module” (*“a positioning system of the mobile phone”*) to “provide a location.” VA-1005, ¶[0157], FIG. 6; VA-1003, ¶67. Shown below is an example wireless device capable of receiving content that includes a GPS module.

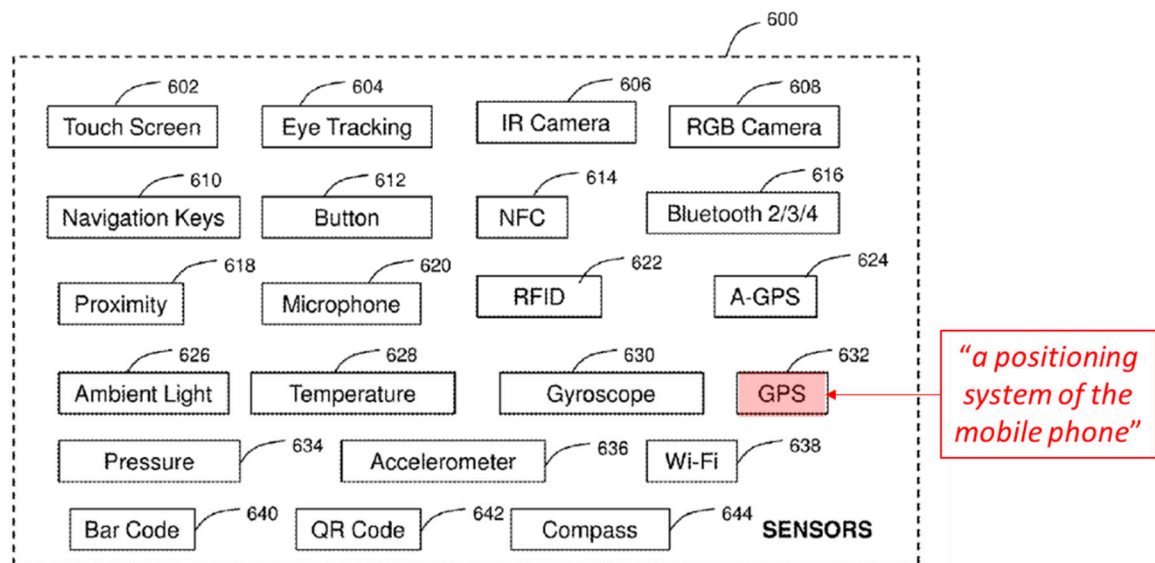


Figure 6

VA-1005, FIG. 6.

Dutton also corroborates that it was known as of the Benefit Date that mobile phones included GPS for determining the location of the mobile phone.

VA-1006, ¶¶[0003]-[0004], [0023], [0028], [0078]; VA-1003, ¶68.

Second, Kerr's location message can also include the Wi-Fi "signal strength" of beacon signals, which is used by the location determination module to triangulate the location of the mobile phone (*"wherein the message comprises a geographic location of the mobile phone ... the geographic location of the mobile phone is derived from a positioning system of the mobile phone"*).

VA-1005, ¶¶[0219]-[0221], [0248]-[0250], FIG. 22. Kerr discloses examples shown in FIGS. 20 and 21A (reproduced below) where the location module determines the location of a mobile phone based on the maximum detected Wi-Fi beacon signal strength from among a plurality of detected beacons (e.g., "-40 dB" corresponding to "Beacon 3,"). VA-1005, ¶¶[0248]-[0254], FIGS. 20, 21A-21D. This is consistent with the '402 patent, which describes wireless triangulation methods, including "Wi-Fi data." VA-1001, 9:29-39; VA-1003, ¶69.

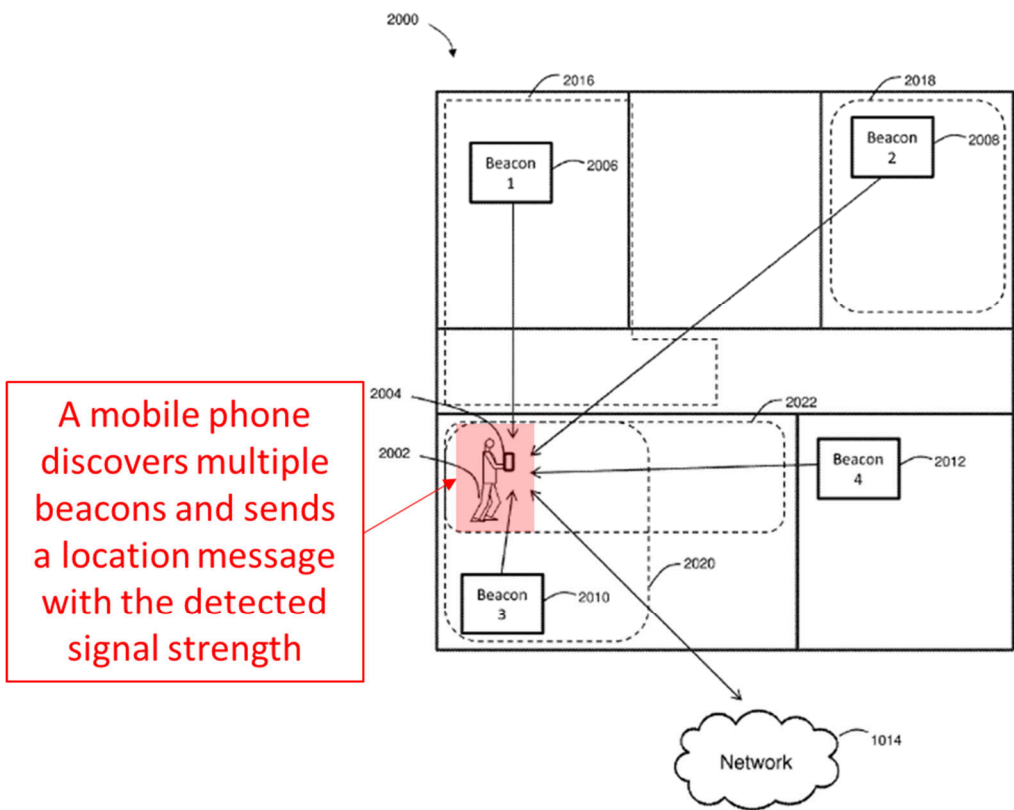


Figure 20

VA-1005, FIG. 20.

Position Determination by Maximum Received Signal Strength	
Example 17	
Beacon	Signal Strength
Beacon 1	-50 dB
Beacon 2	-60 dB
Beacon 3	-40 dB
Beacon 4	-55 dB

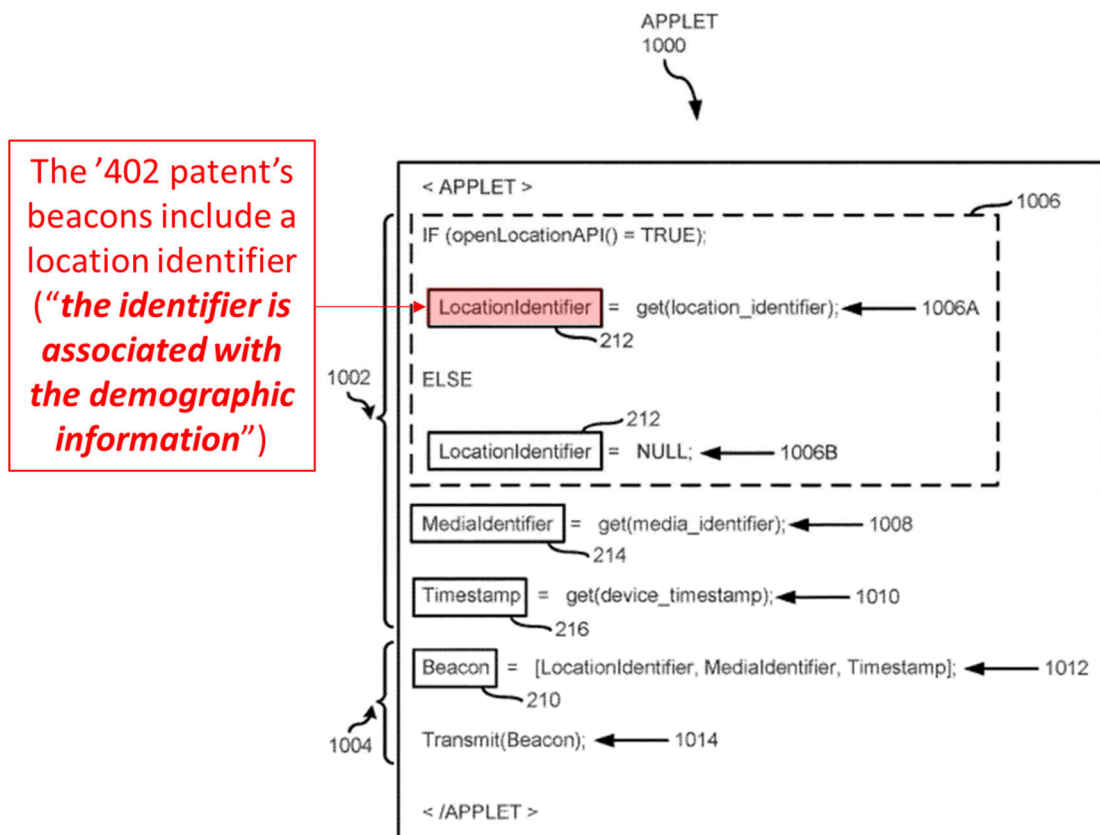
The location determination module determines the mobile phone is inside the geofence associated with beacon 3 based on signal strength

Figure 21A

VA-1005, FIG. 21A.

wherein the message comprises ... an identifier associated with the mobile phone, wherein the identifier is associated with the demographic information

The '402 patent describes that its messages include a “location identifier” (the claimed “*identifier*”) that is “*associated with the mobile phone*” (e.g., the phone sending the location message) and “*demographic information*” (e.g., the location of the mobile phone) (depicted below in FIG. 10). VA-1001, 22:15-60, FIG. 10; VA-1003, ¶70.



VA-1001, FIG. 10.

Consistent with the '402 patent, Kerr discloses that location messages also include a unique “Location_ID” associated with the mobile phone’s location, for

example, “a Zip code, city, GPS coordinates, or a distance range surrounding any of the preceding” (“*an identifier associated with the mobile phone, wherein the identifier is associated with the demographic information*”). VA-1005, ¶¶[0281]-[0283], [0301], [0305], FIG. 34; VA-1001, 22:15-60, FIG. 10. Kerr uses the Location_ID to associate the mobile phone’s location with a specific content presentation area, for example, a particular geofence. VA-1005, ¶¶[0281]-[0283]; VA-1003, ¶71. An example Location_ID is depicted in FIG. 34 below.

3400

Location_Content_Association	
Content_ID	00000001
Location_ID	22222222
Relevance_Weight	500

3402
3404
3406

Kerr's location identifiers are used to identify a particular location

Figure 34

VA-1005, FIG. 34.

A POSITA implementing Kerr’s techniques also would have found it obvious to include identifying information for the mobile phone in a location message (“*an identifier associated with the mobile phone*”) as (1) Kerr’s system serves content to many different mobile phones, and thus would need to distinguish them, and (2) Kerr targets the delivery of content based on a mobile-phone specific

“user profile.” VA-1005, ¶¶[0024] (disclosing that a “user profile may also include at least one user attribute that is associated with the wireless device”), [0083]-[0089] (disclosing that context “changes based on location and user profile”), [0096] (disclosing “associating local content with particular user profiles”), *see also* [0099], [0114]-[0122], [0163], [0166]-[0181], [0207], [0217], [0267], [0276]-[0280], [0328]-[0329], FIG. 45; VA-1003, ¶72. For example, Kerr discloses a user profile that includes both a unique “user id” and “ZIP code” and gives an example where a specific user (“user 12345678”) provides feedback for a specific piece of content. VA-1005, ¶¶[0276], [0288]-[0289], FIG. 30; VA-1003, ¶72.

