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Paper 6
Entered: March 18, 2024

UNITED STATES PATENT AND TRADEMARK OFFICE

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BEFORE THE PATENT TRIAL AND APPEAL BOARD

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APPLE INC.,
Petitioner,

v.

ALD SOCIAL, LLC,
Patent Owner.

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IPR2023-01398
Patent 9,198,054 B2

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Before BARBARA A. BENOIT, SHARON FENICK, and PHILLIP A. BENNETT, *Administrative Patent Judges*.

BENOIT, *Administrative Patent Judge.*

DECISION
Granting Institution of *Inter Partes* Review
*35 U.S.C. § 314*

# I. INTRODUCTION

Apple Inc. ("Petitioner") filed a Petition pursuant to 35 U.S.C. §§ 311–319 to request institution of *inter partes* review of claims 1–14 ("the challenged claims") of U.S. Patent No. 9,198,054 B2 (Ex. 1001, "the '054 patent" or "the challenged patent"). ALD Social LLC ("Patent Owner") did not file a preliminary response to the Petition.

Applying the standard set forth in 35 U.S.C. § 314, which requires demonstration of a reasonable likelihood that Petitioner would prevail with respect to at least one challenged claim, we institute an *inter partes* review.

## *A. Real Parties in Interest*

The Petition indicates Apple Inc. is the real party in interest. Pet. 77. Patent Owner has not filed its mandatory notice as required by 37 C.F.R. § 42.8(a)(2), which requires identifying each real party in interest, among other information. Nor has any attorney entered an appearance in this proceeding on Patent Owner's behalf. Without further information presented, and based on USPTO assignment records, we identify ALD Social LLC as a real party in interest.

## *B. Related Matters*

As required by 37 C.F.R. § 42.8(b)(2), Petitioner identifies various judicial or administrative matters that would affect or be affected by a decision in this proceeding. Pet. 77. Petitioner identifies the following district court cases: *ALD Social, LLC v. Verkada, Inc.*, 3-23-cv-00049 (N.D. Cal.); *ALD Social LLC v. Verizon Communications Inc.*, 6-22-cv-01011 (W.D. Tex.); *ALD Social LLC v. Apple Inc.*, 6-23-cv-02695 (N.D. Cal.); *ALD Social LLC. V. AT&T Inc.*, 6-22-cv-00970 (W.D. Tex.); *ALD Social*

*LLC v. Google LLC*, 6-22-cv-00927 (W.D. Tex.); *ALD Social LLC v. T-Mobile US, Inc*., 6-22-cv-00973 (W.D. Tex.); *ALD Social, LLC v. Verkada, Inc.*, 6-22-cv-0097 (W.D. Tex.); *ALD Social, LLC v. Alert Media, Inc.*, 6-22-cv-00959 (W.D. Tex.). Pet. 77.

### *C. The Challenged Patent*

The challenged patent is titled "Aggregate Location Dynometer (ALD)." Ex. 1001, code (54). Techniques are described to evaluate the position and movement of handheld wireless devices within a geographic area to predict public safety risks, such as "the unexpected impending formation of a flash mob, or a riot." *Id.* at 2:45–67. An alert of a possible public safety risk may be provided "in real time, as the crowd risk arises, informing emergency personnel." *Id.* at 3:22–25.

In one example, sets of aggregate location data corresponding to wireless devices within a geographic area are obtained from location based services (LBS) "either from the wireless devices themselves, and/or from a network-based location server." *Id.* at 2:48–63. Crowd risk is assessed based on various wireless network traffic parameters, such as the density or movement of wireless devices in the geographic area. *Id.* at 3:9–14.

Figure 1, reproduced below, illustrates an exemplary ALD.

