No. 25-___

United States Court of Appeals for the Federal Circuit

IN RE SAMSUNG ELECTRONICS CO., LTD. AND SAMSUNG ELECTRONICS AMERICA, INC.,

Petitioners.

On Petition for a Writ of Mandamus to the
United States District Court for the Eastern District of Texas,
Case No. 2:24-cv-49
The Honorable Rodney Gilstrap

PETITION FOR A WRIT OF MANDAMUS

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May 7, 2025

Google Exhibit 1086
Google v. Mullen
IPR2025-00365

CERTIFICATE OF INTEREST

Counsel for Petitioners certifies the following:

1. The full name of every party represented by me is:

   Samsung Electronics Co., Ltd. and Samsung Electronics America, Inc.

2. The names of the real parties in interest represented by me are:

   None other than Samsung Electronics Co., Ltd. and Samsung Electronics America, Inc.

3. All parent corporations and any publicly held companies that own 10% or more of stock in the parties represented by me are:

   Samsung Electronics Co., Ltd.

4. The names of all law firms and the partners or associates that appeared for the parties now represented by me before the originating court or that are expected to appear in this court (and who have not or will not enter an appearance in this case) are:

   O'Melveny & Myers LLP: Darin W. Snyder; Luann L. Simmons; Mark Liang; Bill Trac; Xin-Yi Zhou; Stacy Yae; Paige Hardy; Marc J. Pensabene; Carson G. Cole; Kyla Butler; Li Guo; Laura B. Gore; Hyun Min Han

   Gillam & Smith LLP: Melissa Smith

   Mann, Tindel, Thompson: G. Blake Thompson

5. The title and number of any case known to counsel to be pending in this or any other court or agency that will directly affect or be directly affected by this Court's decision in the pending appeal is:

   None.

6. Organizational Victims and Bankruptcy Cases: Fed. R. App. P. 26.1(b) (organizational victims in criminal cases) and 26.1(c)

(bankruptcy case debtors and trustees) are not applicable because this is not a criminal or bankruptcy case. See Fed. Cir. R. 47.4(a)(6).

N/A

DATED: May 7, 2025

By: */s/ Ginger D. Anders*
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RELIEF SOUGHT

Samsung Electronics Co., Ltd. ("SEC") and Samsung Electronics America, Inc. ("SEA") (collectively, "Samsung") respectfully request that this Court issue a writ of mandamus to the U.S. District Court for the Eastern District of Texas ("EDTX") directing the district court to vacate its order denying Samsung's motion to transfer and directing the court to transfer the case to the U.S. District Court for the Northern District of California ("NDCA").

INTRODUCTION

The district court refused to transfer this case to NDCA, where it clearly belongs, based primarily on two significant legal errors that fly in the face of binding precedent.

First, the court concluded that Samsung had not established that this case could have been brought in NDCA—even though Samsung established that it maintains a 385,000 square-foot campus in NDCA where over 200 regular, full-time employees are based, and even though this Court has recently and repeatedly ordered that cases against Samsung be transferred to NDCA. *See, e.g.*, *In re Samsung Elecs. Co.*, 2023 WL 8642711 (Fed. Cir. Dec. 14, 2023); *In re Google LLC*, 2022 WL

1613192 (Fed. Cir. May 23, 2022); *In re Samsung Elecs. Co.*, 2 F.4th 1371 (Fed. Cir. 2021). The court was able to reach that conclusion only by imposing evidentiary hurdles that lack any basis in the venue statute or precedent.

Second, the court held that even though Google-developed functionalities running on Samsung devices are accused in connection with at least six of the eight asserted patents, Google's witnesses and evidence were largely irrelevant and should be given virtually no weight in the transfer analysis. The district court based those conclusions on the unsupported—and unsupportable—assumption that those witnesses and evidence would not be *important* at trial. But this Court has repeatedly held that district courts abuse their discretion by discounting relevant witnesses and sources of proof based on nothing more than uncertainty that they will play an important role at trial. *See, e.g.*, *In re Genentech, Inc.*, 566 F.3d 1338, 1343-44 (Fed. Cir. 2009).

Those fundamental errors permeated the district court's assessment of the convenience-transfer factors. Although nearly every third-party witness is located in NDCA—and none are in EDTX—the court held that the availability of compulsory process was neutral based

on the improper assumption that identified prior artists would not testify at trial. *Contra, e.g.*, *Genentech*, 566 F.3d at 1345. Although NDCA is clearly more convenient for the eleven Google technical witnesses based in NDCA and at least three Samsung technical witnesses based in Korea, while only two non-technical witnesses are based in EDTX, the court discounted Google's witnesses and found that the convenience of willing witnesses favored transfer only slightly. *Contra, e.g.*, *In re TikTok, Inc.*, 85 F.4th 352, 361 (5th Cir. 2023). Although sources of proof relevant to the Google-developed functionalities central to this case are in NDCA, and only damages-related documents are in EDTX, the court discounted Google's technical evidence and improperly "overemphasiz[ed]" the damages-related documents in finding the sources-of-proof factor neutral. *Contra In re Apple Inc.*, 979 F.3d 1332, 1340 (Fed. Cir. 2020). And although the development of the accused technologies by Google and Samsung took place entirely in NDCA and Korea, respectively, the court held that EDTX had a greater local interest after erroneously deeming Google's development of two of three accused functionalities categorically irrelevant to the local-interest analysis. *Contra, e.g.*, *id*. at 1339-40.

Because, as in other Samsung cases involving Google technology, "Google's accused functionalit[ies]" are "at the center" of Mullen's allegations, the "events giving rise to" this suit occurred in NDCA. *Google*, 2022 WL 1613192, at *3-*4. That is "clearly the more convenient forum." *Id.* at *3. The district court plainly abused its discretion in concluding otherwise, and mandamus is warranted.

ISSUE PRESENTED

Whether the district court clearly abused its discretion in refusing to transfer this case to NDCA.

STATEMENT OF FACTS

I. The Parties

Plaintiff Mullen Industries LLC ("Mullen") brought this suit in EDTX, alleging that Samsung infringes nine patents. Mullen, a Delaware LLC, has no connection to EDTX. *See* Appx0213. Its CEO—the sole named inventor of the asserted patents—resides in Pittsburgh, PA. Appx0153.

SEC is a Korean corporation with its principal place of business in Korea. Appx0135-0136. SEA is a wholly owned subsidiary of SEC and a New York corporation with its principal place of business in New Jersey.

Appx0141. SEA commercializes, markets, and sells Samsung phones, tablets, and watches throughout the United States, including in NDCA. Appx0141. To support those efforts, SEA maintains corporate offices in various U.S. cities, including in EDTX and NDCA. Appx0141. Among those offices is a 385,000 square-foot campus in Mountain View, CA (in NDCA), with over 200 regular, full-time employees. Appx0141; Appx0550.

II. The Instant Suit

A. Mullen's Allegations

In January 2024, Mullen sued Samsung in EDTX, alleging that Samsung infringed nine patents. Appx0030. Mullen later amended the complaint, such that it now asserts infringement as to only eight patents. Appx0209.

The patents-in-suit relate to mobile electronic devices. Appx0210-0211; Appx0216-0217. Seven concern location services, and another concerns notifications on wearable devices. *Id.* Mullen accuses Samsung of infringing those patents through the operation of three types of software installed on some Samsung phones, tablets, and watches:

Google Maps, the Google-developed Wear OS, and SmartThings Find ("STF"). Appx0002; Appx0209.

B. The Accused Functionalities and Relevant Witnesses

Google Maps and Wear OS. Two of the accused technologies—Google Maps and Wear OS—were designed and developed by Google, primarily in NDCA. Appx0137; Appx0141; Appx0149. The Google engineering teams that develop and maintain the accused functionalities—location sharing for Google Maps and notification features for Wear OS—are primarily in NDCA. *See* Appx0144-0146; Appx0149-0151. At least eleven Google witnesses with relevant technical knowledge are based in NDCA. *See id*. No relevant Google employees live or work in EDTX. Appx0144; Appx0151.

No Samsung employees design or develop Google Maps, and none have access to proprietary documents or source code for Google Maps. Appx0137-0138; Appx0141. The SEC employees who manage Samsung's relationship with Google concerning Google Maps are in Korea. Appx0136-0137.

SEC employees in Korea adapt Wear OS for use in Samsung watches. *See* Appx0137. Any design documents and source code related

to Samsung's adapted version are in Korea. Appx0137-0138; Appx0141. Although Mullen alleges that certain notification functions performed by Wear OS on Samsung watches infringe one of its patents, the "application programming interfaces" for "event notifications" are included in a software package provided by Google. Appx0137.

SmartThings Find. STF similarly has no material connection to EDTX. STF was originally designed and developed by SEC as an application called "Find My Mobile." Appx0136. That application was integrated into the "SmartThings" platform, which was originally developed by SmartThings, Inc., a company based in NDCA that Samsung acquired in 2014 and that continues to operate as a wholly owned subsidiary of SEA. Appx0136. SmartThings, Inc. has several dozen employees in Mountain View and no office in EDTX. Appx0136. The Samsung employees responsible for designing and developing STF are located in Korea; none are in EDTX. Appx0136-0391; Appx0137. Accordingly, there are no design documents or source code concerning STF in EDTX. Appx0138; Appx0141.

Financials and Marketing. Some SEA employees, including two identified as potential witnesses in this case, maintain financial and marketing documents in EDTX. *See* Appx0205.

Prior Art. Several prior art references disclose the same general subject matter as seven of the asserted patents (i.e., access to location information by mobile device users). *See* Appx0155. The inventors of those references are all located in NDCA and elsewhere in California. *See* Appx0163.

III. Samsung's Transfer Motion

A. The Parties' Briefing

Because this suit has virtually no connection to EDTX, and because the relevant witnesses and evidence are concentrated in NDCA and Korea, Samsung moved to transfer venue for convenience. Appx0113. Samsung argued first that the case could have been brought in NDCA because SEA has a regular and established place of business in that district—namely, offices with over 200 regular full-time employees—and SEC, as a foreign corporation, can be sued in any judicial district. Appx0123 (citing 28 U.S.C. §§ 1391(c)(3), 1400(b)). Samsung further argued that the convenience factors strongly favored transfer because

witnesses and sources of proof are overwhelmingly located in NDCA (or Korea, which is closer to NDCA than to EDTX), and NDCA has the stronger local interest. Appx0123-0129.

Mullen opposed, arguing first that Samsung had failed to establish that it has offices in NDCA, primarily because Samsung did not provide a street address for its facility. Appx0185. With respect to the convenience factors, Mullen did not dispute the case's strong connection to NDCA, but argued that a few witnesses and documents related to damages, product testing, and the "Internet of Things" ("IoT")—not an accused product in this case—are located in EDTX. Appx0186-0194.

In reply, Samsung maintained that its initial argument as to venue was sufficient, but also supplemented that argument with additional exhibits it had produced to Mullen in venue discovery after filing its motion. Those exhibits confirmed the street addresses of SEA's 385,000 square-foot campus in Mountain View. Appx0536.

In its surreply, Mullen urged the court to ignore Samsung's reply statements regarding venue. Appx0573. And although Mullen did not dispute that its proposed EDTX witnesses lacked relevant technical knowledge, it maintained that a handful of SEA employees in EDTX

could have relevant information concerning testing and damages. Appx0576-0577.