Including mobile phone specific identifiers in Kerr’s location messages also would have been a well-known and predictable design choice, as it was well known before the Benefit Date that suitable mobile phone identifiers existed. VA-1016, 1-15; VA-1017, ¶¶[0029]-[0032]; *KSR*, 550 U.S. 398, 421 (“When there is a design need or market pressure to solve a problem and there are a finite number of identified, predictable solutions, a person of ordinary skill has good reason to pursue the known options within his or her technical grasp.”); VA-1003, ¶72.

For example, Mobile Equipment Identifiers (“MEIDs”) were used for identifying particular mobile phones on 3G networks before the Benefit Date (an example of a “cellular network,” as described by the ’402 patent). VA-1016, 1-15;

VA-1001, 6:19-24, 9:29-39. Accordingly, a POSITA would have found obvious that mobile phones in 3G networks would have included a MEID in sent messages (e.g., Kerr’s location messages) for the purpose of identifying the mobile phone to the network (“*an identifier associated with the mobile phone*”). *Id.* This is particularly obvious because the use of the MEID was established in 3GPP standard S.R0048-A. VA-1016, 1-15; VA-1003, ¶73.

As another example, an International Mobile Subscriber Identity (“IMSI”) was assigned to a unique “network user” in a Global System for Mobile communication network before the Benefit Date (“GSM” or “2G” networks – another example “cellular network”). VA-1017, ¶¶[0029]-[0032]; VA-1001, 6:19-24, 9:29-39. Jheng discloses that IMSIs were specific to a phone’s subscriber identity module (“SIM”), a common storage and authentication means associated with a particular mobile phone. *Id.* Accordingly, a POSITA would have found it obvious that mobile phones in a GSM network would have included the phone’s IMSI in sent messages (e.g., Kerr’s location messages) for the purpose of identifying the phone to the network (“*an identifier associated with the mobile phone*”). *Id.*; VA-1003, ¶74.

[1.5] determining that the geographic location of the mobile phone is within the reference area associated with the reference location by comparing the geographic location of the mobile phone to the reference area associated with the reference location, wherein the reference location is stored in a reference database;

Grounds 1A&2A

Kerr's location determination module uses the information in the location message to determine the location of the mobile phone with respect to a particular area, for example, a "geofence," as shown in FIG. 39 below (***"determining that the geographic location of the mobile phone is within the reference area associated with the reference location by comparing the geographic location of the mobile phone to the reference area associated with the reference location"***). VA-1005, ¶¶[0217]-[0219], [0248], [0250], [0255], [0301]-[0302], [0305]-[0307], FIGS. 11A, 22, 38-39; VA-1003, ¶75. As discussed above in [1.3], geofences are associated with beacon locations (e.g., a shop, merchant, or POI) (***"the reference area associated with the reference location"***). *Supra*, [1.3].

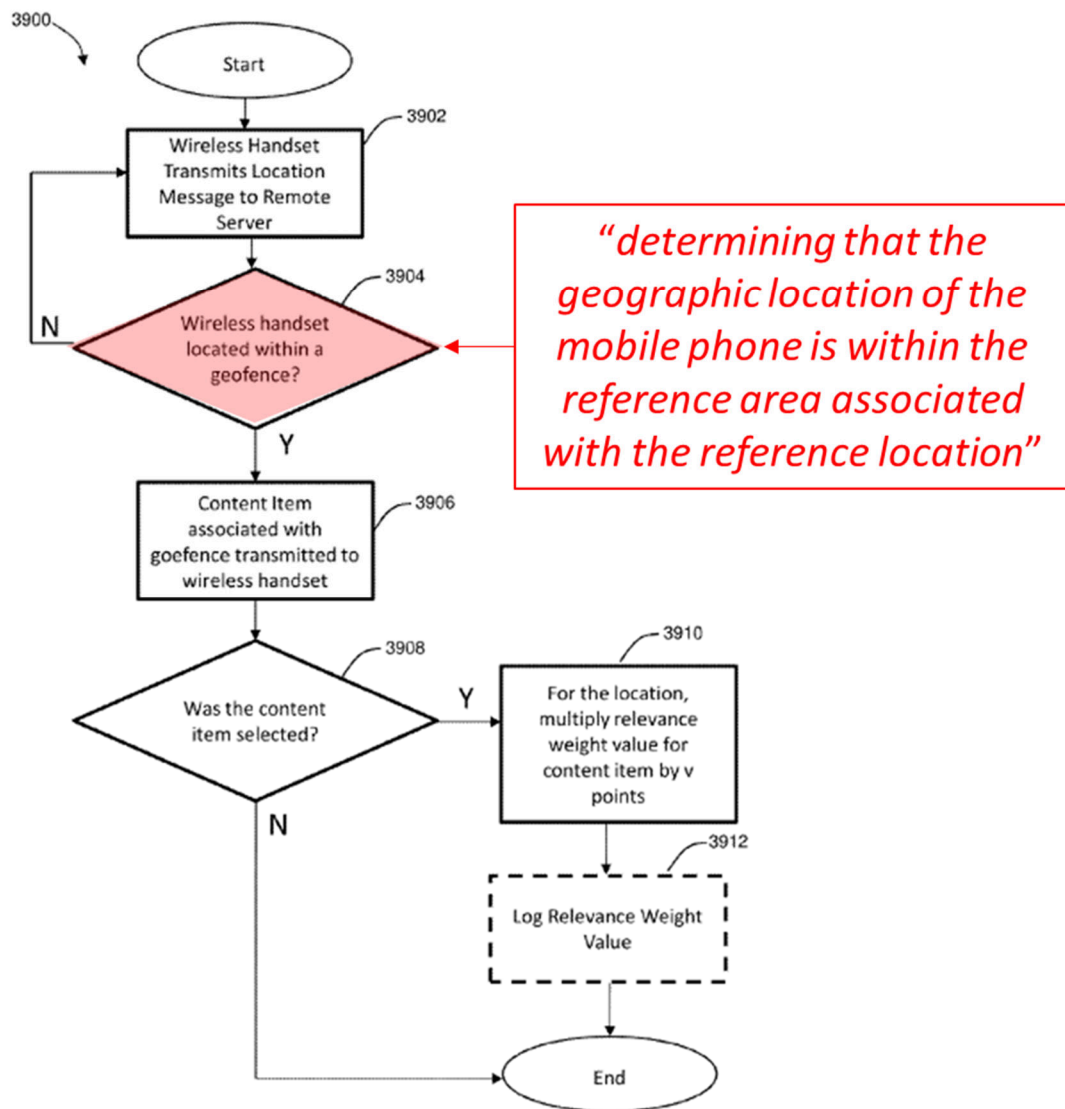
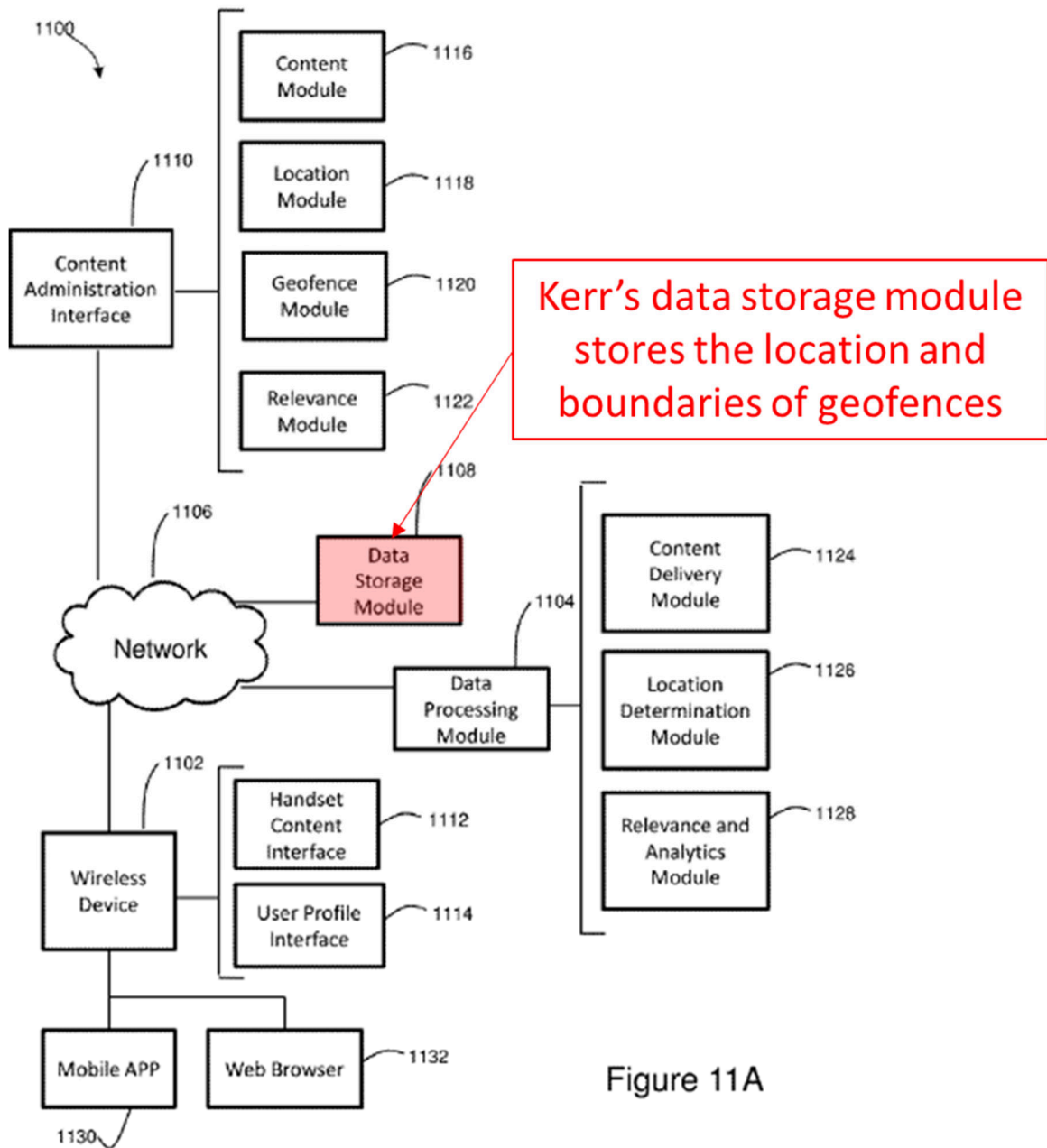


Figure 39

VA-1005, FIG. 39.

Additionally, Kerr discloses that map and geofence data is stored in a “data storage module” (“*a reference database*”). VA-1005, ¶¶ [0215], [0236]-[0244], [0262]-[0263], FIG. 11A. A POSITA would have understood and found obvious that Kerr’s data storage module is a database, consistent with the

meaning of the word “database” around the time of the Benefit Date. VA-1012 (“a large amount of information stored in a computer system in such a way that it can be easily looked at or changed”); VA-1013 (“large collection of data organized esp. for rapid search and retrieval (as by a computer)”); *see also* VA-1006, ¶¶[0100]-[0109]; VA-1003, ¶76. Indeed, Kerr’s data storage module is part of a computer system and stores information in the form of at least content and geofence data. VA-1005, ¶¶[0215], [0236]-[0244], [0262]-[0263], FIG. 11A; VA-1012. This information is then retrieved from the data storage module, by portions of Kerr’s computing system, when serving content and determining the location of a user’s mobile phone with respect to geofences. *Id.*; VA-1013; VA-1003, ¶76.