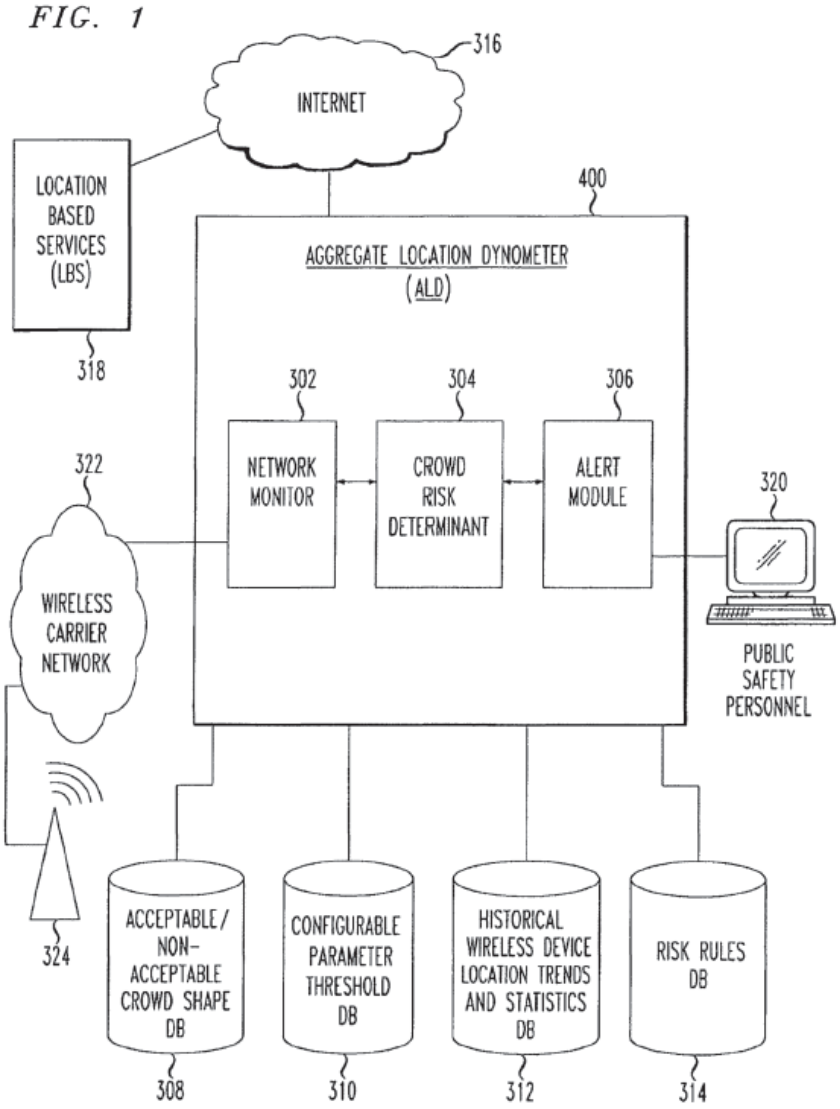


Figure 1 depicts ALD 400 "as a server in a wireless network 322." *Id.* at 3:33–34. ALD 400 "determines crowd safety risk with the help of location based services (LBS) 318." *Id.* at 3:30–32. As shown in Figure 1, ALD 400 has three components—Network Monitor 302, Crowd Risk Determinant 304, and Alert Module 306. *Id.* at 3:33–37.

Network Monitor 302 "monitor[s] the network for indication of a possible viral event." *Id.* at 3:38–41. "A viral event is defined as occurring when one or more predefined parameter thresholds have been surpassed."

*Id.* at 4:40–42. To monitor the network, Network Monitor 302 obtains information about wireless devices in a geographical area from a wireless carrier network 322 and a particular base station 324. *Id.* at 5:4–9.

"Crowd Risk Determinant 304 assesses location information pertaining to a possible viral event triggered by the Network Monitor 302" and "determines if a viral event also indicates a public safety risk." *Id.* at 3:45–48. "Alert Module 306 performs predetermined responsive measures to alert appropriate public safety personnel 320 in the event of a possible or probable or current public safety risk." *Id.* at 3:49–52.

ALD 400 also includes historical databases for use in crowd risk assessment. The historical databases shown in Figure 1 include an Acceptable/Non-Acceptable Crowd Shape database 308, Configurable Parameter Threshold database 310 "to assist in detecting a viral event," Historical Wireless Device Location Trends and Statistics database 312, and Risk Rules database 314. This database 314 includes location based parameters (such as density, spread, motion trends, special event information) and non-location based parameters (such as message content and time of day) "to assist in determining if a viral event also indicates a public safety risk." *Id.* at 3:53–63, 4:17–19; 4:20–29.

### *D. The Challenged Claims*

Claims 1–14 are challenged, of which claims 1 and 7 are independent. Illustrative claim 1 is reproduced with annotations used in the Petition in brackets:

> 1. An aggregate location dynometer in a physical wireless network server, said aggregate location dynometer comprising:

> [1.1] a network monitor to monitor a wireless network for an indication of a viral event;
>
> [1.2] a location aggregator to obtain a location of each of a plurality of wireless devices associated with said viral event;
>
> [1.3] a crowd risk determinant, triggered by said network monitor, to determine a crowd risk based on an aggregation of said location of each of said plurality of wireless devices associated with said viral event; and
>
> [1.4] an alert module to initiate an alert message relating to a public safety risk determined from an analysis of said viral event.

Ex. 1001, 9:10–24.

### *E. The Asserted Grounds of Unpatentability*

Petitioner relies on the following references in the asserted grounds of unpatentability (Pet. 2):

| Name | Patent Document | Exhibit |
|---|---|---|
| Wolfe | US 2011/0040603 A1 (Feb. 17, 2011) | 1004 |
| Pfeffer | US 2009/0284348 A1 (Nov. 19, 2009) | 1005 |
| Hua | US 2009/0222388 A1 (Sept. 3, 2009) | 1006 |

Petitioner asserts that each of the references is prior art to the challenged claims. Pet. 18. Petitioner also relies on the Declaration of Stephen J. Guy, Ph.D. (Exhibit 1003).

Petitioner challenges the patentability of the challenged claims on the following grounds:

| Claims Challenged | 35 U.S.C. § | Reference(s)/Basis |
|---|---|---|
| 1–2 | 103 | Wolfe, Pfeffer |
| 3–6 | 103 | Wolfe, Pfeffer, Hua |
| 7–14 | 103 | Wolfe, Hua |

Pet. 18.

## II. ANALYSIS

### *A. Legal Standards*

Petitioner bears the burden to demonstrate unpatentability. *Dynamic Drinkware, LLC v. Nat'l Graphics, Inc.*, 800 F.3d 1375, 1378 (Fed. Cir. 2015). At this preliminary stage, we determine whether the information in the Petition shows a reasonable likelihood that Petitioner would prevail with respect to at least one of the challenged claims. *See* 35 U.S.C. § 314(a).

As relevant here, a patent claim is unpatentable under 35 U.S.C. § 103 "if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains." 35 U.S.C. § 103 (2011); *accord KSR Int'l Co. v. Teleflex Inc*., 550 U.S. 398, 406 (2007) (quoting 35 U.S.C. § 103). The question of obviousness involves resolving the basis of underlying factual determinations including (1) the scope and content of the prior art; (2) any differences between the claimed subject matter and the prior art; (3) the level of ordinary skill in the art; and (4) when in evidence,

objective indicia of nonobviousness. *Graham v. John Deere Co.*, 383 U.S. 1, 17–18 (1966).

We apply these principles to the challenges of the Petition.