B. The District Court's Denial of Samsung's Motion

On March 25, 2025, the district court denied Samsung's motion to transfer. The court held first that Samsung had failed to show that the suit could have been brought in NDCA. Appx0003-0005. The court found that although Samsung had submitted a declaration with its opening brief stating that SEA has "several facilities throughout California, including the NDCA" and "employs over 600 regular full-time employees in California," including over "200 employees in Mountain View," Samsung had "fail[ed] to support this allegation with evidence of these facilities' addresses or support that [Samsung] operates a regular and established place of business at these unidentified facilities." Appx0004. The court refused to consider the fact that Samsung had provided the facilities' addresses in its reply brief, holding that Samsung was prohibited from introducing "new evidence" at that stage. Appx0004-0005. The court further faulted Samsung for failing to state that it had committed alleged acts of infringement in NDCA—even though Mullen did not dispute that issue. Appx0005.

The court then turned to the convenience factors and ultimately concluded that Samsung had failed to demonstrate that NDCA would be a more convenient forum. Appx0005-0019.

Compulsory Process. The court held that the availability of compulsory process was neutral. Appx0009-0013. The court ruled that although Samsung had identified eleven nonparty Google engineers in NDCA and seven prior artists in and near NDCA, Samsung had failed to show that it would seek the testimony of those witnesses. Appx0010-0011. The court also held that the Google witnesses were not unwilling. Appx0011-0012.

Willing Witnesses. The district court found that the cost of attendance for willing witnesses slightly favored transfer. Appx0013-0015. The court significantly discounted the relevance of the eleven Google witnesses involved in the development and design of Google Maps and Wear OS, asserting that witnesses with knowledge of Google Maps were unimportant because Google Maps is "only one of the [three] accused features in this case," and that witnesses with knowledge of Wear OS were entirely irrelevant because Samsung adapted Wear OS for use with its products. Appx0014. The court then counted in EDTX's

favor a couple Samsung witnesses with knowledge only as to marketing and testing. Appx0014.

Sources of Proof. The court held that the relative ease of access to proof weighed slightly against transfer. Appx0006-0009. The court placed "minimal weight" on Google's documents in NDCA, deeming them relevant only as to Mullen's claims against Samsung's devices with Google Maps technology. Appx0007-0008. The court then declined to address whether technical documents in NDCA would be more or less relevant than the "damages-related documents" Mullen identified in EDTX. Appx0008. The court further ruled that Samsung had not shown that the prior artists had information regarding their prior art or that the prior art was relevant. Appx0008-0009.

Local Interest. The court held that EDTX's interest in this case outweighed NDCA's. Appx0017-0018. The court based that conclusion on a comparison of Samsung's "presence" in each district, holding that Samsung maintains an office in EDTX and that Samsung had failed to show that it "maintains a significant presence in" NDCA. Appx0017. The court further disregarded the design and development in NDCA of two accused functionalities on the ground that actions taken by third parties

like Google are categorically irrelevant in the local-interest analysis. Appx0017-0018.

Other Factors. The court held that the factors addressing court congestion, familiarity with patent law, and avoidance of conflict of laws were neutral. Appx0016, 0018.

REASONS WHY THE WRIT SHOULD ISSUE

Mandamus relief is available to "correct a clear abuse of discretion or usurpation of judicial power." *In re Apple Inc.*, 979 F.3d 1332, 1336 (Fed. Cir. 2020). A petitioner seeking mandamus relief must show a "clear and indisputable" right to the writ; have "no other adequate method of attaining the desired relief"; and demonstrate that "the writ is appropriate under the circumstances." *Id.* For mandamus petitions challenging a failure to transfer for convenience, this three-part test "reduces to the first factor" because an appeal following a final judgment is not an adequate alternative and an erroneous failure to transfer may result in irreparable procedural injury. *Id.* at 1336-37.

This Court follows regional-circuit standards governing transfer-for-convenience motions—here, the Fifth Circuit's standards. *In re Google LLC*, 58 F.4th 1379, 1382 (Fed. Cir. 2023). After ensuring that a

suit "might have been brought" in the proposed transferee venue, the Fifth Circuit analyzes private and public interest factors to compare the relative convenience of the forums. *In re Volkswagen of Am., Inc.*, 545 F.3d 304, 312 (5th Cir. 2008) (en banc) (quoting 28 U.S.C. § 1404(a)). The private interest factors are: "(1) the relative ease of access to sources of proof; (2) the availability of compulsory process to secure the attendance of witnesses; (3) the cost of attendance for willing witnesses; and (4) all other practical problems that make trial of a case easy, expeditious and inexpensive." *Id.* at 315 (citation omitted). The public interest factors are: "(1) the administrative difficulties flowing from court congestion; (2) the local interest in having localized interests decided at home; (3) the familiarity of the forum with the law that will govern the case; and (4) the avoidance of unnecessary problems of conflict of laws [or in] the application of foreign law." *Id.* (citation omitted). A case should be transferred when the movant has shown that the transferee venue is "clearly more convenient" than the transferor venue. *Id.*

Samsung has a clear and indisputable right to the writ. This case undoubtedly could have been brought in NDCA, as Samsung's opening brief and supporting declaration made plain. Whether the case should

be transferred thus turns on the convenience factors, which point in only one direction: NDCA. The compulsory-process and willing-witnesses factors overwhelmingly favor transfer, as the witnesses with technical knowledge regarding the accused products are located in NDCA or Korea, and none are located in EDTX. The relevant documents and sources of proof are mostly maintained in NDCA and Korea. NDCA has a far stronger local interest in this case than EDTX. And the remaining factors are neutral, making the case for transfer wholly one-sided. Mandamus is therefore warranted.

I. This Case Could Have Been Brought in NDCA

The district court's conclusion that Samsung failed to show that this case could have been brought in NDCA represents a clear abuse of discretion. It could not be plainer that SEA has a regular and established place of business in NDCA: it has a 385,000 square-foot campus that hosts over 200 employees.[1] And Mullen did not dispute that alleged acts of infringement occurred in NDCA. The parties' briefing thus established all that is necessary under 28 U.S.C. § 1400(b). Indeed, Samsung's

[1] SEC is a foreign corporation, and suits against foreign entities are proper in any judicial district. 28 U.S.C. § 1391(c)(3).

amenability to venue in NDCA is well established, as this Court has recently and repeatedly ordered the transfer of cases against Samsung to NDCA. *See, e.g.*, *In re Samsung Elecs. Co.*, 2023 WL 8642711, at *3 (Fed. Cir. Dec. 14, 2023); *In re Google LLC*, 2022 WL 1613192, at *5 (Fed. Cir. May 23, 2022); *Samsung*, 2 F.4th at 1381. In reaching its contrary conclusion, the district court imposed a new "street address" requirement that has no basis in precedent, and then refused to consider Samsung's NDCA street address once Samsung proffered it in its reply. In so doing, the district court distorted Section 1404(a)'s proper-venue requirement—a straightforward inquiry designed simply to ensure that a case is not transferred to a district in which it could not have been brought—into an artificial means for keeping a case in a district in which it should not have been brought.

A. Samsung Has a Regular and Established Place of Business in NDCA

Samsung clearly met its burden to show a regular and established place of business in NDCA. In its opening brief, Samsung explained that "SEA has offices with over 200 regular full-time employees in the NDCA." Appx0123. The accompanying citation referred to the declaration of Colm Malone, Vice President of R&D Project Management at SEA, who

stated that "SEA has several facilities throughout California, including the NDCA, and employs over 600 regular full-time employees in California," including "over 200 employees in Mountain View, California." Appx0141. After Mullen objected that Samsung had not identified the "address" of such offices or clarified that the offices belonged to Samsung, Appx0185, Samsung responded by citing SEA's office list—which had already been produced to Mullen in venue discovery—identifying SEA's 385,000 square-foot campus at 645 and 665 Clyde Avenue in Mountain View. Appx0536.

The district court's assertion that Samsung nevertheless failed to establish a regular and established place of business fails for two primary reasons. First, the court apparently considered Samsung's opening brief insufficient because Samsung did not provide addresses or otherwise "support that [SEA] operates a regular and established place of business." Appx0004. But there is no address requirement. Section 1400(b) does not contain one. And this Court's longstanding precedent is inconsistent with any such requirement. A defendant may have a "regular and established place of business" in a district despite lacking a "fixed physical presence in the sense of a formal office or store"—meaning

that *the defendant need not proffer a street address to establish a regular place of business*. *In re Cordis Corp.*, 769 F.2d 733, 737 (Fed. Cir. 1985). Rather, a defendant need only proffer evidence of a "regular, physical presence of an employee or other agent of the defendant conducting the defendant's business at the alleged 'place of business.'" *In re Google LLC*, 949 F.3d 1338, 1345 (Fed. Cir. 2020). The Malone declaration did just that, describing SEA's "facilities" in NDCA with more than 200 "regular full-time employees." Appx0141. Samsung thus established what this Court has expressly recognized: SEA employs full-time employees at a regular, established place of business in NDCA. *See Samsung*, 2 F.4th at 1376 n.1 ("[SEA] has offices in the Northern District of California from which more than 300 employees work.").

Second, even if the Malone declaration were insufficient, the district court abused its discretion by disregarding Samsung's reply brief, which clarified the precise street-address issue the district court thought needed clarifying. *See* Appx0536 (providing addresses of SEA's Mountain View facilities). That is what reply briefs are for—responding to a "new point or issue" in an opposition brief. *United States v. Rodriguez*, 15 F.3d 408, 414 n.7 (5th Cir. 1994). And as this Court has held in the context of

PTAB proceedings, an adjudicative body abuses its discretion by disregarding a reply brief that properly responds to new issues raised in the opposition brief. *Axonics, Inc. v. Medtronic, Inc.*, 75 F.4th 1374, 1380 (Fed. Cir. 2023). Any other rule would confound judicial economy by turning opening briefs into a quixotic exercise in anticipating all possible responsive arguments, no matter how tenuous. Moreover, Mullen cannot "complain that [it] was prejudiced" by any new information in Samsung's reply given that the district court gave Mullen "an adequate opportunity to respond" in a surreply. *Vais Arms, Inc. v. Vais*, 383 F.3d 287, 292 (5th Cir. 2004).

B. Alleged Acts of Infringement Occurred in NDCA

There is also no doubt that alleged acts of infringement occurred in NDCA. Mullen's complaint alleges that Samsung, a "large technology company," "incorporated the infringing technologies into Samsung's phones, tablets, watches, and servers." Appx0212-0213. The complaint further alleges that SEA is "responsible for the design, manufacture, testing, and sale of Samsung mobile devices, such as phones, tablets, and watches, and related servers, software and applications, in the United States." Appx0214; *see also* Appx0218-0290 (describing Samsung's

nationwide efforts to "export[]," "import[]," and "put into use" infringing products). Consistent with those allegations, the Malone declaration stated that "SEA commercializes, markets, and sells Samsung phones, tablets, and watches in the United States, including in the NDCA." Appx0141. Accordingly, Mullen has never disputed that alleged acts of infringement occurred in NDCA.