VA-1005, FIG. 11A.

[1.6] accessing media identifying information associated with media content presented within the reference area during at least a portion of the time interval; and

Grounds 1A&2A

Kerr accesses and “serves real-time, relevant content to a mobile user” (“*accessing media identifying information associated with media content*”) when it is determined that the user’s mobile phone is within a geofence. VA-1005, ¶¶[0092], [0217]-[0219], [0248], [0250], [0255], [0301]-[0302], [0305]-[0307], FIGS. 11A, 22, 38-39; VA-1003, ¶77. This process is depicted below in FIG. 39. Kerr’s served content is associated with “*media identifying information*” for multiple reasons, explained below.

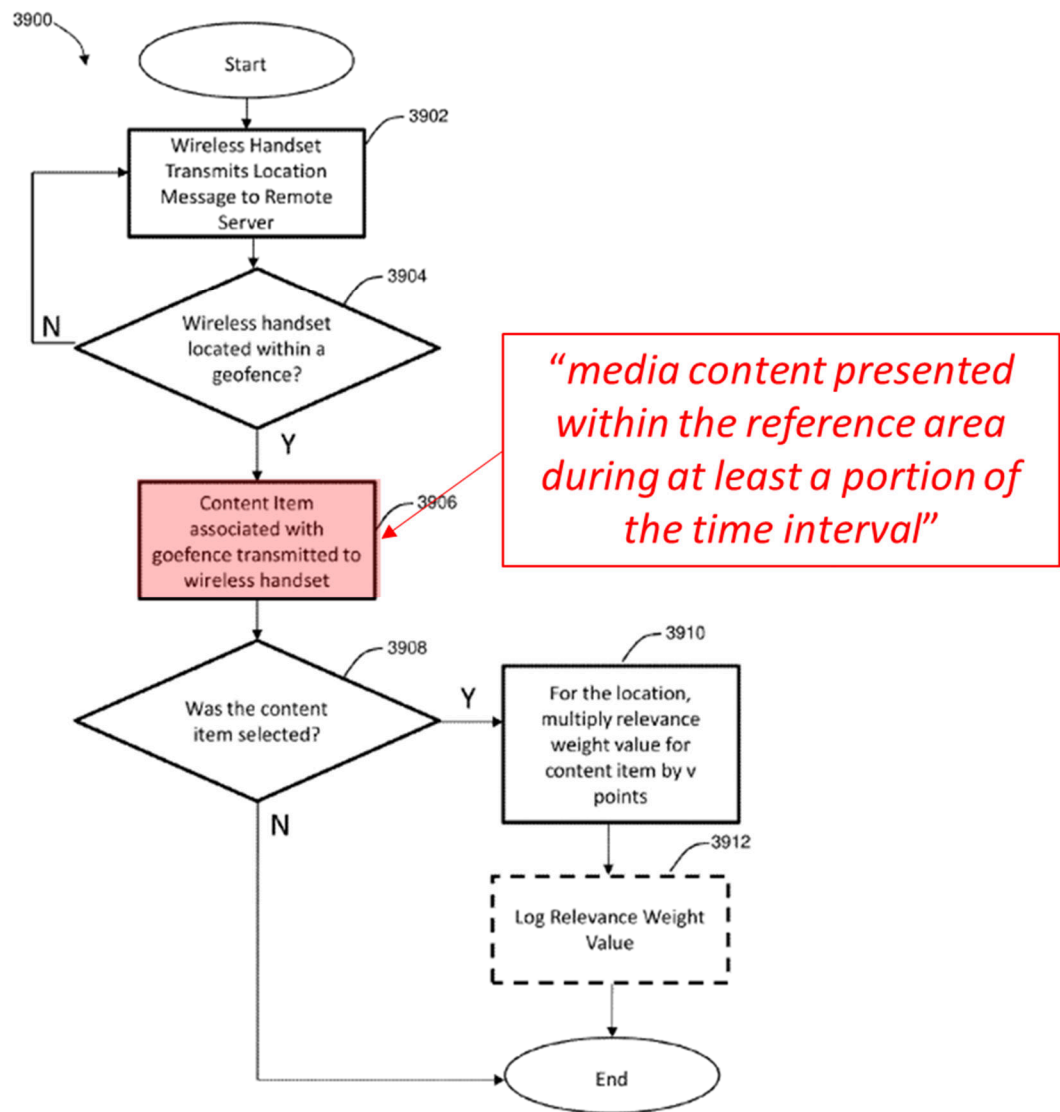


Figure 39

VA-1005, FIG. 39.

First, consistent with the '402 patent, Kerr discloses that content accessed and served by Kerr's system is identified by "a uniform resource locator (URL)" and "a link to another content item" (individually or collectively "*media identifying information*"), and as discussed above in [1.3], that these identifiers

link to content that is “associated with the geofence” surrounding the mobile phone (*“associated with media content presented within the reference area during at least a portion of the time interval”*). VA-1005, ¶¶[0024], [0101]-[0103], [0123], [0167], [0171], [0213], [0226], [0284], FIG. 12; VA-1001, 14:25-28 (“For example, the tagged impression logger 408 may identify a media source from which the media was received (e.g., ... a URL, etc.)”), 20:50-65 (“For example, the beacon parser 404 may extract a requested media identifier (e.g., a URL address)”); *supra*, [1.3]; VA-1003, ¶78. Dutton further corroborates that content is typically displayed within the area to which it is relevant. VA-1006, ¶[0094] (recognizing an affinity of beverage advertisements displayed in a transportation hub); VA-1003, ¶78. Kerr’s FIG. 12 below displays an example content item (*“media content”*), including various *media identifying information*.

1200

Content Item Editor

Content Item Description

10% Off Ski Equipment

1202

Parent Content Item

Sports Shop Sales

No Parent Content Item
Entertainment Options Display
Entertainment Previews Video
Penguin Paddock Event
Sports Shop Sales

1204

Content Item Type

Text

Display
Image/Audio/Video
URL
Text

1206

Content Item Text

Today's Deals at the Sports Shop

1208

Content Item File

1210

Browse...

1212

Content Item URL

http://

1214

Save Changes

1216

Media identifying information

Figure 12

VA-1005, FIG. 12.

By way of example, Kerr describes an instance where a user is determined to be within the geofence of a clothing store, and in response, a 20% off coupon is pushed to the user's mobile phone ("*media content presented within the reference area during at least a portion of the time interval*"). VA-1005, ¶[0101]. In

another example, Kerr describes that a promotion for “10% Off Ski Equipment” is transmitted to the user’s mobile phone when it is determined they are within a geofence for a “Sports Shop.” VA-1005, ¶¶[0284], [0279]-[0280]; VA-1003, ¶79.

Second, like the ’402 patent, Kerr explicitly discloses that content items are given a unique “Content_ID” which is referenced when establishing and adjusting the relevance of content, for example, the “10% Off Ski Equipment” promotion discussed above (“content item 00000001 is the content item ‘10%OffSki Equipment’”) (“*media identifying information associated with media content*”). VA-1005, ¶¶[0279]-[0290], [0294]-[0305], FIGS. 33-35A; VA-1003, ¶80. An example Content_ID is depicted below in FIG. 34, along with its relevance to a location. Also depicted is FIG. 10 of the ’402 patent, showing a similar “media identifier” (“*media identifying information*”).

3400

Location_Content_Association	
Content_ID	00000001
Location_ID	22222222
Relevance_Weight	500

3402

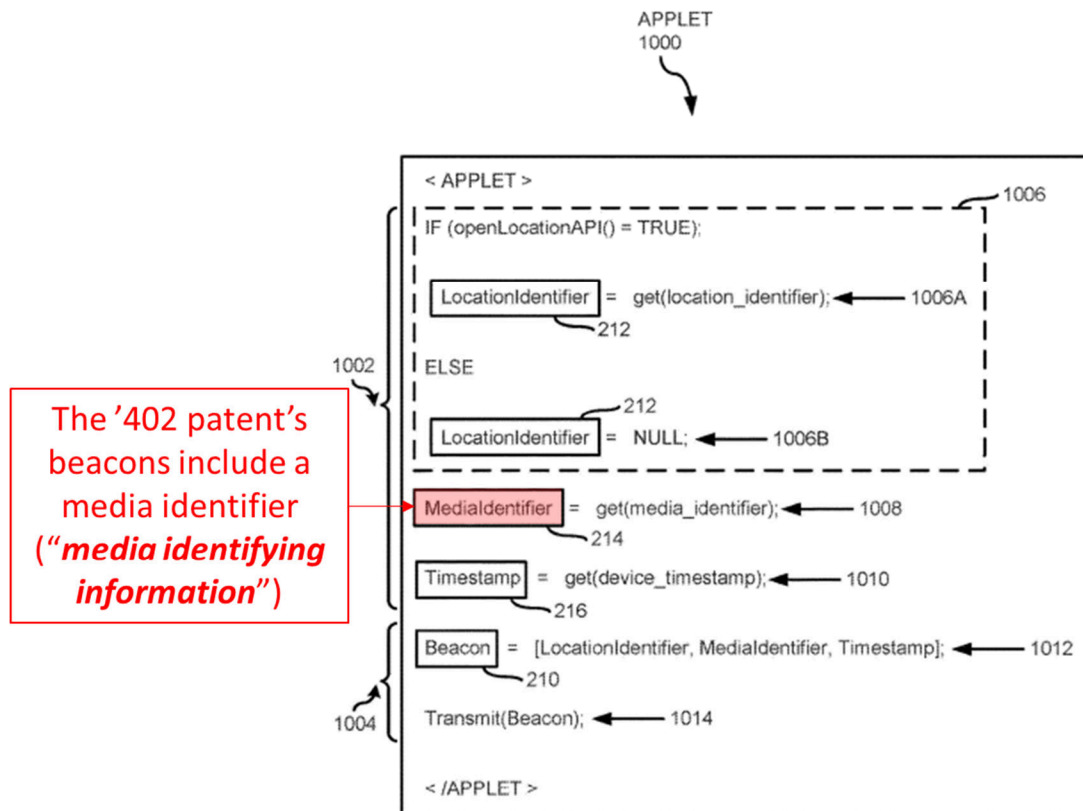
3404

3406

Kerr's content identifiers are used to distinguish pieces of content

Figure 34

VA-1005, FIG. 34.



VA-1001, FIG. 10.

[1.7] associating the media identifying information with the demographic information responsive to determining that the media content was presented within the reference area during at least the portion of the time interval.

Ground 1A

Kerr's computing system includes a relevance and analytics module 1128 that "adjusts the relevance weight value associated with a content item" for a location ("***associating the media identifying information with the demographic information***") based on user feedback, for example, by determining "if a content item transmitted to the wireless device was selected" ("***responsive to determining***

that the media content was presented within the reference area during at least the portion of the time interval"). VA-1005, ¶¶[0222], [0234], [0267], [0287]-[0308], FIGS. 29, 34, 36-39. For example, Kerr discloses that, once determining that a piece of content presented within the geofence was selected, "a point value v is multiplied by the value of the Relevance Weight field of the Location Content Rating entry having a Content ID value matching the content item identifier and an [sic] Location ID value matching the location identifier" ("*associating the media identifying information with the demographic information responsive to determining that the media content was presented*"). VA-1005, ¶[0305], FIG. 29, 34, 39; VA-1003, ¶81. FIG. 34, depicted below, shows an example "Location_Content_Association" where content has been assigned a "Relevance_Weight" (an "*associat[i]on*") to a "Location_ID" (an identifier representing "*demographic information*") and "Content_ID" ("*media identifying information*"), FIG. 39 depicts a process where the "Relevance_Weight" of content to a "Location_ID" is adjusted after receiving user feedback following the displaying of that content, and FIG. 29 depicts example values (e.g., "value v") for adjusting the Relevance_Weight of a particular piece of content.