### *B. Level of Ordinary Skill in the Art*

We review the grounds of unpatentability in view of the understanding of a person of ordinary skill in the art at the time of the invention ("POSITA"). The level of ordinary skill in the art at the time of the invention is a factual determination that provides a primary guarantee of objectivity in an obviousness analysis. *Al-Site Corp. v. VSI Int'l Inc.*, 174 F.3d 1308, 1324 (Fed. Cir. 1999) (citing *Graham v. John Deere Co.*, 383 U.S. 1, 17–18 (1966); *Ryko Mfg. Co. v. Nu-Star, Inc.*, 950 F.2d 714, 718 (Fed. Cir. 1991)).

Relying on declaration testimony from Dr. Guy (Ex. 1003), Petitioner asserts that a person of ordinary skill in the art "would have been someone knowledgeable and familiar with the field of crowd analysis and location-based computing" and would have had "at least a bachelor's degree in computer science/computer engineering, or equivalent training, and approximately two years of experience working in the field of crowd analysis and location-based computing." Pet. 12 (citing Ex. 1003 ¶¶ 19–21). Petitioner further notes that "[l]ack of work experience can be remedied by additional education, and vice versa." *Id.*

For purposes of this Institution Decision, we adopt the assessment offered by Petitioner as it is consistent with the challenged patent and the asserted prior art. *See In re GPAC Inc.*, 57 F.3d 1573, 1579 (Fed. Cir. 1995); *Okajima v. Bourdeau*, 261 F.3d 1350, 1355 (Fed. Cir. 2001).

*C. Claim Construction*

In *inter partes* reviews, the Board construes a claim using the same claim construction standard employed in a civil action under 35 U.S.C. § 282(b). 37 C.F.R. § 42.100(b) (2020). Accordingly, the "words of a claim 'are generally given their ordinary and customary meaning,'" as would have been understood by a person of ordinary skill in the art in question at the time of the invention. *Phillips v. AWH Corp*., 415 F.3d 1303, 1312 (Fed. Cir. 2005) (en banc) (quoting *Vitronics Corp. v. Conceptronic, Inc*., 90 F.3d 1576, 1582 (Fed. Cir. 1996)). "In determining the meaning of the disputed claim limitation, we look principally to the intrinsic evidence of record, examining the claim language itself, the written description, and the prosecution history, if in evidence." *DePuy Spine, Inc. v. Medtronic Sofamor Danek, Inc*., 469 F.3d 1005, 1014 (Fed. Cir. 2006) (citing *Phillips*, 415 F.3d at 1312–17). We construe claim terms only as relevant to the contentions and only to the extent necessary to resolve the controversy. *Realtime Data, LLC v. Iancu*, 912 F.3d 1368, 1375 (Fed. Cir. 2019) ("The Board is required to construe 'only those terms . . . that are in controversy, and only to the extent necessary to resolve the controversy.'" (quoting *Vivid Techs., Inc. v. Am. Sci. & Eng'g, Inc.*, 200 F.3d 795, 803 (Fed. Cir. 1999))).

Petitioner contends that the terms of the challenged claims should be given their plain and ordinary meaning except for "indication of a viral event" recited in independent claim 1 and "a forming viral event" recited in independent claim 7. Pet. 13. Petitioner contends that based on descriptions in the specification that one of ordinary skill "would have understood the phrases 'indication of a viral event' and 'a forming viral event' to comprise an indication of a crowd's activity, including the crowd's size, density,

movement, or other characteristics." Pet. 14 (citing Ex. 1001, 5:9–15, 5:26–31, 5:45–51; Ex. 1003 ¶¶ 40–45). Additionally, in the context of prior art contentions, Petitioner asserts that a system "that communicates with wireless carriers, determines the number of wireless devices connected to access points and base stations within a particular area, takes 'snapshots' of the group locations, and analyzes crowd movements renders obvious 'a network monitor to monitor a wireless network for an indication of a viral event,'" as recited in claim 1. Pet. 33–34.

Relevant to our decision whether to institute *inter partes* review is "to monitor a wireless network for an indication of a viral event" recited in claim 1. The limitation itself does not recite a particular manner of the required wireless network monitoring. Although claim 1 additionally requires obtaining locations of wireless devices and determining a crowd risk based on aggregation of wireless device locations, these limitations are not presented as limitations for the required wireless network monitoring. Claims 2–6, which depend directly or indirectly from claim 1, add limitations related to a historical database and do not present further limitations for the required wireless network monitoring. As such, the claim language itself does not require a particular manner "to monitor a wireless network for an indication of a viral event."

Regarding, "an indication of a viral event" recited in claim 1, we agree with Petitioner that "[t]he specification does not provide any explicit definition" for "indication of a viral event." Pet. 13. The written description, however, indicates "[a] viral event is defined as occurring when one or more predefined parameter thresholds have been surpassed, as determined in the exemplary embodiment in the Network Monitor 302."

Ex. 1001, 4:40–43. As Petitioner notes, the written description also provides examples of predefined parameter thresholds used by Network Monitor 302 "to determine if the monitored network indicates that a viral event may be occurring or impending." Ex. 1001, 5:9–12; Pet. 13–14 (citing Ex. 1001, 5:9–15).

Examples of predefined parameter thresholds include an excessive number of wireless devices in an area, excessive use of wireless devices in an area, two highly dense clusters of wireless devices converging at a significant rate of speed, and the difference in the number of wireless devices in an area exceeds a threshold over consecutive time periods. Ex. 1001, 5:12–14, 5:27–31, 5:35 ("to assess the number . . . of wireless devices"), 5:48–51; *see* Pet. 14 (citing Ex. 1001, 5:26–31, 5:45–51). As such, the written description describes parameter thresholds related to number, use, and movement of wireless devices being used to determine whether a viral event may be occurring.