The district court nevertheless faulted Samsung for failing to "allege that [it has] committed acts of infringement in" NDCA. Appx0005. But Samsung had no need to restate a fact that was apparent from the face of the complaint's allegation that Samsung infringes "around the world [and] in the United States," Appx0214; obvious from the nature of the claims and Samsung's undisputed nationwide distribution activities; unambiguously stated in the Malone declaration, which explains that Samsung sells its devices "in the United States, including in the NDCA," Appx0141; and nowhere disputed by Mullen. Indeed, the notion that Samsung, a nationwide seller of personal devices, sells the relevant devices "in the United States," Appx0214, but somehow has avoided committing alleged acts of infringement in NDCA, strains credulity. *See Dept. of Com. v. New York*, 588 U.S. 752, 785 (2019) (courts

are "not required to exhibit a naiveté from which ordinary citizens are free" (citation omitted)). Samsung was not required to "anticipatorily rebut" such an implausible argument in its opening brief—much less to address in reply an argument that Mullen did not raise. *Zurich Am. Ins. Co. v. Arch Ins. Co.*, 20 F.4th 250, 257 n.3 (5th Cir. 2021) (citation omitted). Contrary to the district court's formalistic conclusion, such a failure "is not a forfeiture," but the orderly progression of litigation. *Id.* The district court abused its discretion by holding otherwise.

II. The Convenience Factors Show That NDCA Is a Clearly More Convenient Forum

The district court's conclusion that transfer was unwarranted was patently erroneous. Properly assessed, the most critical factors weigh strongly in favor of transfer, and no factor weighs against.

A. The Availability of Compulsory Process Strongly Favors Transfer

Numerous third-party witnesses are located in or near NDCA, and as the district court itself acknowledged, *none* are located in EDTX. Yet the district court held that this factor was neutral. That was a clear abuse of discretion, premised on legal error. This Court has repeatedly held that this factor "weighs strongly in favor of transfer" where, as here,

there are numerous relevant third-party witnesses subject to NDCA's subpoena powers, but none subject to EDTX's. *In re Apple Inc.*, 2021 WL 5291804, at *3 (Fed. Cir. Nov. 15, 2021); *In re Genentech, Inc.*, 566 F.3d 1338, 1345 (Fed. Cir. 2009).

1. Samsung identified two categories of witnesses subject to compulsory process in NDCA. First, there are seven prior art witnesses in California with knowledge of relevant prior art. Appx0121-0122; Appx0155; Appx0163. One particularly salient example is NDCA-based CellPoint Inc., which developed its CellPoint "Finder!" before the asserted patents' priority date—and has already received subpoenas from Samsung. Second, eleven Google engineers and product managers knowledgeable about the design of the accused features of Google Maps and Wear OS are located in NDCA, and none are in EDTX. *See* Appx0144-0146; Appx0150-0151. The district court incorrectly treated those witnesses as willing witnesses who did not need to be subpoenaed. But even accepting that conclusion for purposes of this petition, at least seven third-party witnesses are in or near NDCA.

No relevant third-party witnesses are in EDTX. Stretching to identify any witnesses at all, Mullen offered three EDTX witnesses who

worked on Samsung's IoT platform. Appx0189-0190. But as the district court correctly explained, those witnesses are irrelevant, as Mullen does not accuse IoT of infringement. Appx0012; Appx0546.

2. Facing that lopsided spread of witnesses, the district court should have held that the compulsory-process factor weighs heavily in favor of transfer. This Court has so concluded even where the disparity between transferor and transferee district is less stark than it is here. *See Genentech*, 566 F.3d at 1343, 1345 (six third-party witnesses within California, and none in EDTX); *see also, e.g.*, *Google*, 2022 WL 1613192, at *3 (transferee district "clearly more convenient" given five prior artists in NDCA); *Apple*, 2021 WL 5291804, at *3 (factor strongly favors transfer where there are "potential third-party witnesses subject to the subpoena power" in NDCA but not transferor district, and citing "repeated[]" holdings in similar cases).

The district court nonetheless held that the compulsory-process factor was neutral because there was "no way of knowing whether any of these witnesses may be sought for trial testimony." Appx0011. That constitutes clear legal error. As this Court has explained (in yet another case where third-party witnesses were located in NDCA but not EDTX),

a district court abuses its discretion by discounting unwilling witnesses simply because "it [is] not clear to the court how many of those witnesses would actually be called to testify and the importance of their testimony." *In re HP Inc.*, 2018 WL 4692486, at *3 (Fed. Cir. Sept. 25, 2018); *see also In re SAP Am.*, 133 F.4th 1370, 1375 (Fed. Cir. 2025) (similar). A party seeking transfer need only show that "the potential witness has … relevant and material information at this point in the litigation"—that is, it need only "identif[y] witnesses relevant" to topics that "might be issues at trial," such as "infringement" and "invalidity." *Genentech*, 566 F.3d at 1343-44. The defendant need not "affirmatively indicate that it would call those witnesses or [explain] the nature of the testimony they would give." *HP*, 2018 WL 4692486, at *3 & n.1.

In discounting Samsung's seven identified prior artists on relevance grounds, the district court assessed Samsung's evidence under an overly demanding standard that this Court has repeatedly rejected. Appx0011-0012. Samsung unquestionably made the required showing that those witnesses had information "relevant and material" to invalidity: it explained that it had identified those witnesses in preparing its "forthcoming invalidity contentions" (where the prior art authored by

those witnesses were ultimately charted); that each prior artist was the author or inventor of references that "disclose[] the same general subject matter as eight of the asserted patents, relating to controlling access to location information among mobile device users"; and that Samsung had already subpoenaed one of the prior artists. Appx0121; Appx0553. The district court never explained how Samsung could have done more to predict those witnesses' testimony long before fact discovery closed. *See* Appx0583-0584. And because the witnesses' potential relevance was "clear from the parties' filings," Samsung had no obligation to submit additional materials "indicating what specific testimony [those witnesses] might offer and why such testimony is relevant or important." *Genentech*, 566 F.3d at 1343-44 (citing *Volkswagen*, 545 F.3d at 317 n.12). In holding Samsung to a standard repeatedly rejected by this Court, the district court clearly abused its discretion. *See In re Netflix, Inc.*, 2022 WL 167470, at *3 (Fed. Cir. Jan. 19, 2022) (district court abused discretion by requiring party to do more than identify "individuals knowledgeable about prior art pertaining to invalidity issues").

Properly evaluated, the compulsory-process factor strongly favors transfer. There are seven prior-artist witnesses with relevant

information in and near NDCA, and no third-party witnesses in EDTX.[2] The district court's conclusion that the compulsory-process factor is nevertheless "neutral" is simply indefensible. *See Google*, 2022 WL 1613192, at *3 (district court abused discretion in not weighing compulsory-process factor in favor of transfer where five prior artists were in NDCA, and no unwilling witnesses were in EDTX).

B. NDCA Is Far More Convenient for Willing Witnesses

The district court abused its discretion in concluding that the convenience of willing witnesses only slightly favors transfer. In fact, the convenience of the witnesses—"probably the single most important factor in [the] transfer analysis," *Genentech*, 566 F.3d at 1343 (citation omitted)—strongly favors transfer. Mullen accuses Samsung of committing infringement by "selling devices that run Google's accused

[2] The district court erroneously discounted the eleven Google technical witnesses on the ground that they might be "willing." Appx0011. "[W]here, as here, the movant has identified multiple third-party witnesses and shown that they are overwhelmingly located within the subpoena power of only the transferee venue, this factor favors transfer even without a showing of unwillingness for each witness." *In re Atlassian Corp.*, 2021 WL 5292268, at *2 (Fed. Cir. Nov. 15, 2021). Even accepting the court's conclusion here, however, the compulsory-process factor weighs strongly in favor of transfer. The Google witnesses—and the district court's erroneous discounting of their relevance—are discussed below, in connection with the willing-witnesses factor.

applications" and using Samsung's own "functionality in conjunction with those applications." *Google*, 2022 WL 1613192, at *1; *see Samsung*, 2 F.4th at 1374. It necessarily follows that both Google's and Samsung's technical witnesses are central to this case. Yet the district court gave only minimal weight to the *eleven* Google engineers and product managers who designed and worked on the accused technology in NDCA, as well as the three identified Samsung technical witnesses in Korea. In so doing, the court relied on presumptions that this Court has repeatedly rejected and that bear no relation to the facts of this case.

1. Remarkably, the district court sharply discounted the significance of the eleven NDCA Google witnesses who have direct knowledge of the Google-developed accused functionalities that are central to this case. This Court has held again and again that witnesses "knowledgeable about the design and development of the accused functionality" are "[k]ey" and thus should be carefully considered in the convenience analysis. *Samsung*, 2023 WL 8642711, at *2. Yet the district court held that these witnesses only "slightly" favored transfer based on presumptions this Court has decisively rejected.

The district court did not dispute that the eleven Google witnesses have relevant knowledge of the accused functionalities. Instead, the court discounted the Google witnesses knowledgeable about Google Maps because "Google Maps is only one of the accused features in this case." Appx0014. But that is simply another way of expressing skepticism that the Google Maps witnesses would turn out to be *important* at trial, relative to the rest of the case—when this Court has repeatedly instructed district courts *not* to require such a showing. *See Genentech*, 566 F.3d at 1343-44 (witnesses' convenience should not be discounted based on assumption that their testimony will not be *central* to trial; witnesses need only possess information relevant to issues such as infringement). Because Google Maps is one of three accused products and is alleged to infringe five of the eight asserted patents, *see* Appx0224-0235; Appx0246-0251; Appx0253; Appx0255-0256; Appx0259-0261; Appx0272-05273; Appx0297-0298 (or, in the original complaint, eight of the nine asserted patents, *see* Appx0185), the witnesses knowledgeable about Google Maps unquestionably have "relevant and material information." *Genentech*, 566 F.3d at 1343. That was all that was

necessary to require the court to give the Google Maps witnesses significant weight in the analysis.

The court also erroneously disregarded Google witnesses with knowledge regarding Wear OS. Because Samsung adapts Google's Wear OS software for use in Samsung's Galaxy watches, the court concluded that Google engineers who developed Wear OS were categorically not "relevant." Appx0014. But at this stage of the litigation, the court had no basis for making that assumption. Mullen's allegations are directed to event notifications on Samsung watches running Google's Wear OS software, *see* Appx0014; Appx0188, and the Wear OS software comes to Samsung with existing programming for event notifications, Appx0137. Thus, the court's assertion that Google's Wear OS witnesses have *no* relevant knowledge is pure "conjecture" inconsistent with the record. *Atlassian*, 2021 WL 5292268, at *3. At most, the adapted nature of Wear OS indicates that Samsung witnesses working on the adaptation likely *also* have relevant information—not that the Google engineers who developed Wear OS have none. A court commits an "abuse of discretion" when it relies on assumptions that are "untethered" to evidence in the record. *Id*. at *2.

Turning to Samsung employees, Samsung's technical witnesses in Korea, who have relevant knowledge of the adapted Wear OS software and the third accused functionality, SmartThings Find, also weigh in favor of transfer. "[I]t is indisputable that the Northern District of California is clearly more convenient for [them] than" EDTX. *TikTok*, 85 F.4th at 361 (NDCA clearly more convenient than Texas for witnesses based in China); *see Samsung*, 2023 WL 8642711, at *2 ("Because most of the potential witnesses here are in Korea and NDCA, transfer would greatly reduce the time and inconvenience of travel."). Samsung identified at least three such witnesses. Appx0136-0137.