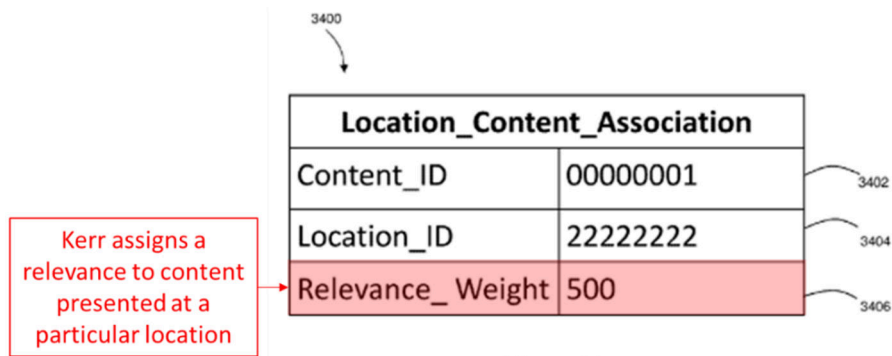


Figure 34

VA-1005, FIG. 34.

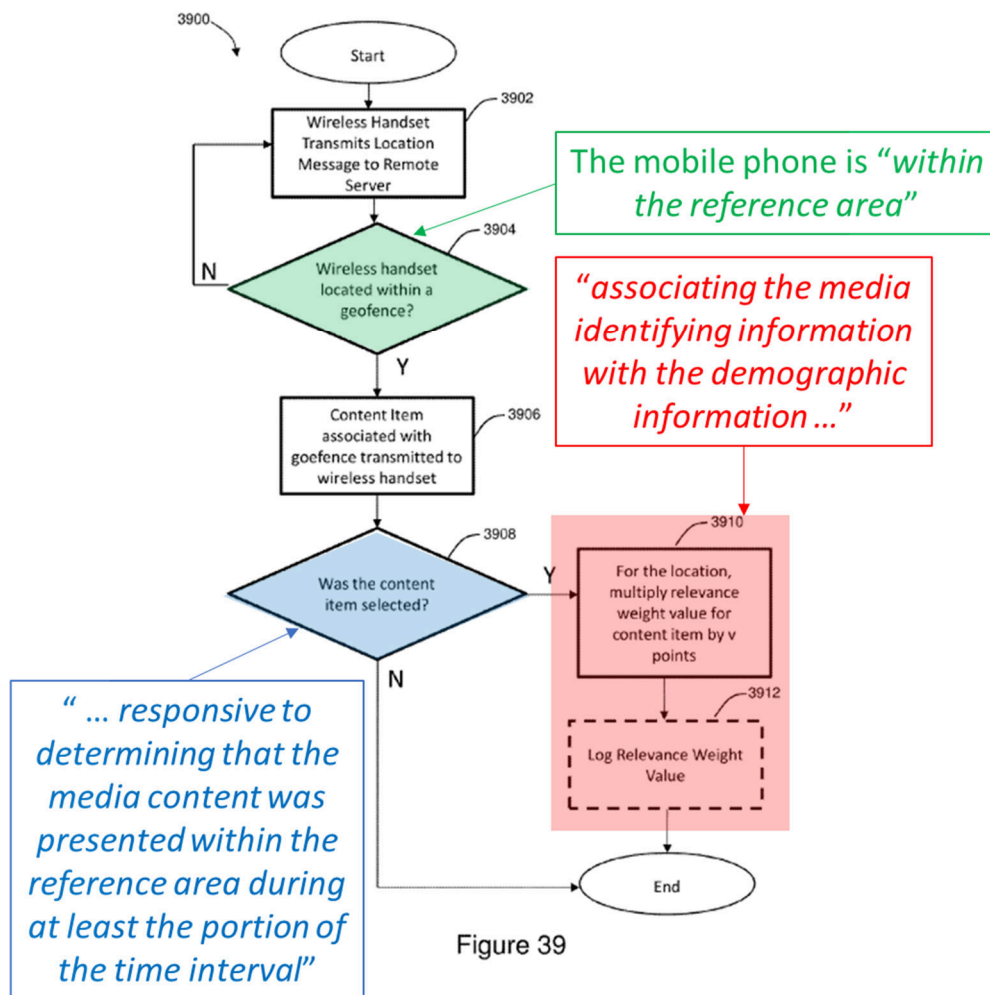


Figure 39

VA-1005, FIG. 39.

2900

Relevance Interface

Relevance Weight Adjustments for Positive/Negative Feedback

Content Rating for Attribute Groups Associated with User Providing Response

Increment By ²⁹⁰² Relevance Weight Points for Positive Feedback

Decrement By ²⁹⁰⁴ Relevance Weight Points for Negative Feedback

Content Rating for Content Item

Increment By ²⁹⁰⁶ Relevance Weight Points for Positive Feedback

Decrement By ²⁹⁰⁸ Relevance Weight Points for Negative Feedback

Click Through Relevance Weight Adjustments

Serves to Trigger Decrement ²⁹¹⁰ Unique Content Serves

Decrement Value (All Users) ²⁹¹² Relevance Weight Points

Decrement Value (Attribute Groups Associated with User Providing Response) ²⁹¹⁴ Relevance Weight Points

Unique Serve Interval Definition ²⁹¹⁶ Minutes

Click Through Increment Value (All Users) ²⁹¹⁸ Relevance Weight Points

Click Through Increment Value (Attribute Groups Associated with User Providing Response) ²⁹²⁰ Relevance Weight Points

Location Relevance Weighting Adjustments

Location Relevance Multiplier ²⁹²² Relevance Value Multiplier

Figure 29

Kerr adjusts a location-based relevance weighting based on feedback

VA-1005, FIG. 29.

Additionally, Kerr also discloses that the “relevance weight value for the

association of content item with the location” (“*associating the media identifying information with the demographic information*”) can be adjusted for “all users” based on specific user feedback (shown below in FIG. 37). VA-1005, ¶[0300], FIG. 37; VA-1003, ¶82. For example, FIG. 37 depicts an example where a content item’s relevance is lowered for a location responsive to determining that it has not been selected by a user after a specified number of times. *Id.*

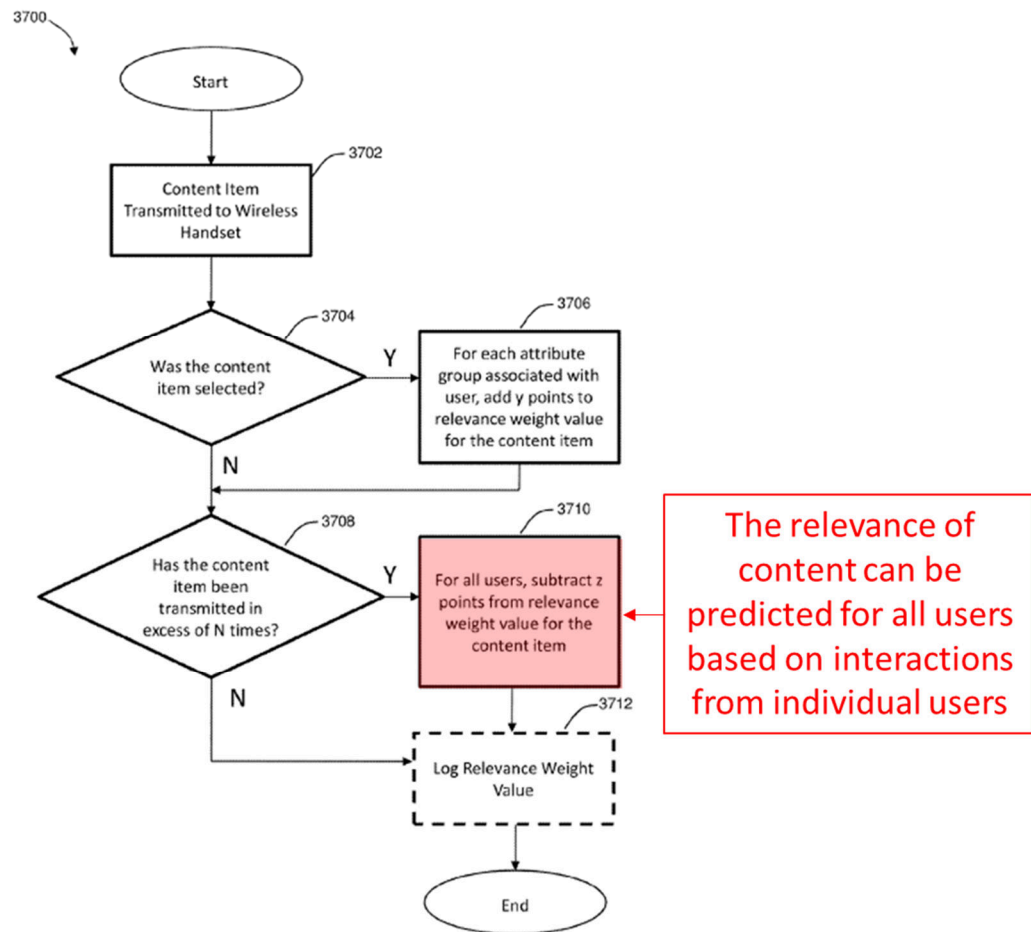


Figure 37

VA-1005, FIG. 37.

Ground 2A

Like Kerr, Dutton also explicitly discloses that the relevance of a content item can be determined by discovering where that content was presented. VA-1006, ¶¶[0071], [0094]; VA-1003, ¶83. Specifically, Dutton discloses “learning” techniques that determine a location’s relevance to a piece of content, particularly in examples where the initial relevance of the content to that location may not be known (“*associating the media identifying information with the demographic information responsive to determining that the media content was presented within the reference area during at least the portion of the time interval*”). For example, Dutton describes that it can be determined that “in Airports a users [sic] always has a high interest in ordering beverages” and thus “this affinity may be recognized specifically when the user is in a transportation hub.” *Id.*

[2] The computing system of claim 1, wherein the positioning system of the mobile phone is a global positioning system.

As discussed above in [1.4], Kerr explicitly discloses that the position of a mobile phone can be determined using a “*global positioning system*.” *Supra*, [1.4]; VA-1005, ¶¶[0109], [0154], [0157], [0179], [0219], FIGS. 5-6. Dutton also corroborates that it was known as of the Benefit Date that mobile phones included GPS. VA-1006, ¶¶[0003]-[0004], [0023], [0028], [0078]; VA-1003, ¶84.

[3] The computing system of claim 1, wherein the positioning system of the mobile phone is a wireless network positioning system.

Kerr's location message includes the Wi-Fi "signal strength" ("***a wireless network***") of discovered beacons detected by the user's mobile phone ("***the positioning system of the mobile phone ...***"), which are used to triangulate the phone's position ("***... is a wireless network positioning system***"). VA-1005, ¶¶[0136]-[0142], [0219]-[0221], [0248]-[0250], FIGS. 5, 22; *supra*, [1.4]. Kerr also discloses various examples of wireless networks that a POSITA would have recognized constitute a ***wireless network positioning system***, for example, "Wi-Fi, Bluetooth, or other wireless standards such as an access point or femtocell." *Id.*; VA-1003, ¶85. This is consistent with the '402 patent, which describes wireless positioning methods using "Wi-Fi data." VA-1001, 9:29-39. Dr. Williams also confirms that it was known before the Benefit Date that these wireless standards were used to determine the location of mobile devices. VA-1007, 9; VA-1003, ¶85. For example, the 3G wireless standard as of January 2000 describes managing a user's location information. *Id.*

[4] The computing system of claim 1, wherein the reference area is defined by a geographic boundary that encompasses the reference location, and wherein the reference area is shaped as at least one of: a circle or a polygon.