Although Petitioner cites to written description passages related to parameter thresholds, Petitioner's proposed construction of "an indication of a viral event" and its application of prior art to "a network monitor to monitor a wireless network for an indication of a viral event" does not require a parameter threshold comparison to be used for network monitoring. Pet. 13–14, 33–34.

We agree, on this preliminary record, with Petitioner's position that monitoring a wireless network for an indication of a viral event need not necessarily include a parameter threshold comparison, which is not recited by claim 1. Notably, too, the claim language requires monitoring for *an indication* of a viral event, rather than monitoring for a viral event itself,

which additionally distances the claim language from the definition of when a viral event is occurring in the written description (Ex. 1001, 4:40–43).

Additionally, the written description indicates that monitoring a wireless network for indication of a viral event may involve actions other than by comparing parameter thresholds. For example, the Summary of the Invention indicates "the Network Monitor utilizes location based services (LBS) to monitor the formation of a plurality of wireless devices at a given point in a wireless network, e.g., a given base station (BS)" as a particular way that "[t]he Network Monitor monitors a wireless network for indication of a possible impending viral event." Ex. 1001, 1:42–48. Also, the written description indicates Network Monitor 302 monitors a wireless network for an indication of a possible viral event by, among other activities, retrieving aggregate location information of wireless devices within a region being monitored ("snapshots"). Ex. 1001, 4:58–5:3. Furthermore, the written description also indicates "[t]he Network Monitor 302 preferably obtains information regarding the number of wireless devices in a geographical area, at a given time, supported by a particular wireless network carrier." Ex. 1001, 5:4–7.

Based on the claim language "to monitor a wireless network" and the various descriptions of the Network Monitor obtaining information about wireless devices (e.g., Ex. 1001, 1:42–44, 4:58–5:3, 5:4–7), we agree with Petitioner's position implied by its arguments concerning the prior art (Pet. 33–34) that "to monitor a wireless network" encompasses to obtain information about wireless devices in a geographic area. *In re Katz Interactive Call Processing Patent Litig.*, 639 F.3d 1303, 1324 (Fed. Cir. 2011) (indicating, as a general rule, "there is a strong presumption against a

claim construction that excludes a disclosed embodiment"). Additionally, also based on the claim language and written descriptions (including descriptions of parameter thresholds) related to monitoring for an indication of a viral event, we agree with Petitioner's position (Pet. 14) that "to monitor . . . for an indication of a viral event" encompasses monitoring for an indication of a crowd's activity, including the crowd's size and movement.[1] We understand Petitioner's proposed construction to allow for crowd size and/or crowd movement as indications of a crowd's activity.

For these reasons, we determine, on this preliminary record and for purposes of this Institution Decision, that "to monitor a wireless network for an indication of a viral event" encompasses to obtain information about wireless devices in a geographic area indicating crowd activity, including crowd size and/or movement.

### *D. Asserted Obviousness of Claim 1 over Wolfe and Pfeffer*

Petitioner asserts that the subject matter of claim 1 would have been obvious under 35 U.S.C. § 103 in view of Wolfe and Pfeffer. Pet. 19–41.

#### *1. Disclosure of Wolfe*

Wolfe is titled "Telemetrics Based Location and Tracking" and describes population activity mapping techniques that include detecting wireless mobile devices within a geographic region. Ex. 1004, codes (54),

[1] Petitioner proposes that "indication of a viral event" comprises an indication of a crowd's activity, including the crowd's size, density, movement, and other characteristics. Pet. 14. For purposes of institution, however, determining that the claim term encompasses an indication of a crowd's activity, including crowd size and/or movement, is sufficient. *See Realtime Data,* 912 F.3d at 1375.

(57). Wolfe explains that determination of a crowd's location, pattern of movement, and activity level may improve the provision of goods and services. *Id.* ¶ 12. Taxi services, outdoor food vendors, ambulance services, city governments sponsoring an event, and police forces may benefit from using this technology. *Id.* ¶¶ 12–16.

Wolfe's Figure 3, reproduced below, illustrates a computing device that implements "telemetrics based location and/or tracking" (*id.* ¶ 68):