Thus, eleven Google witnesses in NDCA and three Samsung witnesses in Korea should have weighed strongly in favor of transfer.

2. On the other side of the ledger were two Samsung employees in EDTX whom the district court viewed as "relevant to damages." Appx0014; Appx0205. The court evidently accorded these non-technical witnesses roughly equal weight as the fourteen technical witnesses in NDCA or Korea. That was an abuse of discretion: a few witnesses, with "no technical knowledge of the accused functionality here, 'cannot overcome the immense inconvenience that the majority of relevant

witnesses would face if this case were to be tried in'" EDTX. *Samsung*, 2023 WL 8642711, at *2 (quoting *TikTok*, 85 F.4th at 361). Faced with similar imbalances, this Court has repeatedly held that the willing-witnesses factor weighs *strongly* in favor of transfer. *See, e.g.*, *Google*, 58 F.4th at 1384 (factor weighed "firmly" in favor of transfer where Google identified eleven witnesses in NDCA even if three employees in WDTX had material information); *Atlassian*, 2021 WL 5292268, at *3 (factor favors transfer where witnesses responsible for designing and developing accused functionalities located in NDCA, and WDTX witnesses lacked knowledge regarding the accused functionalities). The district court abused its discretion in concluding otherwise.

C. Sources of Proof Are More Accessible in NDCA

The district court abused its discretion in holding that the sources-of-proof factor weighs *against* transfer based on its erroneous refusal to acknowledge the relevance of Google's evidence—even though this case centers on Google-designed functionalities.

The vast majority of the relevant evidence in this case will come from one of two places: Korea or NDCA. Although evidence in Korea does not factor into the sources-of-proof analysis, documents located in NDCA

do. *In re Juniper Networks*, 14 F.4th 1313, 1321 (Fed. Cir. 2021). Google's design documents regarding Google Maps and Wear OS were created and are maintained primarily in NDCA. Appx0146-0147; Appx0151; *see also In re Google LLC*, 2021 WL 5292267, at *2 (Fed. Cir. Nov. 15, 2021) (sources-of-proof factor depends on "the location of document custodians and location where documents are created and maintained"). And because the relevant prior artists are located in or near NDCA, their documents are more accessible from there as well. *See* p. 8, *supra*.

None of the foregoing documents are located in EDTX. Appx0138; Appx0141; Appx0146-0147; Appx0151. Rather, the only potentially relevant documents in EDTX are Samsung's marketing and sales documents. *See* Appx0008.

The district court, however, refused to "meaningfully compare" the evidence in each district, *Apple*, 979 F.3d at 1340, and instead discounted all of the evidence in NDCA on legally erroneous bases. In particular, the court downplayed Google's technical evidence concerning Google Maps and Wear OS based on the same reasoning that it used to discount Google's witnesses with knowledge of those functionalities. That

reasoning is just as wrong in this context: the court had no record basis to assume that Google's technical evidence would be irrelevant in a case in which two of three accused functionalities were developed by Google. Appx0007-0008; *see* pp. 28-29, *supra*.

The court also assigned no weight to the prior-artist evidence, simply asserting that Samsung had not shown where the evidence was stored or whether it was relevant. Appx0008-0009. But those artists are located in and near NDCA, meaning that their documents are also most accessible there. *See Google LLC*, 2021 WL 5292267, at *2. Indeed, Samsung has already served a document subpoena on a prior artist located in NDCA. Appx0553; Appx0188 (Mullen conceding that subpoenaed evidence might be relevant).

Thus, significant design, development, and prior-art documents are located in NDCA, while unspecified marketing and sales documents are located in EDTX. In a materially identical situation, this Court held that the district court abused its discretion by "overemphasizing the [marketing-related] sources of proof in or nearer to WDTX and failing to meaningfully consider the sources of proof in NDCA." *Apple*, 979 F.3d at 1340. In patent infringement cases, documents concerning the

development of accused products are critically relevant and logically antecedent to evidence of damages. Therefore, when such documents are located in NDCA, a court errs in "failing to meaningfully consider the wealth of important information in NDCA" and assuming that the sources-of-proof factor is "neutral merely because" "revenue and accounting documents" that might be relevant to damages are located in Texas. *Id*. at 1339-40.

Indeed, the district court committed a worse error here: presented with significant technical documents in NDCA and financial or marketing documents in EDTX, the court asserted that the sources-of-proof factor weighed *against* transfer. Appx0009. That conclusion cannot be based on any actual comparison of the sources of proof accessible from NDCA and EDTX, as the court announced that it would not "decide which type of documents are more relevant." Appx0008. The court thus erred by assuming that damages-related documents in EDTX were entitled to *greater* weight than the technical and prior-art documents in NDCA. That conclusion cannot be reconciled with *Apple*. If a court abuses its discretion by assuming that the sources-of-proof factor is neutral in such

a situation, the court a fortiori abuses its discretion by assuming that the factor weighs *against* transfer.

D. NDCA Has a Clearly Stronger Local Interest

NDCA has a far stronger interest in this case than EDTX, and the district court's contrary conclusion flouts settled precedent.

The local-interest factor focuses on the connections between the venue and the events that gave rise to the suit. *See Juniper*, 14 F.4th at 1319-20. Courts therefore "look not to the parties' significant connections to each forum … but rather the significant connections between a particular venue and the events that gave rise to a suit." *TikTok*, 85 F.4th at 364 (citation omitted); *see In re Clarke*, 94 F.4th 502, 511 (5th Cir. 2024) ("We focus on the *events*—not the *parties*."). Accordingly, the location of the "research, design, and development of the accused functionality," *In re Apple Inc.*, 2022 WL 1196768, at *3 (Fed. Cir. Apr. 22, 2022), is the most important consideration. The district where that work occurred has a strong local interest "because the cause of action calls into question the work and reputation of several individuals residing in or near that district." *In re Hoffman-La Roche Inc.*, 587 F.3d

1333, 1336 (Fed. Cir. 2009); *see also In re Apple Inc.*, 2022 WL 1676400, at *2 (Fed. Cir. May 26, 2022).

NDCA has a strong local interest because the bulk of the research, design, and development of the accused functionalities occurred there. It is undisputed that the development of the accused location-sharing functionality of Google Maps, and the accused notification functionality of Wear OS, occurred primarily in NDCA, and no development or design occurred in Texas. Appx0144; Appx0149-0150. Moreover, the third product at issue, STF, was developed in Korea, and is part of a larger platform developed by a Samsung subsidiary headquartered in NDCA; again, no development occurred in Texas. Appx0136; Appx0547. That is enough to give NDCA a strong interest in deciding this action, and to tilt the local-interest factor decisively in favor of transfer. *See, e.g.*, *Juniper*, 14 F.4th at 1319-20 (factor favors transfer where "the events forming the basis for [the] infringement claims occurred mainly in the Northern District of California [and] none occurred in the Western District of Texas"); *Samsung*, 2 F.4th at 1380 (similar); *Atlassian*, 2021 WL 5292268, at *3 (similar).

The district court's contrary conclusion rested on two related legal errors. First, the court held that EDTX had the stronger local interest based on its assessment of Samsung's relative *presence* in each district. Appx0017-0018. But the local-interest factor examines the "significant connections between a particular venue and *the events that gave rise to a suit*"—not the *parties'* contacts with the forum. *Juniper*, 14 F.4th at 1320 (citation omitted); *see also id.* (collecting cases); *Samsung*, 2 F.4th at 1380; *TikTok*, 85 F.4th at 364. To be sure, the court observed that Samsung had "tested" "one of the accused functionalities" in EDTX, Appx0017—but the court did not dispute that all three accused functionalities were designed and developed in NDCA or Korea, or suggest that Samsung's testing of *one* functionality somehow gives EDTX a stronger interest in the dispute than NDCA. Had it done so, that too would have been legal error; this Court has squarely rejected such reasoning. *Samsung*, 2 F.4th at 1380 (NDCA had stronger local interest where development "took place largely in Northern California"). In all events, the court ultimately concluded that EDTX had the stronger local interest based on its perception of Samsung's relative "general" presence

in each district—which is the wrong analytical framework.[3] Appx0017; *Apple*, 979 F.3d at 1345.

Second, the district court compounded that error by adopting a new, unjustifiable rule: that "non-parties are irrelevant when determining whether localized interests weigh in favor of transfer." Appx0017-0018 (citation omitted). Because the local-interest inquiry focuses on the connection between the forum and the *events* giving rise to the suit, there is no valid reason to discount those events when they involve third parties. Indeed, this Court has repeatedly held that a district has a strong local interest based on actions taken or products supplied by third parties, including Google. *See, e.g., Samsung*, 2023 WL 8642711, at *2 (finding stronger local interest in NDCA based in part on nonparty Google's development of accused products there); *Samsung*, 2 F.4th at 1380 (similar). That makes sense: if, as in this case, a plaintiff's

[3] Making matters worse, the district court's assessment of Samsung's relative presence in each district was based on its erroneous proper-venue analysis. The court asserted that SEA had admitted that it "maintains an office in" EDTX, but had failed to show that it "maintains a significant presence in" NDCA. Appx0017. That is incorrect. As explained above, Samsung established that it has significant facilities in NDCA, and the district court abused its discretion in refusing to consider their existence. *See* pp. 15-21, *supra*.

accusations suggest that a third party's designs infringed a patent, those accusations naturally call into question the third party's "work and reputation" in the local forum. *Hoffman-La Roche*, 587 F.3d at 1336. The district court thus committed clear legal error in holding that the local interest factor weighs against transfer. In fact, it strongly favors transfer.

E. The Remaining Convenience Factors Confirm That Transfer Is Warranted

The district court correctly held that the remaining convenience factors—other practical problems, court congestion, familiarity with governing law, and avoidance of conflicts of laws—are neutral. That confirms that the suit should be transferred to NDCA.

1. There are no distinct practical problems that would counsel against transfer. When the transfer motion was filed in July 2024, this case was in its infancy. It remains in early stages, as the *Markman* hearing is scheduled for May 15, 2025, and fact discovery will close two weeks after that. *See* Appx0583-0584. There was no "inexcusabl[e] delay" here. *TikTok*, 85 F.4th at 362 (citation omitted).

2. The difficulties from court congestion are neutral. As the district court recognized, "it [is] a clear abuse of discretion to accord this

factor any weight" when there is no need for expedition. *Google*, 58 F.4th at 1383. Because there is no evidence that Mullen competes with Samsung in the market, EDTX's slightly faster dispositions have no significance here. Appx0016; *Google*, 58 F.4th at 1383.

3. As the parties agreed below, both NDCA and EDTX are well versed in patent law, and there is no prospect for conflicts of laws. Accordingly, the last two factors are neutral.