Kerr's geofences ("***the reference area***") can encompass the reference location (e.g., a shop) ("***the reference area is defined by a geographic boundary***"),

that encompasses the reference location”), and can be defined in various shapes (including a “*polygon*” and a “round” shape—an example of which would have been a “*circle*” (“*the reference area is shaped as at least one of: a circle or a polygon*”)). VA-1005, FIGS. 16-20; VA-1003, ¶86. An example geofence is shown in FIG. 16 below.

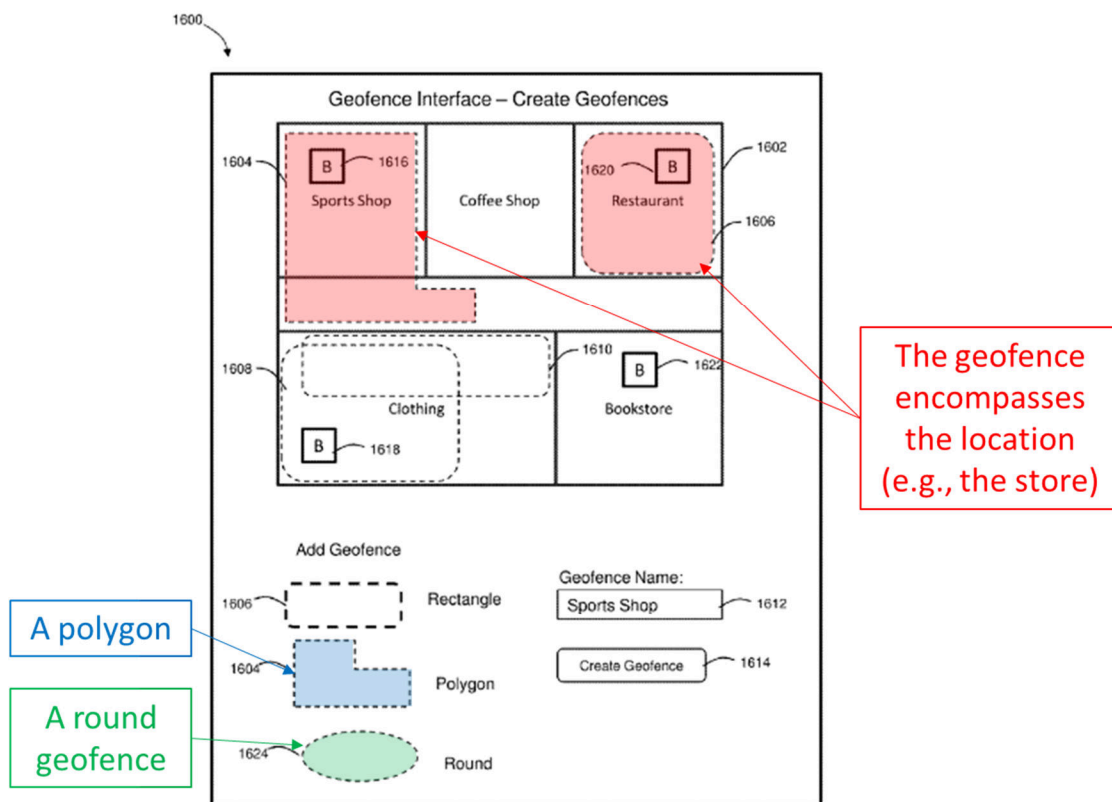


Figure 16

VA-1005, FIG. 16.

[5] The computing system of claim 1, wherein the reference location is a gym.

A POSITA would have recognized and found obvious that a gym is a “a

place of business” (discussed below in [6]), and thus, Kerr’s techniques would have been extended to include gyms. *Infra*, [6]; VA-1003, ¶87.

Additionally, Dutton explicitly discloses that places of interest (“POIs”), shown in FIG. 3 below, can include “Sports & Recreation” facilities, a category which a POSITA would have understood and found obvious include “*gyms*.” VA-1006, FIG. 3. For example, Grokop teaches that it was known that demographic information was collected from mobile phones in various “environments,” to include a gym. VA-1018; ¶¶[0025]-[0028], [0034] (“a category for working out at the gym”). In the Kerr-Dutton combination, as discussed above, Kerr’s geofences would have been extended to Dutton’s POIs, including sports facilities like gyms. *Supra*, §III.A.3; VA-1003, ¶88.

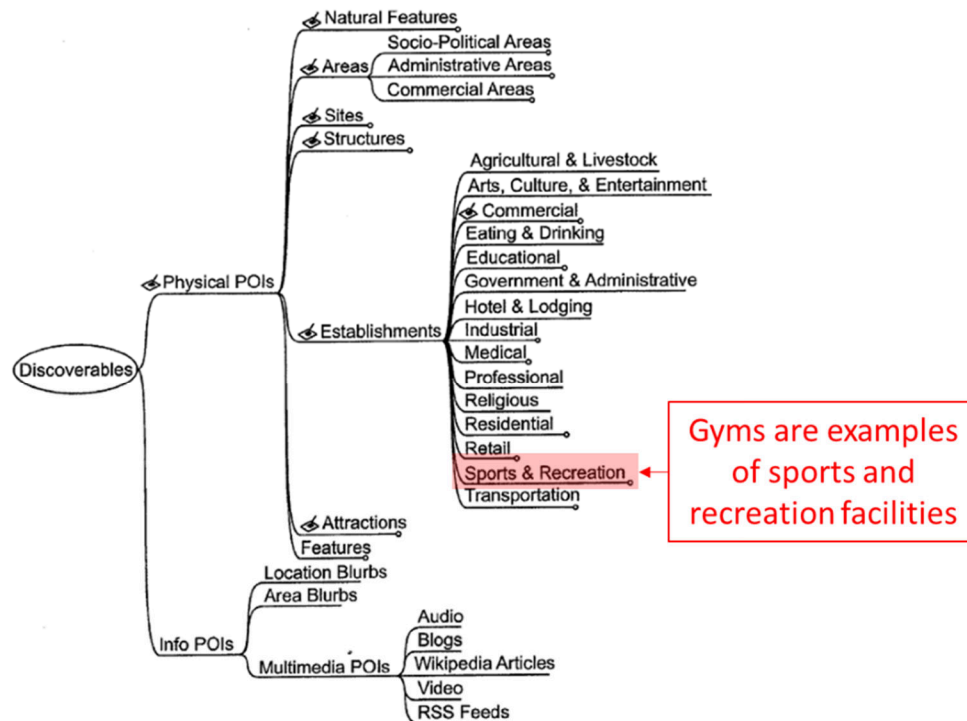


FIG. 3

VA-1006, FIG. 3.

[6] The computing system of claim 1, wherein the reference location is a place of business.

As shown below in FIG. 16, Kerr's locations include shops and various places of business (“*wherein the reference location is a place of business*”).

Supra, [5]; VA-1005, FIGS. 16-20; VA-1003, ¶89.

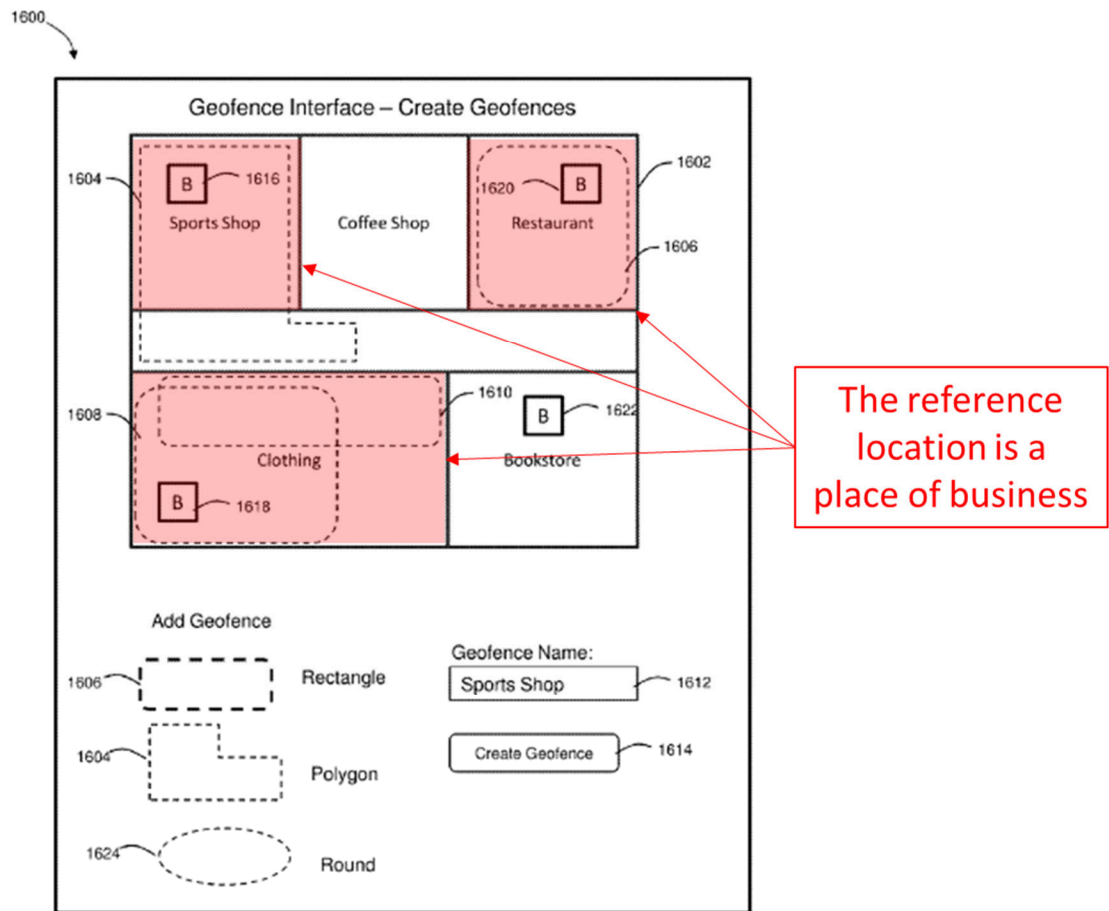


Figure 16

VA-1005, FIG. 16.

[7] The computing system of claim 1, wherein the reference area defines a media exposure environment associated with the reference location, and wherein the media identifying information is associated with media content presented at the media exposure environment while the mobile phone is within the reference area.

As discussed above in [1.3], Kerr’s geofences (“*the reference area*”) define an environment within which a user is exposed to media content (“*wherein the reference area defines a media exposure environment*”

associated with the reference location”). *Supra*, [1.3]; VA-1005, ¶¶[0242]-[0243], FIG. 16. For instance, using the geofence content association interface 1700 shown in FIG. 17 (reproduced below), a “content administrator may use the geofence content association interface to create an association between a geofence and one or more content items. To create the association, the content administrator selects a geofence identifier from geofence drop down menu 1702 and one or more content items from content item list 1704.” VA-1005, ¶[0243]; VA-1003, ¶90.