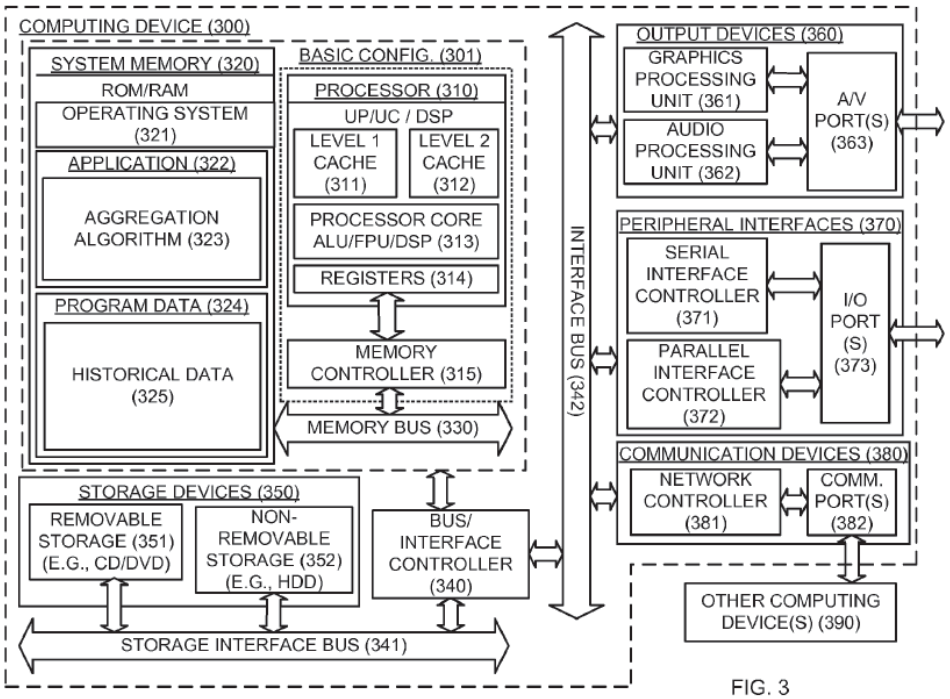


FIG. 3

As shown in Figure 3, computing device 300 includes processor 310, system memory 320, storage devices 350, output devices 360, and communication devices 380, among other components. *Id.* ¶¶ 68–73, Fig. 3. Computing device 300 also includes one or more applications 322, which in turn includes a mobile device telemetrics data aggregation algorithm 323, and program data 324, which in turn includes historical data 325. *Id.* ¶ 70. Application 322 and program data 324 "effectuate the aggregation of the mobile device data." *Id.*

*2. Disclosure of Pfeffer*

Pfeffer is titled "Incident Response System" and describes identifying, analyzing, and responding to incidents through task assignments given through dispatch requests to emergency responders, including police officers, fire fighters, and emergency medical technicians. Ex. 1005, code (54), ¶¶ 2, 3, 28, 30. Examples of incidents include car accidents, airplane accidents, natural disasters, sporting event crowd control and monitoring, and concert crowd control and monitoring. *Id.* ¶ 28.

Pfeffer describes generating a detailed response plan that includes, for example, the number of responders, skill sets, equipment, and arrival time needed for responding to the incident. *Id.* ¶ 38. Pfeffer's Figure 6A, reproduced below, depicts a dispatcher interface (*id.* ¶ 77).

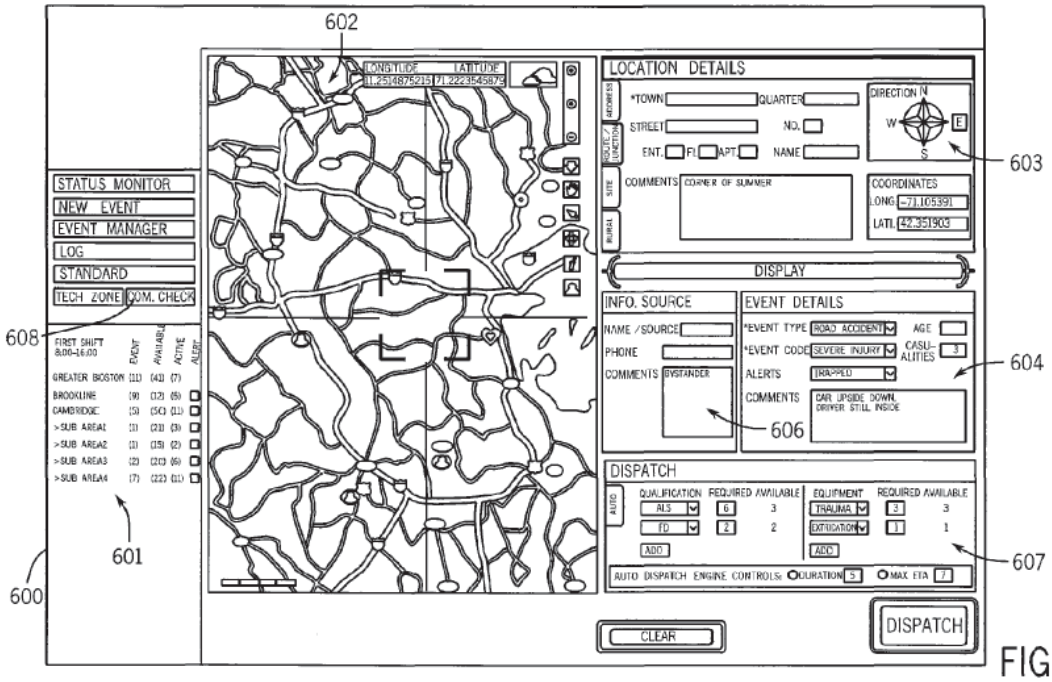


FIG. 6A

Pfeffer's Figure 6A shows "an incident information screen 600 of a dispatcher interface." *Id.* ¶ 77. Incident information screen 600 includes, among other information, map 602, location details 603, incident

details 604, and resource manager 601 that provides the dispatcher "with a full summary view of ongoing activity and the ability to respond to additional incidents." *Id.* "Resource manager 601 also includes information regarding a level of alert for the geographic region [that] can be based on the weather, the number of active incidents, the number of available resources, information received from various agencies regarding potential threats, unusual events occurring in the area that may require support (i.e., parades, sporting events, festivals, etc.), etc." *Id.* Pfeffer indicates that "[i]f the level of alert exceeds a predetermined threshold, the dispatcher or task management system can send out requests for additional responders to make themselves available." *Id.*

*3. Limitations of Independent Claim 1*

*(i) Claim 1 Preamble*

According Petitioner, Wolfe discloses "[a]n aggregate location dynometer in a physical wireless network server, said aggregate location dynometer," which is recited in the preamble of claim 1.[2] Pet. 27 (citing Ex. 1004 ¶¶ 68, 74, 70, 24, 27, 10, 11, 18, 40, 44, 14, 30, 73, 75). For the "aggregate location dynometer," Petitioner relies on Wolfe's computing device that runs applications for aggregated mobile device data, which in some implementations may be a server. Pet. 27–28 (citing, e.g., Ex. 1004

[2] Petitioner argues that, "[t]o the extent the preamble is limiting," Wolfe discloses the preamble. Pet. 27. As we agree that, on this preliminary record on for the purposes of institution, that Wolfe discloses the preamble, we need not decide whether the preamble is limiting for purposes of institution.