III. Taken Together, the Convenience Factors Require That This Case Be Transferred to NDCA

NDCA is unquestionably the more convenient forum and the clear "center of gravity" of this action. *In re DISH Network LLC*, 2021 WL 4911981, at *2 (Fed. Cir. Oct. 21, 2021). The most important factors, concerning the convenience of witnesses and availability of compulsory process, strongly favor transfer. The same goes for the local-interest factor. And the sources-of-proof factor likewise favors transfer. Thus, "as in other recent cases in which [this Court has] granted mandamus on the issue of transfer, several of the most important factors bearing on the transfer decision strongly favor transfer, and no factor favors retaining the case in the transferor court." *In re Pandora Media, LLC*, 2021 WL 4772805, at *7 (Fed. Cir. Oct. 13, 2021).

Under those circumstances, the case for transfer should have been straightforward. The witnesses are overwhelmingly in NDCA or Korea; the accused functionalities were developed there as well; and Mullen itself has no connection to EDTX. The district court was able to reach a different conclusion only by disregarding binding precedent establishing how the convenience factors must be applied in similar circumstances; according Google witnesses and evidence far too little significance; and ignoring the fact that none of the significant events giving rise to this litigation occurred in EDTX. Samsung therefore has a clear and indisputable right to a writ of mandamus directing transfer to NDCA.

CONCLUSION

Samsung respectfully requests that the Court issue a writ of mandamus vacating the district court's order denying Samsung's motion to transfer and directing the district court to transfer this case to NDCA.

DATED: May 7, 2025

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CERTIFICATE OF COMPLIANCE

1. This petition complies with the type-volume limitation of Federal Rule of Appellate Procedure 21(d)(1). The body of the petition contains 7,738 words, excluding the portions exempted by rule.

2. This brief complies with the typeface requirements of Federal Rule of Appellate Procedure 32(a)(5) and the type-style requirements of Federal Rule of Appellate Procedure 32(a)(6), because it has been prepared in a proportionally spaced typeface using Microsoft Word 2016 in New Century Schoolbook 14-point font.

DATED: May 7, 2025

By: */s/ Ginger D. Anders*
Ginger D. Anders

CERTIFICATE OF SERVICE

I certify that on May 7, 2025, I caused a paper copy of this document to be sent by an express carrier to lead counsel for respondent Mullen Industries LLC at the following address:

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I further certify that I caused courtesy electronic copies of this document to be sent to the following counsel of record for Mullen Industries LLC in the district court:

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I further certify that I caused a paper copy of this document to be sent by an express carrier to the presiding district judge at the following address:

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Marshall, TX 75670

I declare under penalty of perjury under the laws of the United States that the foregoing is true and correct.

DATED: May 7, 2025

By: */s/ Ginger D. Anders*
Ginger D. Anders

No. 25-___

United States Court of Appeals for the Federal Circuit

IN RE SAMSUNG ELECTRONICS CO., LTD. AND SAMSUNG ELECTRONICS AMERICA, INC.,

Petitioners.

On Petition for a Writ of Mandamus to the
United States District Court for the Eastern District of Texas,
Case No. 2:24-cv-00049
The Honorable Rodney Gilstrap

NON-CONFIDENTIAL APPENDIX

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May 7, 2025

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CONFIDENTIAL MATERIAL OMITTED

Material omitted from the Non-Confidential Appendix includes confidential information relating to business practices and other commercial sensitive information of Petitioners and Plaintiff. That material is subject to the district court's Protective Order (Dkt. 36) and Supplemental Protective Order (Dkt. 48), and was redacted from public filings in the district court. For material that is part of the record and had a sealed and a public version of a document, the Confidential Appendix includes the sealed version and the Non-Confidential Appendix includes the public version. In the Confidential Appendix, confidential material is marked in blue, which corresponds to the redacted portions of the public versions.

In the Non-Confidential Appendix, confidential material has been omitted from Appx0113-0151; Appx0163-0200; Appx0205; Appx0533-0580.

IN THE UNITED STATES DISTRICT COURT
FOR THE EASTERN DISTRICT OF TEXAS
MARSHALL DIVISION

MULLEN INDUSTRIES LLC *Plaintiff,* v. SAMSUNG ELECTRONICS CO., LTD. and SAMSUNG ELECTRONICS AMERICA, INC., *Defendants.*	§ § § § § § § § § § §	Case No. 2:24-CV-00049-JRG

PROTECTIVE ORDER

WHEREAS, Plaintiff Mullen Industries LLC and Defendants Samsung Electronics Co., Ltd. and Samsung Electronics America, Inc., hereafter referred to as "the Parties," believe that certain information that is or will be encompassed by discovery demands by the Parties involves the production or disclosure of trade secrets, confidential business information, or other proprietary information;

WHEREAS, the Parties seek a protective order limiting disclosure thereof in accordance with Federal Rule of Civil Procedure 26(c):

THEREFORE, it is hereby stipulated among the Parties and ORDERED that:

1. Each Party may designate as confidential for protection under this Order, in whole or in part, any document, information or material that constitutes or includes, in whole or in part, confidential or proprietary information or trade secrets of the Party or a Third Party to whom the Party reasonably believes it owes an obligation of confidentiality with respect to such document, information or material ("Protected Material"). Protected Material shall be

designated by the Party producing it by affixing a legend or stamp on such document, information or material as follows: "CONFIDENTIAL" or "RESTRICTED – ATTORNEYS' EYES ONLY" or "RESTRICTED CONFIDENTIAL SOURCE CODE." The designation shall be placed clearly on each page of the Protected Material (except deposition and hearing transcripts and natively produced documents) for which such protection is sought. For deposition and hearing transcripts, the designation shall be placed on the cover page of the transcript (if not already present on the cover page of the transcript when received from the court reporter) by each attorney receiving a copy of the transcript after that attorney receives notice of the designation of some or all of that transcript as including Protected Material. For natively produced Protected Material, the designation shall be placed in a slip sheet or cover page accompanying each such natively produced document and in the file name of such natively produced document.

2. Any document produced under Patent Rules 2-2, 3-2, and/or 3-4 before issuance of this Order with the designation "Confidential" or "Confidential - Outside Attorneys' Eyes Only" shall receive the same treatment as if designated "RESTRICTED - ATTORNEYS' EYES ONLY" under this Order, unless and until such document is redesignated to have a different classification under this Order.

3. With respect to documents, information or material designated "CONFIDENTIAL, "RESTRICTED - ATTORNEYS' EYES ONLY," or "RESTRICTED CONFIDENTIAL SOURCE CODE" ("DESIGNATED MATERIAL"),[1] subject to the provisions herein and

[1] The term DESIGNATED MATERIAL is used throughout this Protective Order to refer to the class of materials designated as "CONFIDENTIAL," "RESTRICTED - ATTORNEYS' EYES ONLY," or "RESTRICTED CONFIDENTIAL SOURCE CODE," both individually and collectively.

unless otherwise stated, this Order governs, without limitation: (a) all documents, electronically stored information, and/or things as defined by the Federal Rules of Civil Procedure; (b) all pretrial, hearing or deposition testimony, or documents marked as exhibits or for identification in depositions and hearings; (c) pretrial pleadings, exhibits to pleadings and other court filings; (d) affidavits; and (e) stipulations. All copies, reproductions, extracts, digests and complete or partial summaries prepared from any DESIGNATED MATERIALS shall also be considered DESIGNATED MATERIAL and treated as such under this Order.

4. A designation of Protected Material (i.e., "CONFIDENTIAL," "RESTRICTED - ATTORNEYS' EYES ONLY," or "RESTRICTED CONFIDENTIAL SOURCE CODE") may be made at any time. Inadvertent or unintentional production of documents, information or material that has not been designated as DESIGNATED MATERIAL shall not be deemed a waiver in whole or in part of a claim for confidential treatment. Any party that inadvertently or unintentionally produces Protected Material without designating it as DESIGNATED MATERIAL may request destruction of that Protected Material by notifying the recipient(s), as soon as reasonably possible after the producing Party becomes aware of the inadvertent or unintentional disclosure, and providing replacement Protected Material that is properly designated. The recipient(s) shall then destroy all copies of the inadvertently or unintentionally produced Protected Materials and any documents, information or material derived from or based thereon.

5. "CONFIDENTIAL" documents, information and material may be disclosed only to the following persons, except upon receipt of the prior written consent of the designating party, upon order of the Court, or as set forth in paragraph 13 herein:

(a) outside counsel of record in this Action[2] for the Parties;

(b) employees of such counsel assigned to and reasonably necessary to assist such counsel in the litigation of this Action;

(c) up to one (1) in-house counsel for each of the Parties who either has responsibility for making decisions dealing directly with the litigation of this Action, or who is assisting outside counsel in the litigation of this Action;

(d) up to one (1) officer level designated employee of each of the Parties who either has responsibility for making decisions dealing directly with the litigation in this Action or who is assisting outside counsel in preparation for proceedings in this Action. Before access is given, the designated employee shall complete the Undertaking attached as Exhibit A hereto, which must be served upon the producing Party with a general description of the designated employee's role in this Action at least seven (7) days before access to the Protected Material is to be given to that designated employee. The producing Party shall have that seven-day period to object to and notify the receiving Party in writing that it objects to disclosure of Protected Material to the designated employee. The Parties agree to promptly confer and use good faith to resolve any such objection;

(e) outside consultants or experts[3] (*i.e.*, not existing employees or affiliates of a Party or an affiliate of a Party) retained for the purpose of this litigation, provided that: (1) such consultants or experts are not presently employed by the Parties hereto for purposes other than this Action[4]; (2) before access is given, the consultant or expert has completed the Undertaking attached as Exhibit A hereto and the same is served upon the producing Party with a current curriculum vitae of the consultant or expert

[2] This "Action" means Case No. 2:24-CV-00049-JRG.

[3] For any such person, the curriculum vitae shall identify his/her (i) current employer(s), (ii) each person or entity from whom s/he has received compensation or funding for work in his or her areas of expertise or to whom the s/he has provided professional services, including in connection with a litigation, at any time during the preceding four years; (iii) (by name and number of the case, filing date, and location of court) any litigation in connection with which the s/he has offered expert testimony, including through a declaration, report, or testimony at a deposition or trial, during the preceding four years. If such consultant or expert believes any of this information is subject to a confidentiality obligation to a third-party, then the s/he should provide whatever information can be disclosed without violating any confidentiality agreements, and the Party seeking to disclose Protected Material to the consultant or expert shall be available to meet and confer with the designating Party regarding any such engagement.

[4] For avoidance of doubt, an independent expert or consultant retained (as opposed to employed) by a Party on another litigation would not be precluded under this section.

at least ten (10) days before access to the Protected Material is to be given to that consultant to allow the producing Party to object to and notify the receiving Party in writing that it objects to disclosure of Protected Material to the consultant or expert. The Parties agree to promptly confer and use good faith to resolve any such objection. If the Parties are unable to resolve any objection, the objecting Party may file a motion with the Court within fifteen (15) days of the notice, or within such other time as the Parties may agree, seeking a protective order with respect to the proposed disclosure. The objecting Party shall have the burden of proving the need for a protective order. No disclosure shall occur until all such objections are resolved by agreement or Court order;

(f) independent litigation support services, including persons working for or as court reporters, graphics or design services, jury or trial consulting services, and photocopy, document imaging, and database services retained by counsel and reasonably necessary to assist counsel with the litigation of this Action who have completed the Undertaking attached as Exhibit A[5]; and

(g) the Court and its personnel;

(h) a mediator who is assigned to hear this matter, subject to an agreement to maintain confidentiality to the same degree as required by this Protective Order;

(i) during mock trials, mock jurors to whom disclosure is reasonably necessary and who have signed an undertaking or agreement agreeing not to publicly disclose Protected Material and to keep any information concerning Protected Material Confidential; and

(j) an author, signatory, or prior recipient of the document or the original source of the CONFIDENTIAL information if being shown the document, information, or material in a deposition. Such person shall be given access only to the specific document or information therein during the deposition and not allowed to retain a copy.