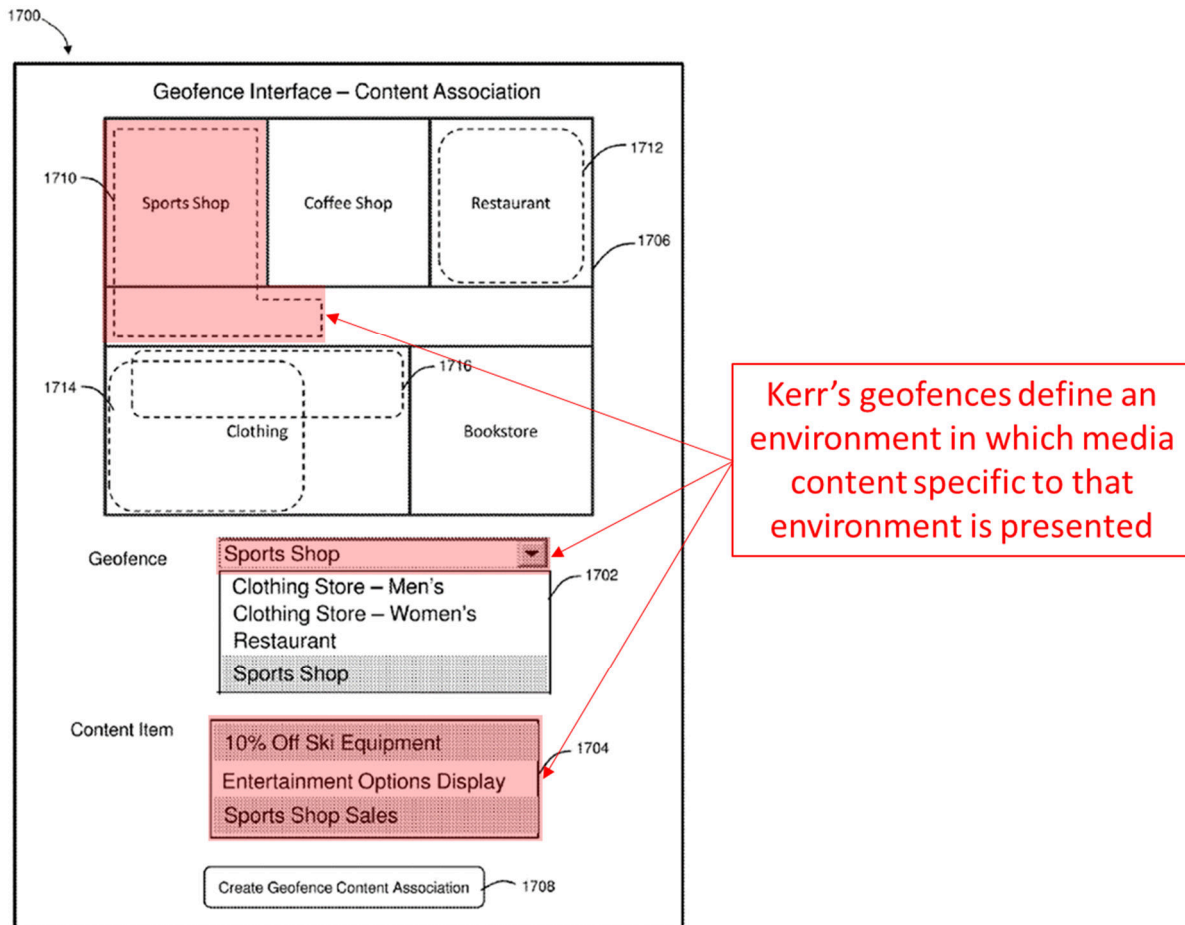


Figure 17

VA-1005, FIG. 17.

Additionally, as discussed above in [1.6], a Content_ID is associated with content displayed at the particular location while the user is inside the geofence. Accordingly, Kerr provides “*wherein the media identifying information is associated with media content presented at the media exposure environment while the mobile phone is within the reference area.*” VA-1005, ¶¶[0279]-[0290], [0294]-[0305], FIGS. 33-35A; VA-1003, ¶91.

[9] The computing system of claim 1, wherein the set of operations further comprises retrieving the media identifying information corresponding to media content accessed at the reference location while the mobile phone is within the reference area.

As discussed above in [1.6], Kerr serves a particular piece of content, associated with a Content_ID and URL, (“*the media identifying information corresponding to media content accessed at the reference location*”) to the user while they are inside the associated geofence (“*while the mobile phone is within the reference area*”). VA-1005, ¶¶[0024], [0101], [0117], [0123], [0167], [0171], [0226], FIG. 12; *supra*, [1.6]. For example, Kerr describes an example where a user is pushed content (“a 20% off coupon”) to “entice her to make a purchase” in a clothing store. *Id.* A POSITA would have recognized and found obvious that, to subsequently server content links (e.g., URLs) to a user’s mobile phone, Kerr’s computing system would have “*retriev[ed]*” content links before serving the content links. *Id.*; VA-1003, ¶92. For example, Kerr discloses that

content is stored in data storage module 1108, which “comprises one or more databases communicatively coupled to network 1106.” VA-1005, ¶[0215], FIG.

11. Content stored remotely in a remote database would have been retrieved over network 1106 before being served to a mobile phone. *Id.*; VA-1003, ¶92.

[10] The computing system of claim 1, wherein the set of operations further comprises associating a timestamp with the media identifying information, wherein the timestamp indicates a time at which media content corresponding to the media identifying information is accessed at the reference location.

Kerr associates “a time item” (“*associating a timestamp*”) to when “the relevance weight for a content item changes,” as depicted in FIG. 35A below for a particular Content_ID (“*the media identifying information*”). VA-1005, ¶¶[0266], [0285], FIGS. 35A-35B. Because the change of a relevance weight for a piece of content is responsive to the viewing of that content, as discussed above in [1.7], a POSITA would have recognized and found obvious that the timestamp of FIG. 35A correlates to when that content corresponding to the Content_ID was viewed by the mobile phone in the particular location (“*the timestamp indicates a time at which media content corresponding to the media identifying information is accessed at the reference location*”). VA-1005, ¶¶[0266], [0285], FIGS. 35A-35B; *supra*, [1.7]; VA-1003, ¶93. FIG. 35A of Kerr depicts a time interval when a user viewed a specific piece of content. *Id.*

3500

Kerr assigns a timestamp to when content was viewed

Content_Rating_Time	
Content_ID	00000001
Time	2011-03-28 11:01
Relevance_Weight	95

3502

3504

3506

Figure 35A

VA-1005, FIG. 35A.

Claims 12-16, 18-19, 21-26, and 28-29

The claims below are rendered obvious for the same reasons as discussed in the corresponding claim indicated in the table below. VA-1003, ¶94. To the extent [21.pre] is limiting, both Kerr and Dutton disclose that their techniques can be embodied in a ***method***. VA-1005, ¶¶[0028], [0058], [0171], [0255], [0264], FIGS. 22, 28; VA-1006, ¶¶[0022]-[0024], [0080], Claim 1.

Claim	Corresponding Claim
[12.pre]	[1.pre]-[1.2]
[12.1]	[1.3]
[12.2]	[1.4]
[12.3]	[1.5]
[12.4]	[1.6]
[12.5]	[1.7]

[13]	[4]
[14]	[5]
[15]	[6]
[16]	[7]
[18]	[9]
[19]	[10]
[21.1]	[1.3]
[21.2]	[1.4]
[21.3]	[1.5]
[21.4]	[1.6]
[21.5]	[1.7]
[22]	[2]
[23]	[4]
[24]	[5]
[25]	[6]
[26]	[7]
[28]	[9]
[29]	[10]

B. [GROUND 1B/2B] – Claims 8, 17, and 27 are rendered obvious by Kerr-Thomassen and Kerr-Dutton-Thomassen

1. Thomassen

Thomassen discloses techniques for associating a “geographic region” with a building “offering goods and/or services,” where the size and shape of the geographic region is determined “based on a type and/or location of the building or attraction.” VA-1021, Abstract, ¶¶[0022], [0030], [0055]-[0056]. Thomassen discloses that this determination is beneficial for the purpose of geographically-relevant advertising, as advertisements within the geographic area proximate to the user are “assumed to be of potential relevance to a person found within the region.” VA-1021, ¶¶[0020], [0030]; VA-1003, ¶39.

2. Combination of Kerr and Thomassen (with or without Dutton)

- (a) Kerr, Dutton, and Thomassen are analogous art to the '402 patent

As discussed above in §III.A.3, Kerr and Dutton are analogous art to the '402 patent. *Supra*, §III.A.3. Additionally, Thomassen is analogous art to the '402 patent, which is generally directed to “audience measurement.” VA-1001, 1:25-27 (Field of the Disclosure). Thomassen generally describes techniques for geographically-relevant advertising where a geographic region associated with a building offering goods and/or services is determined “based on a type and/or location of the building or attraction.” VA-1021, Abstract, ¶¶[0022], [0030],

[0055]-[0056]; *Graham v. John Deere Co.*, 383 U.S. 1 (1966); VA-1003, ¶95.

Accordingly, Thomassen is directed to the field of audience measurement at least because Thomassen is concerned with serving relevant content to the public (audience members) based on their proximity to a place of business. *See, e.g., Id.*

Thomassen is also reasonably pertinent to the problem the inventor of the '402 patent was attempting to solve. For instance, like the '402 patent, Thomassen is directed to measuring “audience exposure and/or interaction with online media accessed by users.” VA-1001, 2:30-34; VA-1008, ¶¶[0003], [0027]-[0038]; *Circuit Check, Inc. v. QXQ Inc.*, 795 F.3d 1331, 1335 (Fed. Cir. 2015); VA-1003, ¶96.

(b) A POSITA would have been motivated to combine Kerr/Kerr-Dutton and Thomassen

Kerr and Dutton track the relevance of content with respect to location, defined by a geofence, and teach that the relevance of content is important in performing targeted advertising based on context. VA-1005, ¶¶[0012]-[0021], [0222], [0234], [0267], [0287]-[0308], FIGS. 16-20, 34, 36-39; VA-1006, ¶¶[0071], [0094]. Thomassen discloses techniques for determining the size of a geographic area based on the type and size of a building associated with the geographic area. VA-1021, Abstract, ¶¶[0022], [0030], [0055]-[0056]. A POSITA would have recognized and found obvious that Thomassen's techniques would

have enabled the size of content presentation areas (e.g., Kerr's geofences) to be defined based on their associated building and building type. *Id.*; VA-1003, ¶97.

It would have been obvious for a POSITA to combine Kerr/Kerr-Dutton and Thomassen such that the size of a geofence would have been determined, at least in part, based on the building type associated with the geofence. VA-1005, ¶¶[0012]-[0021], [0222], [0234], [0267], [0287]-[0308], FIGS. 16-20, 34, 36-39; VA-1021, Abstract, ¶¶[0022], [0030], [0055]-[0056]; VA-1003, ¶98. A POSITA would have been motivated to combine Kerr/Kerr-Dutton and Thomassen for the following reasons.

First, as Thomassen corroborates, the geographic location of a user with respect to a business was relevant for the purposes of advertising. VA-1021, ¶¶[0020], [0026], [0030]. Adding Thomassen's ability to determine the size of a geographic content presentation area based on its associated business would have improved the accuracy of sizing Kerr's geofences, which are associated with such geographic content presentation areas. *Id.*; *see also* VA-1005, ¶¶[0012]-[0021], [0222], [0234], [0267], [0287]-[0308], FIGS. 16-20, 34, 36-39; VA-1003, ¶99.

Second, Thomassen provides additional implementation details for GPS enabled devices, and how such devices can be used to determine the location of a user with respect to a place of business for the purposes of advertising, a goal that is central to both Kerr and Dutton. VA-1005, ¶[0157], FIG. 6; VA-1006,

¶¶[0003]-[0004], [0023], [0028], [0078]; VA-1021, ¶¶[0103]-[0106], [0111], [0120]-[0132], FIGS. 2-3; VA-1003, ¶100.