¶¶ 70, 74). Petitioner presents an annotated version of Wolfe's Figure 2, reproduced below, to illustrate its argument (Pet. 29).

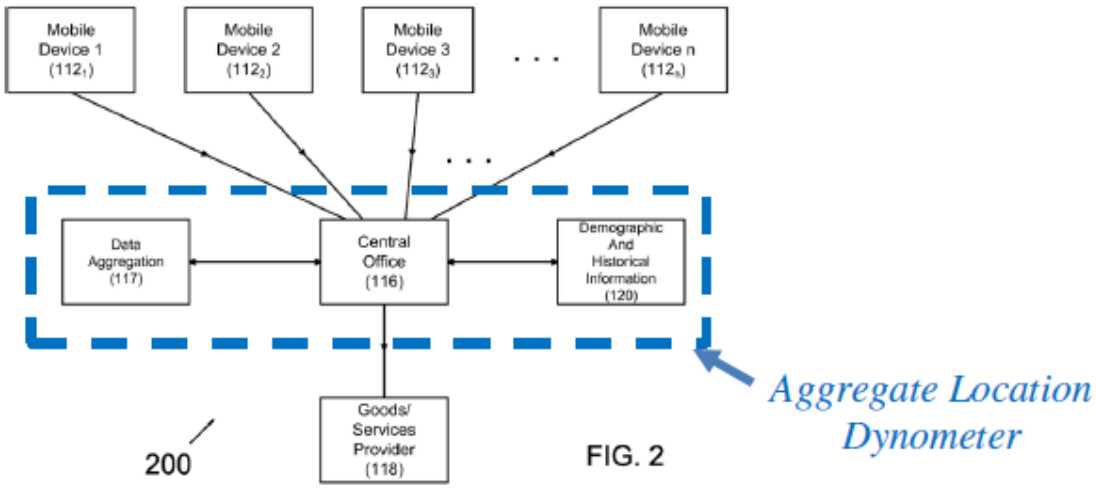


FIG. 2

Wolfe's Figure 2 depicts "an example telemetrics-based location and/or tracking arrangement." Ex. 1004 ¶ 24. As shown in annotated Figure 2, Petitioner identifies, as corresponding to "aggregate location dynometer," Wolfe's central office repository of mobile device information 116 that is "communicatively coupled" to data aggregation module 117 and demographic and historical information stored in memory storage device 121. Pet. 28–29 (citing, e.g., Ex. 1004 ¶¶ 24, 27); Ex.1004 ¶¶ 22, 24, 27. Petitioner relies on Wolfe's description that the technology provides "details of where crowds of people are located, how the crowds are changing, [and] where they are moving to" and that "a police force may be informed of the distribution of people around a city and/or changes in activity levels in specific locations around a city" (Ex. 1004 ¶¶ 11, 14). Pet. 29 (quoting Ex. 1004 ¶¶ 11, 14). Petitioner also contends that Wolfe discloses the requisite "physical wireless network server" because Wolfe's central office 116 communicates with mobile devices, as shown in annotated

Figure 2 above. Pet. 29–30 (citing Ex. 1004 ¶ 30). Petitioner's showing (Pet. 27–30) is sufficient for institution.

*(ii) Limitation 1.1*

For "a network monitor to monitor a wireless network for an indication of a viral event" (limitation 1.1), Petitioner contends that Wolfe's application 322 of computing device 300 implemented as a server corresponds to the recited "network monitor." Pet. 30–31. According to Petitioner, in the context of Wolfe's Figure 3 example, application 322 operates on central office 116 repository of mobile device information and monitors the wireless network of mobile devices 112 "for an indication of a viral event." Pet. 31–32.

For disclosing "monitor[ing] a wireless network, Petitioner additionally relies on Wolfe's techniques that determine locations of mobile devices as well as techniques that determine the number of mobile devices in contact with cellular access points and base stations in a geographic region. Pet. 31–32 (citing Ex. 1004 ¶¶ 10, 53). We agree with Petitioner that Wolfe discloses or suggests obtaining information about wireless devices in a geographic area.

For disclosing monitoring "for an indication of a viral event," Petitioner relies on Wolfe's description of monitoring changing locations of mobile device groups by taking "snapshots" of group mobile devices locations (Ex. 1004 ¶ 20). Pet. 32 (citing Ex. 1004 ¶ 20). Petitioner further relies on descriptions that Wolfe's techniques "for providing details of where crowds of people are located, how the crowds are changing, where they are moving to, when they are transitioning from one activity to another, and/or what activity they are transitioning to" and doing so "because it may

be valuable to the provider [of goods or services] to know such information about the crowd." (Ex. 1004 ¶ 11). Pet. 32 (citing Ex. 1004 ¶ 11). We agree with Petitioner that Wolfe discloses or suggests providing information about crowd activity, including crowd movement. *Id.* at 32–33 (citing Ex. 1004 ¶¶ 11, 14, 16, 20.

In sum, Petitioner contends that application 322 "that communicates with wireless carriers, determines the number of wireless devices connected to access points and base stations within a particular area, takes 'snapshots' of the group locations, and analyzes crowd movements renders obvious '*a network monitor to monitor a wireless network for an indication of a viral event*.'" Pet. 33–34 (citing Ex. 1003 ¶¶ 90–100).