6. A Party shall designate documents, information or material as "CONFIDENTIAL" only upon a good faith belief that the documents, information or material contains confidential or proprietary information or trade secrets of the Party or a Third Party to whom the Party

[5] With respect to court reporters and videographers only, execution of the Undertaking attached as Exhibit A can be done by an authorized representative of the company supplying said court reporters and videographers. For the avoidance of doubt, the requirement for independent litigation support services providers to execute the Undertaking attached as Exhibit A does not require that a party disclose the identity of those independent litigation support service providers.

reasonably believes it owes an obligation of confidentiality with respect to such documents, information or material.

7. Documents, information or material produced in this Action, including but not limited to Protected Material designated as DESIGNATED MATERIAL, and the knowledge of the existence of such Protected Material (i) shall be used by the Parties only for prosecuting, defending, or attempting to settle this Action, (ii) shall not be used for any business purpose, in connection with any other legal or administrative proceeding, including but not limited to any proceeding at the U.S. Patent and Trademark Office ("USPTO") (or any similar agency of a foreign government), or directly or indirectly for any other purpose whatsoever (without prejudice to a party seeking leave, from the USPTO and/or this Court to use, or to obtain discovery of any, DESIGNATED MATERIAL at the USPTO pursuant to the procedures set forth by the USPTO) and (iii) shall not be disclosed to any person who is not entitled to receive such Protected Material as herein provided. All produced Protected Material shall be carefully maintained so as to preclude access by persons who are not entitled to receive such Protected Material, and any person or entity who obtains access to DESIGNATED MATERIAL or the contents thereof pursuant to this Order shall not make any copies, duplicates, extracts, summaries or descriptions of such DESIGNATED MATERIAL or any portion thereof except as may be reasonably necessary in the litigation of this Action. Any such copies, duplicates, extracts, summaries or descriptions shall be classified DESIGNATED MATERIALS and subject to all of the terms and conditions of this Order.

8. To the extent a producing Party believes that certain Protected Material qualifying to be designated CONFIDENTIAL is so sensitive that its dissemination deserves even further limitation, the producing Party may designate such Protected Material "RESTRICTED --

ATTORNEYS' EYES ONLY," or to the extent such Protected Material includes computer source code, the producing Party may designate such Protected Material as "RESTRICTED CONFIDENTIAL SOURCE CODE" ("Source Code Material"). For the avoidance of doubt, "source code" includes computer code, scripts, assembly, binaries, object code, source code listings, object code listings, and Hardware Description Language (HDL) or Register Transfer Level (RTL) files that describe the hardware design of any ASIC or other chip.

9. For Protected Material designated RESTRICTED -- ATTORNEYS' EYES ONLY, access to, and disclosure of, such Protected Material shall be limited to individuals listed in paragraphs 5(a-b) and (e-j).

10. For Protected Material designated RESTRICTED CONFIDENTIAL SOURCE CODE, the following additional restrictions apply:

(a) Access to a Party's Source Code Material shall be provided only on "stand-alone" computer(s) (that is, the computer may not be linked to any network, including a local area network ("LAN"), an intranet or the Internet) in a secured locked room ("Source Code Review Room"). The stand-alone computer(s) may be connected to a printer. The stand-alone computer(s) may only be located within the continental United States at the offices of the producing Party's outside counsel. No recordable media or recordable devices, including without limitation sound recorders, personal digital assistants (PDAs), cellular telephones, peripheral equipment, cameras, voice recorders, Dictaphones, telephone jacks, CDs, DVDs, or drives of any kind (e.g., USB memory sticks and portable hard drives), shall be permitted into the Source Code Review Room. No non-electronic devices capable of similar functionality shall be permitted in the Source Code Review Room. All persons entering the Source Code Review Room containing the stand-alone computer(s) must agree to submit to reasonable security measures to ensure they are not carrying any prohibited items before they will be given access to the stand-alone computer(s). The producing Party may periodically "check in" on the activities of the receiving Party's representatives during any stand-alone computer review and may visually monitor the activities of the receiving Party's representatives from outside the room in which the stand-alone computer(s) is located, but not any work product generated by the receiving Party's representatives (e.g., no monitoring of the screen of the Source Code Computer(s), monitoring any surface reflecting any notes or work product of the receiving party,

or monitoring the key strokes of the receiving party) and only to ensure that no unauthorized electronic records of the Source Code Material and no information concerning the Source Code Material are being created or transmitted in any way and that prohibited items are not taken into or used within the review room containing the Source Code computer(s). The producing Party may not record (visually, audibly or by other means) the activities of the receiving Party's representatives;

(b) The receiving Party shall make reasonable efforts to restrict its requests for such access to the stand-alone computer(s) to normal business hours, which for purposes of this paragraph shall be 8:00 a.m. through 6:00 p.m. However, upon reasonable notice from the receiving party, the producing Party shall make reasonable efforts to accommodate the receiving Party's request for access to the stand-alone computer(s) outside of normal business hours. The Parties agree to cooperate in good faith such that maintaining the producing Party's Source Code Material at the offices of its outside counsel shall not unreasonably hinder the receiving Party's ability to efficiently and effectively conduct the prosecution or defense of this Action;

(c) The producing Party shall provide the receiving Party with information explaining how to start, log on to, and operate the stand-alone computer(s) in order to access the produced Source Code Material on the stand-alone computer(s);

(d) The receiving Party's outside counsel and/or expert shall be entitled to take notes relating to the Source Code on, at the reviewer's option, (i) a bound notebook (e.g., spiral or other type of permanent bound notebook) via handwritten notes and/or (ii) a separate stand-alone computer ("Notetaking Computer") supplied by the producing Party and kept within the same Source Code Review Room as the stand-alone Source Code computer(s), but may not copy the Source Code or any portion thereof into the notes; however, the receiving party may include function names, variable names, parameter names, and other individual identifiers derived from Source Code in the notes. The WiFi, Bluetooth, and camera functionalities on the Notetaking Computer will be permanently disabled, and the receiving Party shall not install or insert any added functionality whatsoever as to the Notetaking computer, and shall not attempt to connect the Notetaking Computer to any network. The taking of photographs or video shall not be permitted in the Source Code Review Room. At the end of a review session, the producing Party will print the notes relating to the Source Code, which shall be stamped and treated as "RESTRICTED - ATTORNEYS' EYES ONLY". No copies of all or any portion of the source code may leave the room in which the source code is inspected except as otherwise provided herein. Further, no other written or electronic record of the source code is permitted except as otherwise provided herein. No notes shall be stored on the Source Code Computer or Notetaking Computer, or left behind at the site where the inspection computer is made available, and any such notes shall be deleted or destroyed by the producing Party, without reviewing the substance of the notes, upon discovery. Any notes

relating to the Source Code shall be stamped and treated as "RESTRICTED - ATTORNEYS' EYES ONLY"

(e) The receiving Party, at its own expense, may request that the producing Party install licensed software on the Source Code Computers to assist with review of the producing Party's Source Code. Such request shall be subject to the approval of the producing Party, which shall not be unreasonably withheld. To allow the Producing Party reasonable time to prepare the Source Code Computers, the receiving Party must provide the Producing Party the computer medium (CD or DVD) containing the requested software tools at least seven (7) days in advance of the inspection. Alternatively or additionally, in the event such software tool(s) require access to the Internet to install, the receiving Party shall provide the Producing Party at least an additional three (3) days in advance of the inspection to complete the installation process. Such timely requests for the installation of such software will not be unreasonably denied so long as the requested software is compatible with the operating system and other software necessary to make the Source Code available for inspection, installed on the Source Code Computers, and does not side-step any of the security features enabled on the Source Code Computers (e.g., enable connection and use of USB thumb drives). The producing Party will install and confirm installation of said software on the Source Code Computers prior to the date the receiving Party seeks access. By way of example, the producing Party agrees to install: at least one text editor that is capable of printing out programming language text of Source Code with page and/or line numbers; a source code comparison tool, and at least one multi-text file search tool. To the extent that such tools record local working files or other records reflecting the work performed by the receiving Party, such files and records shall not be reviewed, altered, or deleted by the supplier;

(f) The producing Party will produce Source Code Material in computer searchable format on the stand-alone computer(s) as described above;

(g) Access to Source Code Material shall be limited to outside counsel and up to five (5) outside consultants or experts (*i.e.*, not existing employees or affiliates of a Party or an affiliate of a Party) retained for the purpose of this litigation and approved to access such Protected Materials pursuant to paragraph 5(e) above;

(h) To the extent portions of Source Code Material are quoted in an electronic copy or image of a document which, pursuant to the Court's rules, procedures, or order, must be filed or served electronically ("Source Code Document"), either (1) the entire Source Code Document will be stamped and treated as RESTRICTED CONFIDENTIAL SOURCE CODE or (2) those pages containing quoted Source Code Material will be separately stamped and treated as RESTRICTED CONFIDENTIAL SOURCE CODE;

(i) Except as set forth in this paragraph, no electronic copies or images of Source Code Material shall be made without prior written consent of the producing Party. The receiving Party may create an electronic copy or image of limited excerpts of Source Code Material only to the extent necessary to create Source Code Documents or any drafts of these documents.[6] The receiving Party shall only include such excerpts as are reasonably necessary for the purposes for which such part of the Source Code Material is used. Images or copies of Source Code Material shall not be included in correspondence between the parties (references to production numbers shall be used instead) and shall be omitted from pleadings and other papers except to the extent permitted herein. The receiving Party may create an electronic image of a selected portion of the Source Code Material only when the electronic file containing such image has been encrypted using commercially reasonable encryption software including password protection. The communication and/or disclosure of electronic files containing any portion of Source Code Material shall at all times be limited to individuals who are authorized to see Source Code Material under the provisions of this Protective Order. Additionally, all electronic copies must be labeled "RESTRICTED CONFIDENTIAL SOURCE CODE." If Source Code Documents are filed with the Court, they must be filed under seal in accordance with the Court's rules, procedures and orders;

(j) No person shall copy, e-mail, transmit, upload, download, print, photograph or otherwise duplicate any portion of the designated "RESTRICTED CONFIDENTIAL SOURCE CODE" material, except that the receiving Party may request paper copies ("Source Code Printouts") of limited portions of the Source Code Material, but only if and to the extent reasonably necessary for the preparation of court filings, pleadings, expert reports, or other papers, or for deposition or trial. The designating Party and the receiving Party shall meet and confer regarding any hard copies of the supplier's Source Code requested by the receiving Party that exceed more than 25 consecutive pages, or an aggregate total of more than 500 pages. The receiving Party shall not request paper copies for the purposes of reviewing the source code other than electronically as set forth in paragraph (a) in the first instance. Within 5 business days or such additional time as necessary due to volume requested, the producing Party will provide the

[6] Drafts shall only include those excerpts the receiving Party reasonably believes will be included in the final version.

requested material on watermarked or colored paper bearing Bates numbers and the legend "RESTRICTED CONFIDENTIAL SOURCE CODE" unless objected to as discussed below. Even if within the limits described, the producing Party may reasonably challenge, within four (4) business days of the production request for the source code, the amount of source code requested in hard copy form or whether the source code requested in hard copy form is reasonably necessary to any case preparation activity pursuant to the dispute resolution procedure and timeframes set forth in Paragraph 20 whereby the producing Party is the "requesting Party" and the receiving Party is the "designating Party" for purposes of dispute resolution. Contested Source Code Printouts do not need to be produced to the receiving Party until the matter is resolved by the Court;

(k) The receiving Party shall be permitted to make up to four (4) additional hard copies of Source Code Printouts for use as working copies, all of which shall be designated and clearly labeled "RESTRICTED CONFIDENTIAL SOURCE CODE," and the receiving Party shall maintain a log of all such Source Code Printouts. Alternatively, the receiving Party shall be permitted to have the producing Party make some or all of these additional hard copies of Source Code Printouts, which the producing Party will deliver to a person identified by the receiving Party who is authorized to receive Source Code Printouts under paragraph 10(g) above;

(l) The receiving Party is permitted to make up to four (4) additional hard copies of Source Code Printouts for use at a deposition. One hard copy of the relevant portion of the source code may be marked as an exhibit for the deposition, and then maintained by counsel for the party presenting the exhibit during the deposition in a secure locked area. All other copies shall be returned to the producing Party or securely destroyed immediately after the deposition is concluded. The copy of the Source Code Printout used as the exhibit shall not be attached to the deposition transcript.