(c) A POSITA would have expected success in combining Kerr/Kerr-Dutton and Thomassen

Incorporating Thomassen's techniques into Kerr's (and Kerr-Dutton's) system would have been predictable and foreseeable with a reasonable expectation of success because, like Kerr and Dutton, Thomassen similarly discloses a system for evaluating the relevance of content to a location and Kerr explicitly indicates that its described embodiments can be "expanded on" using additional techniques (e.g., determining the size of a geofence based on the associated building type, as disclosed by Thomassen). VA-1005, ¶¶[0092], [0117], [0122], [0211]-[0214], [0222], [0336]; VA-1021, Abstract, ¶¶[0022], [0030], [0055]-[0056].

Additionally, Thomassen's techniques are implemented in GPS enabled devices, similar to the GPS enabled devices in Kerr and Dutton. VA-1005, ¶[0157], FIG. 6; VA-1006, ¶¶[0003]-[0004], [0023], [0028], [0078]; VA-1021, ¶¶[0103]-[0106], [0111], [0120]-[0132], FIGS. 2-3; VA-1003, ¶101.

A POSITA would also have found the combination of Thomassen and Kerr (and Kerr-Dutton) obvious and predictable because incorporating Thomassen's techniques into Kerr (and Kerr-Dutton) would have been nothing more than:

(1) the application of known techniques (e.g., Thomassen's techniques for

determining the size of a geographic area based on a building type) to a known structure (e.g., Kerr's context aware relevance engine) to yield predictable results (e.g., determining the size of a building's geofence based on the building type associated with the geofence)

(2) the use of known techniques to improve similar devices (methods, or products) in the same way (applying Thomassen's techniques to a similar Kerr (and Kerr-Dutton) system and method)

(3) applying a known technique (e.g., Thomassen's techniques for determining the size of a geographic area based on a building type) to a known device (e.g., Kerr's context aware relevance engine) ready for improvement to yield predictable results (e.g., determining the size of a building's geofence based on the building type associated with the geofence)

KSR Int'l Co. v. Teleflex Inc., 550 U.S. 398, 417 (2007); *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966); VA-1003, ¶¶102-103. For instance, one predictable result of incorporating Thomassen's teachings into Kerr's (and Kerr-Dutton's) system would have been the ability to determine the size of a geofence based on its associated building. VA-1021, Abstract, ¶¶[0022], [0030], [0055]-[0056].

3. Analysis

[8] The computing system of claim 1, wherein the reference database further comprises an indication of a building type associated with the reference location, and wherein the set of operations further comprises determining the reference area based on the building type.

Ground 1B

Kerr discloses that the data storage module (“***the reference database***”) stores data indicative of geofences and beacon locations and identifiers that indicate the associated building or shop. VA-1005, ¶¶[0238]-[0242], FIGS. 15-16. FIG. 16 below depicts a geofence identifier 1612 (“***an indication of a building type associated with the reference location***”) identifying a geofence (e.g., “Sports Shop” – a “***building type***”). *Id.* The data storage module also stores the “geographical coordinates” of beacons and geofences. *Id.* As discussed above in [1.5], Kerr’s geofences are associated with specific locations, such that the geofence is determined based on the geographic coordinates associated with the store or business represented by the geofence (“***the set of operations further comprises determining the reference area based on the building type***”). *Id.*; *supra*, §III.A.4.[1.5]; VA-1003, ¶104.

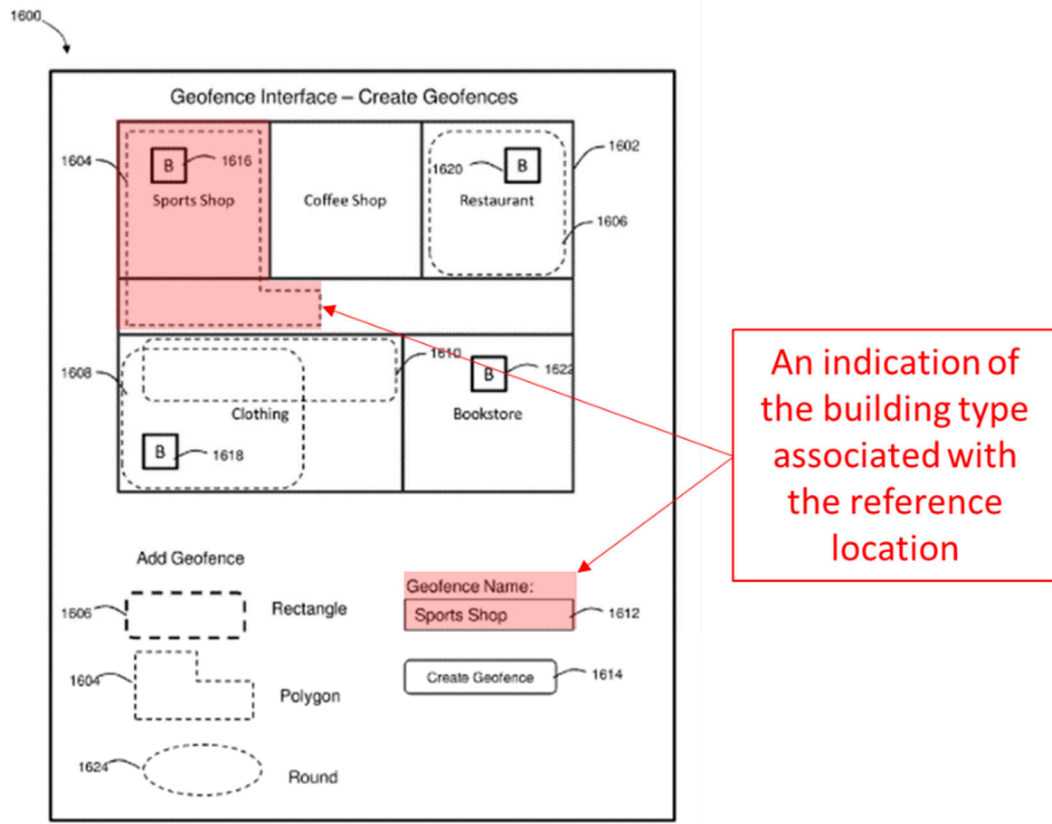


Figure 16

VA-1005, FIG. 16.

To the extent a POSITA would not have found these features obvious over Kerr alone, Thomassen explicitly discloses that the size of a geographic content presentation area is determined “based on a type and/or location of the building or attraction” associated with the geographic presentation area. VA-1021, Abstract, ¶¶[0022], [0030], [0055]-[0056]. Thomassen discloses that the type of a building can refer to “the type of goods and/or services offered by the building,” “a physical size of the building,” or “a type of organisation to which [the building] belongs”

(each individually “*an indication of a building type associated with the reference location*”). VA-1021, ¶[0056]. As discussed above in §III.B.2, it would have been obvious for a POSITA to combine Thomassen with Kerr and Kerr-Dutton such that Kerr’s geofences (“*the reference area*”) would have been sized based on their associated building (“*determining the reference area based on the building type*”). VA-1005, ¶¶[0012]-[0021], [0222], [0234], [0267], [0287]-[0308], FIGS. 16-20, 34, 36-39; VA-1006, ¶¶[0071], [0094]; VA-1021, Abstract, ¶¶[0022], [0030], [0055]-[0056]; *Supra*, §III.B.2; VA-1003, ¶105.

Ground 2B

Likewise, Dutton also discloses that POIs are associated with identifying information and specific geometry (“*the reference database further comprises an indication of a building type associated with the reference location*”). VA-1006, ¶¶[0039]-[0041], FIG. 3. As discussed above in the combination, a POSITA would have recognized that Dutton’s POIs are additional locations to apply Kerr’s techniques. *Supra*, §III.A.3. Accordingly, a POSITA also would have found it obvious that the geofence for a particular POI would have been determined based on its associated building type, as Dutton (like Kerr and Thomassen) teaches that the geometry of a POI (the geofence) is specific to the POI itself (“*the set of operations further comprises determining the reference area based on the building type*”). *Id.*; VA-1003, ¶106. FIG. 3 of Dutton depicts example POIs and

their associated building types.

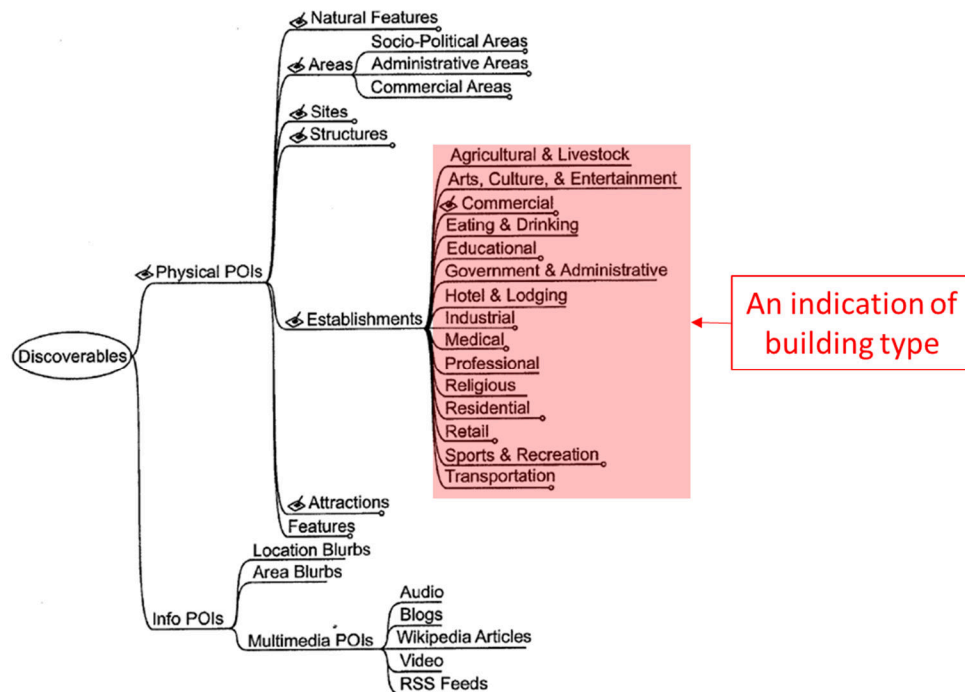


FIG. 3

VA-1006, FIG. 3.

Claims 17 and 27

These claims are rendered obvious for the same reasons discussed above with respect to [8]. *Supra*, [8]; VA-1003, ¶107.

C. [GROUND 1C/2C] – Claims 11, 20, and 30 and rendered obvious by Kerr-Parkes and Kerr-Dutton-Parkes

1. Parkes

Parkes discloses techniques for estimating a number “impressions” for digital content displayed at a given location by a mobile phone. VA-1008, ¶¶[0035]-[0053], [0069]-[0072], FIG. 3. These techniques are used to create a

“forecast” of how content would perform at a particular location to inform advertising campaigns. VA-1008, ¶¶[0038], [0064]-[0065], [0083]; VA-1003, ¶40.

2. Combination of Kerr and Parkes (with or without Dutton)

- (a) Kerr, Dutton, and Parkes are analogous art to the '402 patent

As discussed above in §III.A.3, Kerr and Dutton are analogous art to the '402 patent. *Supra*, §III.A.3. Additionally, Parkes is analogous art to the '402 patent, which is generally directed to “audience measurement.” VA-1001, 1:25-27 (Field of the Disclosure). Parkes generally describes “publishing and/or allocating impressions of electronic content.” VA-1008, ¶¶[0003], [0027]-[0038]; *Graham v. John Deere Co.*, 383 U.S. 1 (1966); VA-1003, ¶108. Accordingly, Parkes is directed to the field of audience measurement at least because Parkes is concerned with serving relevant content to the public (audience members) to achieve a specified number of impressions (a measure of the total audience for that content). *See, e.g., Id.*

Parkes is also reasonably pertinent to the problem the inventor of the '402 patent was attempting to solve. For instance, like the '402 patent, Parkes is directed to measuring “audience exposure and/or interaction with online media accessed by users.” VA-1001, 2:30-34; VA-1008, ¶¶[0003], [0027]-[0038]; *Circuit Check, Inc. v. QXQ Inc.*, 795 F.3d 1331, 1335 (Fed. Cir. 2015); VA-1003,

¶108.