Accordingly, we determine that Petitioner shows sufficiently for institution that Wolfe discloses or suggests obtaining information about wireless devices in a geographic area indicating crowd activity, including crowd size and/or movement. In light of our determination in Section II.C that "to monitor a wireless network for an indication of a viral event" encompasses to obtain information about wireless devices in a geographic area indicating crowd activity, including crowd size and/or movement, Petitioner's showing for limitation 1.1 (Pet. 30–34) is sufficient for institution.

*(iii) Limitation 1.2*

Claim 1 recites "a location aggregator to obtain a location of each of a plurality of wireless devices associated with said viral event" (limitation 1.2). Petitioner contends that Wolfe's application 322 that operates with program data 324 "to . . . effectuate the aggregation of the mobile device data" (Ex. 1004 ¶ 70) corresponds to the recited "location aggregator." Pet.

34 (quoting Ex. 1004 ¶ 70). Petitioner further relies on Wolfe's description that application 322 "may include a mobile device telemetrics data aggregation algorithm 323 that is implemented to add together and integrate the identifies, demographic information and/or historical information related to the mobile devices within the geographic region" (Ex. 1004 ¶ 70). Pet. 34 (quoting Ex. 1004 ¶ 70). Petitioner also relies on Wolfe's description that mobile devices wirelessly communicate location information to central office 116, which stores mobile device location information. Pet. 34 (discussing Ex. 1004 ¶ 22, Fig. 1). Petitioner contends that Wolfe's description of collecting and storing mobile device location information, along with Wolfe's description of using mobile device information to determine a crowd's motion trends, would have rendered obvious limitation 1.2. Pet. 34–35.

Petitioner's showing (Pet. 34–35) for limitation 1.2 is sufficient for institution.

*(iv) Limitation 1.3*

Claim 1 recites "a crowd risk determinant, triggered by said network monitor, to determine a crowd risk based on an aggregation of said location of each of said plurality of wireless devices associated with said viral event" (limitation 1.3). Regarding "an aggregation of said location of each of said plurality of wireless devices associated with said viral event," Petitioner points to Wolfe's application 322 that effectuates the aggregation of mobile device data (Ex. 1004 ¶ 70), discussed above with respect to limitation 1.2. Pet. 36–37. Petitioner further relies on Wolfe's description of "creat[ing] a model of the distribution of the locations of the mobile device users" (Ex. 1004 ¶ 18). Pet. 36–37. Regarding the requisite determining a crowd

risk based on the aggregation, Petitioner additionally relies on Wolfe's description of using "the distribution of people around a city and/or changes in activity levels in specific locations around the city" to "better position [police] officers to locations around the city where the officers may be needed" (Ex. 1004 ¶ 14). Pet. 36. As such, according to Petitioner, Wolfe's application 322 renders obvious the recited "a crowd risk determinant . . . to determine a crowd risk based on an aggregation of said location of each of said plurality of wireless devices associated with said viral event."

Turning to the "crowd risk determinant" being "triggered by said network monitor" to perform the required determining, as noted above Petitioner relies on Wolfe's application 322 for the network monitor, the location aggregator, and the crowd risk determinant recited by claim 1. *See, e.g.,* Pet. 31 ("the application 322 . . . is a *network monitor*"), Pet. 34 ("the application 322 . . . teaches a '*location aggregator*'"), Pet. 36 ("the application 322 . . . renders obvious a *crowd risk determinant*"). Regarding the required triggering, Petitioner points to Wolfe's descriptions that creating the model of the distribution of the location of mobile device users occurs "[o]nce the individual location data is gathered" (Ex. 1004 ¶ 18) and "aggregation algorithms [are run] on the new location data from mobile devices 112" (Ex. 1004 ¶ 27). Pet. 37. Petitioner contends that because the algorithms are run after obtaining new location data, "it would be obvious to a POSITA that the *network monitor* functionality triggers the *crowd risk determinant* functionality." Pet. 38 (citing Ex. 1003 ¶ 115). This is because "the sequence of events described in Wolfe establishes that the network monitoring functionality causes the crowd risk functionality to execute." *Id.*

Petitioner's showing (Pet. 35–39) for limitation 1.3 is sufficient for institution.

*(v) Limitation 1.4*

Claim 1 recites "an alert module to initiate an alert message relating to a public safety risk determined from an analysis of said viral event" (limitation 1.4). Petitioner relies on a combination of Wolfe and Pfeffer for this limitation. Pet. 39–41. Specifically, Petitioner relies on Wolfe's example of informing a police force discussed above:

> [A] police force may be informed of the distribution of people around a city and/or changes in activity levels in specific locations around a city. Based on this information, the police force may better position its patrol officers to locations around the city where the officers may be needed.

Ex. 1004 ¶ 14; Pet. 39 (quoting Ex. 1004 ¶ 14). Petitioner further contends that Wolfe's application 322 implements this functionality and so corresponds to an "*alert module*." Pet. 39 (citing Ex. 1004 ¶ 70, Ex. 1003 ¶ 118).

Petitioner additionally relies on Pfeffer's incident response system that dispatches policy officers and other emergency responders. Pet. 39–41 (citing Ex. 1005 ¶¶ 73, 39, 77); *see* Ex. 1005 ¶ 77 (describing Pfeffer's incident information screen 600). Among the information presented in Pfeffer's incident information screen 600 is a level of alert for the geographic region. Ex. 1005 ¶ 77, Fig. 6A. Petitioner relies on Pfeffer's unambiguous description that "[i]f the level of alert exceeds a predetermined threshold, the dispatcher or task management system can send out requests for additional responders to make themselves available" (Ex. 1005 ¶ 77) for disclosing or suggesting initiating the requisite alert message. Pet. 40 (quoting Ex. 1005 ¶ 77). According to Petitioner, the combination of

"Wolfe's application 322 that sends crowd information to police" and Pfeffer's first responder dispatch methodology that, among other features, "sends a request for additional first responders because of unusual events" renders obvious limitation 1.4. Pet. 41.