(m) The designating Party shall, on request, make a searchable electronic copy of the Source Code available on a Source Code computer during depositions of witnesses who would otherwise be permitted access to such Source Code. The receiving Party shall make such request at the time of the notice for deposition;

(n) Omitted.

(o) If the receiving Party's outside counsel, consultants, or experts obtain Source Code Printouts, the receiving Party shall ensure that such outside counsel, consultants,

or experts keep the Source Code Printouts under their direct control in a secured locked area in the offices of such outside counsel, consultants, or expert. The receiving Party may also temporarily keep the Source Code Printouts under their direct control at: (i) the Court for any proceedings(s) relating to the Source Code Material, for the dates associated with the proceeding(s); (ii) the sites where any deposition(s) relating to the Source Code Material are taken, for the dates associated with the deposition(s); and (iii) any intermediate location reasonably necessary to transport Source Code Printouts under their direct control to a Court proceeding or deposition, provided that the Source Code Printouts are kept in a secure manner that ensures access is limited to the persons authorized under this Order;

(p) A producing Party's Source Code Material may only be transported by the receiving Party at the direction of a person authorized under paragraph 10(g) above to another person authorized under paragraph 10(g) above, on paper, via hand carry, Federal Express or other similarly reliable courier. Source Code Material may not be transported or transmitted electronically over a network of any kind, including a LAN, an intranet, or the Internet. Source Code Documents may be transmitted electronically only as is reasonably necessary for filing any Source Code Material with the Court or serving such Source Code Material on another Party;

(q) A list of names and titles of persons who will review Source Code Material on the stand-alone computer(s) will be provided to the producing Party in conjunction with any written (including email) notice requesting inspection. Prior to the first inspection of any Source Code Material on the stand-alone computer(s), the receiving Party shall provide five (5) business days' notice to schedule the initial inspection with the producing Party. The receiving Party shall provide two (2) business days' (and at least 48 hours') notice in advance of scheduling any additional inspections. The producing Party may maintain a daily log of the names of persons who enter the Source Code Review Room to view the source code and when they enter and depart. Advance notice for a subsequent review shall be sufficient when provided by 1:00 p.m. (local time at the location of the Source Code computer(s)) during the course of a review session, for such review to continue on the next subsequent business day;

(r) The receiving Party's outside counsel shall maintain a log of all copies of the Source Code Printouts (received from a producing Party) that are delivered by the receiving Party to any person and a log of any electronic images of Source Code Material. The log shall include the names of the recipients and reviewers of copies and locations where the copies are stored. Upon request by the producing Party, the receiving Party shall provide reasonable assurances and/or descriptions of the security measures employed by the receiving Party and/or person that receives a copy of any portion of the source code; and

(s) All copies of any portion of the Source Code Printouts in whatever form shall be securely destroyed if they are no longer in use. Copies of Source Code Printouts that are marked as deposition exhibits shall not be provided to the Court Reporter or attached to deposition transcripts; rather, the deposition record will identify the exhibit by its production numbers.

(t) Omitted.

(u) In the event of a disclosure of any Protected Material pursuant to this Order to any person or persons not authorized to receive such disclosure under this Protective Order, the Party responsible for having made such disclosure, and each Party with knowledge thereof, shall immediately notify counsel for the producing Party whose Protected Material has been disclosed and provide to such counsel all known relevant information concerning the nature and circumstances of the disclosure. The responsible disclosing Party shall also promptly take all reasonable measures to retrieve the improperly disclosed Protected Material and to ensure that no further or greater unauthorized disclosure and/or use thereof is made. The responsible disclosing Party must immediately inform the person or persons to whom unauthorized disclosures were made of all the terms of this Order and request such person or persons to execute the Undertaking that is attached hereto as Exhibit A.

11. Absent written consent from the designating Party, any person associated or affiliated with Mullen Industries LLC and permitted to receive said Party's Protected Material that is designated RESTRICTED -- ATTORNEYS' EYES ONLY and/or RESTRICTED CONFIDENTIAL SOURCE CODE (collectively "HIGHLY SENSITIVE MATERIAL"), who obtains, receives, has access to, or otherwise learns, in whole or in part, said Party's HIGHLY SENSITIVE MATERIAL under this Order shall not prepare, prosecute, supervise, or assist in the preparation or prosecution of any patent application pertaining to (a) mapping, location sharing, and location access rights; (b) any software or services accused by Mullen Industries LLC in this Action including SmartThings, Google Maps, and smart watch call notifications, or (c) the patents asserted in this Action and any patent or application claiming priority to or otherwise related to the patents asserted in this Action (collectively the "Field of Invention") during the pendency of this Action

and for one year after its conclusion, including any appeals. For purposes of this paragraph, "prosecution" includes any activity related to (i) the preparation or prosecution (for any person or entity) of patent applications, including among others reexamination and reissue applications or (ii) directly or indirectly participating, drafting, amending, advising, or otherwise affecting the scope or maintenance of patent claims.[7] This provision does not prohibit counsel of record for any Party or retained experts in this litigation who are signed onto this Order and permitted access to the other Party's Protected Material thereunder from participating in or representing a Party in reexamination proceedings, Post-Grant Review proceedings or Inter Partes Review proceedings involving the patents-in-suit, except that person shall not participate, directly or indirectly, in the drafting or amendment of any claim(s). To ensure compliance with the purpose of this provision, an ethical wall shall be instituted between those persons with access to HIGHLY SENSITIVE MATERIAL and any individuals who, on behalf of the Party or its acquirer, successor, predecessor, or other affiliate, engages in activity subject to the foregoing bar.

12. Omitted.

[7] Prosecution includes, for example, original prosecution, reissue, inter partes review, post grant review, covered business method review and reexamination proceedings.

13. Disclosure of Protected Material shall be subject to all applicable laws and regulations relating to the export of technical data contained in such Protected Material, including the release of such technical data to foreign persons or nationals in the United States or elsewhere. Each party receiving Protected Material shall comply with all applicable export control statutes and regulations. See, e.g., 15 CFR 734.2(b). No Protected Material may leave the territorial boundaries of the United States of America or be made available to any foreign national who is not (i) lawfully admitted for permanent residence in the United States or (ii) identified as a protected individual under the Immigration and Naturalization Act (8 U.S.C. 1324b(a)(3)). Without limitation, this prohibition extends to Protected Material (including copies) in physical and electronic form. The viewing of Protected Material through electronic means outside the territorial limits of the United States of America is similarly prohibited. Notwithstanding this prohibition, Protected Material, exclusive of material designated RESTRICTED CONFIDENTIAL - SOURCE CODE, and to the extent otherwise permitted by law, may be taken outside the territorial limits of the United States if it is reasonably necessary for a deposition taken in a foreign country. Protected Material designated by Samsung as RESTRICTED CONFIDENTIAL – SOURCE CODE, and to the extent otherwise permitted by law, may be taken outside the territorial limits of the United States if it is reasonably necessary for a deposition of a Samsung witness taken in a foreign country. The restrictions contained within this paragraph may be amended through the consent of the producing Party to the extent that such agreed to procedures conform with applicable export control laws and regulations.

14. Nothing in this Order shall require production of documents, information or other material that a Party contends is protected from disclosure by the attorney-client privilege, the work product doctrine, or other privilege, doctrine, or immunity. Pursuant to Federal Rule of Evidence 502(d) and (e), if documents, information or other material subject to a claim of attorney-client privilege, work product doctrine, or other privilege, doctrine, or immunity is produced, such production shall in no way prejudice or otherwise constitute a waiver of, or estoppel as to, any such privilege, doctrine, or immunity. Any disclosure of communications, information, or documents covered by the attorney-client privilege or work product protection is not a waiver of the privilege or protection from discovery in this case or in any other federal or state proceeding. This Order shall be interpreted to provide the maximum protection allowed by Federal Rule of Evidence 502(d). Accordingly, the provisions of Federal Rule of Evidence 502(b) do not apply, and the disclosing party is not required to satisfy the elements of Rule 502(b) to properly assert the attorney-client privilege or work product protection over disclosed communications, information, and documents. Nothing contained herein is intended to or shall serve to limit a party's right to conduct a review of communications, information, or documents for relevance, responsiveness and/or segregation of privileged and/or protected information before production. Any Party that produces documents, information or other material it reasonably believes are protected under the attorney-client privilege, work product doctrine, or other privilege, doctrine, or immunity may obtain the return of such documents, information or other material by notifying the recipient(s) and providing a privilege log for the produced documents, information or other material. The recipient(s) shall gather and return all copies of such documents, information or other material to the producing Party, except for any pages containing privileged or otherwise protected markings by the recipient(s), which pages shall instead be destroyed and certified as such to the producing Party.

15. There shall be no disclosure of any DESIGNATED MATERIAL by any person authorized to have access thereto to any person who is not authorized for such access under this Order. The Parties are hereby ORDERED to safeguard all such documents, information and material to protect against disclosure to any unauthorized persons or entities.