- (b) A POSITA would have been motivated to combine Kerr/Kerr-Dutton and Parkes

Kerr and Dutton track the relevance of content with respect to location, and teach that the relevance of content is important in performing targeted advertising based on context. VA-1005, ¶¶[0012]-[0021], [0222], [0234], [0267], [0287]-[0308], FIGS. 34, 36-39; VA-1006, ¶¶[0071], [0094]. Kerr also teaches the importance of tracking the relevance of content over time to evaluate its success, and further criticizes advertising systems that are limited to only analyzing “past behavior.” VA-1005, ¶¶[0019], [0286], [0332], FIGS. 35B, 46. A POSITA would have recognized and found obvious the need within Kerr (and Kerr-Dutton) to estimate the total number of views a particular piece of content would receive at a location (the total “impressions” of the content), as a means of estimating and judging the likelihood of success of future advertising campaigns. *Id.*; *see also* VA-1020, 2:25-42; VA-1003, ¶109.

It would have been obvious for a POSITA to combine Kerr/Kerr-Dutton and Parkes such that Parkes’ techniques for estimating impressions would have been included in the analytics of Kerr/Kerr-Dutton. VA-1005, ¶¶[0012]-[0021], [0222], [0234], [0267], [0287]-[0308], FIGS. 34, 36-39; VA-1006, ¶¶[0071], [0094]; VA-1008, ¶¶[0003], [0027]-[0038]; VA-1003, ¶110. A POSITA would have been

motivated to combine Kerr/Kerr-Dutton and Parkes for the following reasons.

First, as Parkes corroborates, it was well known before the Benefit Date that advertisers were concerned with estimating the future reach of their content with respect to a particular location. VA-1008, ¶¶[0027]-[0038], [0064]. Adding Parkes' ability to estimate impressions to Kerr's (and Kerr-Dutton's) content serving system would have increased the appeal of this system to advertisers, who would have been able to more accurately forecast marketing campaigns based on the targeted location. *Id.*; VA-1003, ¶111.

Second, Parkes provides additional implementation details for assigning relative "value" for different locations, allowing Kerr's (and Kerr-Dutton's) system to further tailor advertising campaigns based on "consumer polling, product or service sales data, predictions or trend information." VA-1008, ¶¶[0064]-[0068]; VA-1003, ¶112.

- (c) A POSITA would have expected success in combining Kerr/Kerr-Dutton and Parkes

Incorporating Parkes' techniques into Kerr's (and Kerr-Dutton's) system would have been predictable and foreseeable with a reasonable expectation of success because, like Kerr and Dutton, Parkes similarly discloses a system for evaluating the relevance of content to a location and Kerr explicitly indicates that its described embodiments can be "expanded on" using additional techniques (e.g.,

Parkes' ability to estimate impressions). VA-1005, ¶¶[0092], [0117], [0122], [0211]-[0214], [0222], [0336]; VA-1008, ¶¶[0003], [0027]-[0038]. Additionally, Parkes' techniques would merely have required routine skill in the art that a POSITA would have possessed particularly because Parkes does not require any specialized hardware to execute its techniques. VA-1008, ¶¶[0099]-[0100], Claims 1, 7, 13 (claiming only a method); VA-1003, ¶113.

A POSITA would also have found the combination of Parkes and Kerr (and Kerr-Dutton) obvious and predictable because incorporating Parkes' techniques into Kerr (and Kerr-Dutton) would have been nothing more than:

- (1) the application of known techniques (e.g., Parkes' estimating impressions for a location) to a known structure (e.g., Kerr's context aware relevance engine) to yield predictable results (e.g., estimating the number of impressions for content served by Kerr's system)
- (2) the use of known techniques to improve similar devices (methods, or products) in the same way (applying Parkes' techniques to a similar Kerr (and Kerr-Dutton) system and method)
- (3) applying a known technique (e.g., Parkes' estimating impressions for a location) to a known device (e.g., Kerr's context aware relevance engine) ready for improvement to yield predictable results (e.g., estimating the number of impressions for content served by Kerr's system)

KSR Int'l Co. v. Teleflex Inc., 550 U.S. 398, 417 (2007); *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966); VA-1003, ¶¶114-115. For instance, one predictable result of incorporating Parkes' teachings into Kerr's (and Kerr-Dutton's) system would have been the ability to forecast the success of advertising campaigns. VA-1008, ¶¶[0027]-[0038].

3. Analysis

[11] The computing system of claim 1, wherein the set of operations further comprises estimating a quantity of impressions of media content corresponding to the media identifying information based on the associating.

Kerr discloses tracking the relevance of a particular piece of content for a plurality of demographic profiles that viewed that content (“***a quantity of impressions of media content corresponding to the media identifying information***”)⁴. VA-1005, ¶[0332], FIG. 46; *see, e.g.*, VA-1001, 2:35-44; VA-

⁴ Notably, features of the '402 dependent claims, including claims 11, 20, and 30, further narrow the scope of the independent claims they depend from, and should not be read into the independent claims to avoid rendering the dependent claims superfluous. *Comark Communs., Inc. v. Harris Corp.*, 156 F.3d 1182, 1187 (Fed. Cir. 1998) citing *Tandon Corp. v. United States Int'l Trade Comm'n*, 831 F.2d 1283, 1288 (Fed. Cir. 1987) (“There is presumed to be a difference in

1003, ¶41. FIG. 46 of Kerr below depicts how the relevance of a particular piece of content changes over time for a number of users. *Id.* Dutton similarly describes that it collects “usage patterns” for a plurality of user “affinity profiles.” VA-1006, ¶[0026]; VA-1003, ¶116. As Dr. Williams explains, a POSITA would have recognized and found obvious that a “*quantity of impressions*” would have been estimated for media content in Kerr and Dutton as (i) both references were concerned with tracking the relevance of media content for a plurality of users, and (ii) a “*quantity of impressions*” was a well-known advertising metric (also referred to as “reach”). VA-1005, ¶[0332], FIG. 46; VA-1006, ¶[0026]; VA-1003, ¶116, citing VA-1020, 16:16-18, FIG. 10A and VA-1022, Abstract, ¶[0028] (“In radio advertising for example, ‘reach’ estimates the number of unique listeners who hear the ad at least once during a given schedule.”).

meaning and scope when different words or phrases are used in separate claims. To the extent that the absence of such difference in meaning and scope would make a claim superfluous, the doctrine of claim differentiation states the presumption that the difference between claims is significant.”).

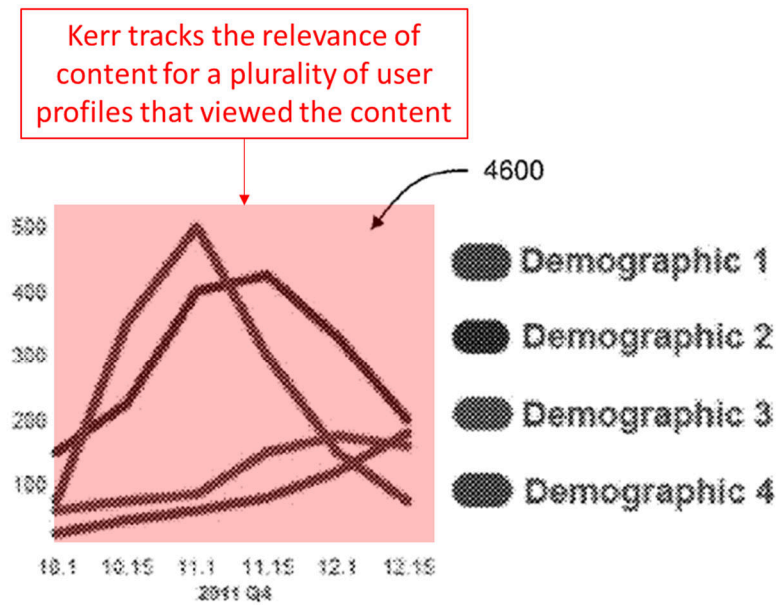


Figure 46

VA-1005, FIG. 46.

To the extent Patent Owner argues that these features would not have been obvious over Kerr and Dutton alone, Parkes explicitly discloses them. VA-1003, ¶117. Parkes discloses that a number of impressions for content displayed at a given location was a basic metric for allocating content to be displayed (e.g., content corresponding to Kerr’s Content_IDs and content links) (“*a quantity of impressions of media content corresponding to the media identifying information*”). VA-1008, ¶¶[0035]-[0053], [0069]-[0072], FIG. 3. Parkes further discloses that it was known to estimate (“forecast”) the number of impressions content would receive at a location (“*estimating a quantity of impressions of media content*”), and like Kerr and Dutton, that content was relevant to a

particular location (“*based on the associating [of the media identifying information with the demographic information]*”). *Id.*; VA-1003, ¶117.

Claims 20 and 30

These claims are rendered obvious for the same reasons discussed above with respect to [11]. *Supra*, [11]; VA-1003, ¶118.

IV. DISCRETIONARY DENIAL IS NOT APPROPRIATE

Petitioner believes that discretionary denial is unwarranted, and yet, Petitioner intends to utilize the bifurcated briefing process contemplated by the March 26, 2025, Stewart Memorandum to rebut contentions if offered by Patent Owner to the contrary. VA-1015.

V. CONCLUSION AND FEES

The Challenged Claims are unpatentable. Petitioner authorizes charge of fees to Deposit Account No. 06-1050.

VI. MANDATORY NOTICES

A. Real Party-In-Interest Under 37 C.F.R. § 42.8(b)(1)

Petitioner, VideoAmp Inc., is the real party-in-interest.

B. Related Matters Under 37 C.F.R. § 42.8(b)(2)

Petitioner is not aware of any disclaimers, reexamination certificates or petitions for *inter partes* review for the '402 patent. The '402 patent is the subject of civil action *The Nielsen Company (US), LLC v. VideoAmp, Inc.*, 1-25-cv-00408

(DDE), filed April 2, 2025. VideoAmp, Inc. and The Nielsen Company, LLC have previously been involved in a civil action (*The Nielsen Company (US), LLC v. VideoAmp, Inc.*, 1-24-cv-00123-1 (DDE), filed January 31, 2024) with patents unrelated to the '402 patent (US. Patent Nos. 11,856,250 and 11,871,058), during which two IPRs were filed (IPR2025-00555 and -00556). VA-1014. This previous action was dismissed and the related IPRs were subsequently terminated. IPR2025-00555, Paper 10; IPR2025-00556, Paper 8.

C. Lead And Back-Up Counsel Under 37 C.F.R. § 42.8(b)(3)

Petitioner provides the following designation of counsel.

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D. Service Information

Please address all correspondence and service to the address listed above.

Petitioner consents to electronic service by email at IPR57824-0003IP1@fr.com.

Respectfully submitted,

Dated: March 17, 2026

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CERTIFICATION UNDER 37 CFR § 42.24

Under the provisions of 37 CFR § 42.24(d), the undersigned hereby certifies that the word count for the foregoing Petition for *Inter partes* Review totals 11,383 words, which is less than the 14,000 allowed under 37 CFR § 42.24.

Dated: March 17, 2026

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CERTIFICATE OF SERVICE

Pursuant to 37 CFR §§ 42.6(e)(4)(i) *et seq.* and 42.105(b), the undersigned certifies that on March 17, 2026 , a complete and entire copy of this Petition for *Inter partes* Review, Power of Attorney, and all supporting exhibits were provided via Federal Express, to the Patent Owner by serving the correspondence address of record as follows:

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