Petitioner's showing (Pet. 39–41) for limitation 1.4 is sufficient for institution.

*4. The Combination of Wolfe and Pfeffer*

To demonstrate obviousness, Petitioner must provide "some articulated reasoning with some rational underpinning to support the legal conclusion of obviousness." *KSR*, 550 U.S. at 418. More specifically, to prevail, Petitioner must demonstrate by a preponderance of evidence that "a skilled artisan would have had reason to combine the teaching of the prior art references to achieve the claimed invention, and that the skilled artisan would have had a reasonable expectation of success from doing so." *PAR Pharm., Inc. v. TWI Pharm., Inc.*, 773 F.3d 1186, 1193 (Fed. Cir. 2014).

Regarding the required articulate reasoning, Petitioner contends that "[a]lthough Wolfe teaches providing relevant crowd information to police, Wolfe does not provide the details for how to alert and notify the police." Pet. 24 (citing Ex. 1004 ¶ 14). "Pfeffer, however, fills in Wolfe's details by specifically teaching techniques for receiving information about crowds, evaluating the information, and alerting first responders when needed," according to Petitioner. Pet. 24 (citing Ex. 1005, Abstract, ¶¶ 6, 40–41). Petitioner also contends that the combination would provide additional benefits to Wolfe's system from Pfeffer's additional features, such as providing "continuous updates to the incident scenario model saved for future use, recommendations for the most effective methods to respond to

the incident based on past responses and current trends, and determining if an incident should be elevated based on the number of people involved in the incident." Pet. 26 (citing Ex. 1003 ¶ 77; Ex. 1005 ¶¶ 28, 77, 85).

Regarding the required expectation of success, Petitioner contends that "[a] POSITA would have found the combination of Wolfe and Pfeffer predictable" because they are similar in that "both systems analyze crowd information to identify safety risks." Pet. 25 (citing Ex. 1003 ¶ 75; Ex. 1004, Abstract, ¶¶ 11, 14; Ex. 1005 ¶ 28). Petitioner further asserts that "[a] POSITA would have had a reasonable expectation of success when combining Wolfe and Pfeffer because [they] are implemented in the same manner," with both being implemented on servers and with Pfeffer indicating that its techniques could be "any combination of software and/or hardware that is configured to perform one or more tasks." Pet. 25–26 (citing Ex. 1003 ¶ 78; Ex. 1004 ¶ 70, 74; Ex. 1005 ¶¶ 37, 32). Petitioner also contends "the combination would use known techniques (Pfeffer's implementation details of an incident response method) to improve a similar system (Wolfe's crowd detection and incident response system) in the same way (providing crowd details and incident information to first responders so that they may better respond to comprised crowd safety)." Pet. 26–27 (citing Ex. 1003 ¶¶ 77–79).

Petitioner's showing (Pet. 23–27) of articulated reasoning to support its combination is sufficient for institution.

*5. Conclusion Regarding Claim 1*

Accordingly, for the reasons discussed above, we determine that Petitioner has established a reasonable likelihood that the subject matter of claim 1 would have been obvious over Wolfe and Pfeffer.

## III. CONCLUSION

For the reasons explained above, we determine that the information presented in the Petition establishes a reasonable likelihood that Petitioner would prevail in showing at least one of claims 1–14 of the '054 patent is unpatentable under 35 U.S.C. § 103. This showing is sufficient to institute an *inter partes* review on all challenged claims on all asserted grounds. 37 C.F.R. § 42.108(a) ("When instituting *inter partes* review, the Board will authorize the review to proceed on all of the challenged claims and on all grounds of unpatentability asserted for each claim."); *see SAS Inst. v. Iancu*, 138 S. Ct. 1348, 1359–60 (2018).

We, therefore, institute an *inter partes* review of all challenged claims on all asserted grounds. 37 C.F.R. § 42.108(a); *see SAS Inst. v. Iancu*, 138 S. Ct. 1348, 1359–60 (2018). We base our factual findings and conclusions in this decision on the record developed so far. At this stage of the proceeding, the Board has not made a final determination as to the patentability of any challenged claim or any underlying factual or legal issue.

As 37 C.F.R. § 42.4(c)(1) provides, notice of institution of trial is being sent to the attorneys of record[3] for the challenged patent as well as the corporate address[4] and the registered agent[5] for ALD Social LLC.

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[3] United States Patent and Trademark Office (USPTO) records indicate that nine attorneys associated with Customer Number 116950 are attorneys of record for the two challenged patents. According to USPTO records, Customer Number 116950 is associated with Tarolli, Sundheim, Covell & Tummino LLP in Cleveland, Ohio.

[4] According to the assignment document recorded at Reel 060788 / Frame 0636, ALD Social LLC is located at 220 Hunting Hill Lane, West Chester, Pennsylvania 19382.

[5] A Registered Agent, Inc., 8 The Green, Suite A, Dover, Delaware 19901.

## IV. ORDER

Accordingly, it is

ORDERED that pursuant to 35 U.S.C. § 314(a), an *inter partes* review is hereby instituted as to claims 1–14 of the '054 patent on all the grounds set forth in the Petition; and,

FURTHER ORDERED that, pursuant to 35 U.S.C. § 314(c) and 37 C.F.R. § 42.4, notice is hereby given of the institution of a trial; the trial will commence on the entry date of this decision.

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