16. Nothing contained herein shall be construed to prejudice any Party's right to use any DESIGNATED MATERIAL in taking testimony at any deposition or hearing provided that the DESIGNATED MATERIAL is only disclosed to a person(s) who is: (i) eligible to have access to the DESIGNATED MATERIAL by virtue of his or her employment with the designating party, (ii) identified in the DESIGNATED MATERIAL as an author, addressee, or copy recipient of such information, (iii) although not identified as an author, addressee, or copy recipient of such DESIGNATED MATERIAL, has, in the ordinary course of business, seen such DESIGNATED MATERIAL, (iv) a current or former officer, director or employee of the producing Party or a current or former officer, director or employee of a company affiliated with the producing Party; (v) counsel for a Party, including outside counsel and in-house counsel (subject to paragraph 9 of this Order); (vi) an independent contractor, consultant, and/or expert retained for the purpose of this litigation; (vii) court reporters and videographers; (viii) the Court; or (ix) other persons entitled hereunder to access to DESIGNATED MATERIAL. DESIGNATED MATERIAL shall not be disclosed to any other persons unless prior authorization is obtained from counsel representing the producing Party or from the Court.[8] When reasonably feasible, Parties shall give the other Parties reasonable notice (a minimum of two business days) if they expect a deposition, hearing or other proceeding to include Protected Material so that the other Parties can ensure that only authorized individuals are present at those proceedings; however, this does not require a Party to identify the specific Protected Material that will be used at the proceeding. Subject to any challenge to a particular designation under

paragraph 20 the Parties will not oppose any reasonable request by the designating Party that the courtroom be sealed, if allowed by the Court, during the presentation of any testimony, evidence, or argument relating to or involving the use of any Protected Material.

[8] In the event a non-Party witness is authorized to receive Protected Material that is to be used during his/her deposition but is represented by an attorney not authorized under this Order to receive such Protected Material, the attorney must provide prior to commencement of the deposition an executed Undertaking attached as Exhibit A. In the event such attorney declines to sign the Undertaking prior to the examination, the Parties, by their attorneys, shall jointly seek a protective order from the Court prohibiting the attorney from disclosing Protected Material in order for the deposition to proceed.

17. Parties may, at the deposition or hearing or within thirty (30) days after receipt of a deposition or hearing transcript, designate the deposition or hearing transcript or any portion thereof as "CONFIDENTIAL," "RESTRICTED - ATTORNEYS' EYES ONLY," or "RESTRICTED CONFIDENTIAL SOURCE CODE" pursuant to this Order. Access to the deposition or hearing transcript so designated shall be limited in accordance with the terms of this Order. Until expiration of the 30-day period, the entire deposition or hearing transcript shall be treated as "RESTRICTED - ATTORNEYS' EYES ONLY."

18. Any DESIGNATED MATERIAL that is filed with the Court shall be filed under seal and shall remain under seal until further order of the Court. The filing party shall be responsible for informing the Clerk of the Court that the filing should be sealed and for placing the legend "FILED UNDER SEAL PURSUANT TO PROTECTIVE ORDER" above the caption and conspicuously on each page of the filing. Exhibits to a filing shall conform to the labeling requirements set forth in this Order. If a pretrial pleading filed with the Court, or an exhibit thereto, discloses or relies on confidential documents, information or material, such confidential portions shall be redacted to the extent necessary and the pleading or exhibit filed publicly with the Court. At any point, a Party may seek to designate and protect previously produced Protected Material as Highly Sensitive Documents/Information (HSD/HSI). The Parties will follow any applicable court orders regarding the procedures for HSD/HSI.

19. The Order applies to pretrial discovery. Nothing in this Order shall be deemed to prevent the Parties from introducing any DESIGNATED MATERIAL into evidence at the trial of this Action, or from using any information contained in DESIGNATED MATERIAL at

the trial of this Action, subject to any pretrial order issued by this Court. Subject to any challenges under Section 20, the Parties will not oppose any reasonable request by the producing Party that the courtroom be sealed, if allowed by the Court, during the presentation of any testimony, evidence, or argument relating to or involving the use of any Protected Material.

20. A Party may request in writing to the other Party that the designation given to any DESIGNATED MATERIAL be modified or withdrawn. If the designating Party does not agree to redesignation within ten (10) days of receipt of the written request, the requesting Party may apply to the Court for relief. Upon any such application to the Court, the burden shall be on the designating Party to show why its classification is proper. Such application shall be treated procedurally as a motion to compel pursuant to Federal Rules of Civil Procedure 37, subject to the Rule's provisions relating to sanctions. In making such application, the requirements of the Federal Rules of Civil Procedure and the Local Rules of the Court shall be met. Pending the Court's determination of the application, the designation of the designating Party shall be maintained.

21. Each outside consultant or expert to whom DESIGNATED MATERIAL is disclosed in accordance with the terms of this Order shall be advised by counsel of the terms of this Order, shall be informed that he or she is subject to the terms and conditions of this Order, and shall sign an acknowledgment that he or she has received a copy of, has read, and has agreed to be bound by this Order. A copy of the acknowledgment form is attached as Appendix A.

22. To the extent that any discovery is taken of persons who are not Parties to this Action ("Third Parties") and in the event that such Third Parties contend the discovery sought

involves trade secrets, confidential business information, or other proprietary information, then such Third Parties may agree to be bound by this Order. Third Parties may elect to seek additional or different protections of their Protected Material through an amendment to this Order or as part of a separate agreement.

23. To the extent that discovery or testimony is taken of Third Parties, the Third Parties or any Party may designate as "CONFIDENTIAL" or "RESTRICTED -- ATTORNEYS' EYES ONLY" any documents, information or other material, in whole or in part, produced or given by such Third Parties. The Third Parties and any Party shall have ten (10) days after production of such documents, information or other materials to make such a designation. Until that time period lapses or until such a designation has been made, whichever occurs sooner, all documents, information or other material so produced or given shall be treated as "RESTRICTED -- ATTORNEYS' EYES ONLY" in accordance with this Order.

24. If a Party is served with a subpoena issued by a court, arbitral, administrative, or legislative body, or with a court order issued in other litigation that compels disclosure of any information or items designated in this action as "CONFIDENTIAL" or "HIGHLY CONFIDENTIAL – ATTORNEYS' EYES ONLY" or "HIGHLY CONFIDENTIAL – SOURCE CODE" that Party must:

(a) promptly notify in writing the designating Party. Such notification shall include a copy of the subpoena or court order;

(b) promptly notify in writing the person who caused the subpoena or order to issue in the other litigation that some or all of the material covered by the subpoena or order is subject to this Protective Order. Such notification shall include a copy of this Protective Order; and

(c) cooperate with respect to all reasonable procedures sought to be pursued by the designating Party whose Protected Material may be affected. If the designating Party timely seeks a protective order, the Party served with the subpoena or court order shall not produce any information designated in this action as "CONFIDENTIAL" or "HIGHLY CONFIDENTIAL – ATTORNEYS' EYES ONLY" or "HIGHLY CONFIDENTIAL – SOURCE CODE" before a determination by the court from which the subpoena or order issued, unless the Party has obtained the designating Party's permission. The designating Party shall bear the burden and expense of seeking protection in that court of its confidential material – and nothing in these provisions should be construed as authorizing or encouraging a receiving Party in this action to disobey a lawful directive from another court.

25. Within thirty (30) days of final termination of this Action, including any appeals, all DESIGNATED MATERIAL, including all copies, duplicates, abstracts, indexes, summaries, descriptions, and excerpts or extracts thereof (excluding a single copy of any privileged memoranda of the Parties that incorporates excerpts or extracts, and materials which have been admitted into evidence in this Action), shall at the producing Party's election either be returned to the producing Party or be destroyed. The receiving Party shall verify the return or destruction by affidavit furnished to the producing Party, upon the producing Party's request.

26. The failure to designate documents, information or material in accordance with this Order and the failure to object to a designation at a given time shall not preclude the filing of a motion at a later date seeking to impose such designation or challenging the propriety

thereof. The entry of this Order and/or the production of documents, information and material hereunder shall in no way constitute a waiver of any objection to the furnishing thereof, all such objections being hereby preserved.

27. Any Party knowing or believing that any other party is in violation of or intends to violate this Order and has raised the question of violation or potential violation with the opposing party and has been unable to resolve the matter by agreement may move the Court for such relief as may be appropriate in the circumstances. Pending disposition of the motion by the Court, the Party alleged to be in violation of or intending to violate this Order shall discontinue the performance of and/or shall not undertake the further performance of any action alleged to constitute a violation of this Order.

28. Production of DESIGNATED MATERIAL by each of the Parties shall not be deemed a publication of the documents, information and material (or the contents thereof) produced so as to void or make voidable whatever claim the Parties may have as to the proprietary and confidential nature of the documents, information or other material or its contents.

29. Nothing in this Order shall be construed to effect an abrogation, waiver or limitation of any kind on the rights of each of the Parties to assert any applicable discovery or trial privilege.

30. Each of the Parties shall also retain the right to file a motion with the Court (a) to modify this Order to allow disclosure of DESIGNATED MATERIAL to additional persons or entities if reasonably necessary to prepare and present this Action and (b) to apply for additional protection of DESIGNATED MATERIAL.

31. Any person in possession of Protected Material will maintain appropriate administrative, technical, and organizational safeguards ("Safeguards") that protect the security and privacy of Protected Material. The Safeguards will meet or exceed relevant industry

standards and limit the collection, storage, disclosure, use of, or access to Protected Material solely to personnel and purposes authorized by this Order. As part of these Safeguards, each person will use a secure transfer method for all transfers or communication of Protected Material, and take reasonable measures to password protect and encrypt Protected Material. Each person will ensure that anyone acting on that person's behalf is subject to the Safeguards or otherwise provides equivalent or greater protections for the security and privacy of Protected Material. At the request of the designating Party, the Parties will meet and confer regarding the technology to be used to conduct the deposition with respect to that Protected Material (e.g., for audio/video-conferencing and exhibits).

32. This Order shall be binding upon the Parties hereto, their attorneys, and their successors, executors, personal representatives, administrators, heirs, legal representatives, assigns, subsidiaries, divisions, employees, agents, retained consultants and experts, and any persons or organizations over which they have direct control.

So ORDERED and SIGNED this 9th day of July, 2024.

RODNEY GILSTRAP
UNITED STATES DISTRICT JUDGE

IN THE UNITED STATES DISTRICT COURT
FOR THE EASTERN DISTRICT OF TEXAS
MARSHALL DIVISION

MULLEN INDUSTRIES LLC	§	
	§	
Plaintiff,	§	
	§	
v.	§	
		Case No. 2:24-CV-00049-JRG
SAMSUNG ELECTRONICS CO., LTD. and SAMSUNG ELECTRONICS AMERICA, INC.,		
Defendants		

APPENDIX A
UNDERTAKING REGARDING PROTECTIVE ORDER

I, _____, declare that:

1. My address is _____.

   My current employer is _____.

   My current occupation is _____.

2. I have received a copy of the Protective Order in this action. I have carefully read and understand the provisions of the Protective Order.

3. I will comply with all of the provisions of the Protective Order. I will hold in confidence, will not disclose to anyone not qualified under the Protective Order, and will use only for purposes of this action any information designated as "CONFIDENTIAL," "RESTRICTED -- ATTORNEYS' EYES ONLY," or "RESTRICTED CONFIDENTIAL SOURCE CODE" that is disclosed to me.

4. Promptly upon termination of these actions, I will return all documents and things designated as "CONFIDENTIAL," "RESTRICTED -- ATTORNEYS' EYES ONLY,"

or "RESTRICTED CONFIDENTIAL SOURCE CODE" that came into my possession, and all documents and things that I have prepared relating thereto, to the outside counsel for the party by whom I am employed.

5. I hereby submit to the jurisdiction of this Court for the purpose of enforcement of the Protective Order in this action.

I declare under penalty of perjury that the foregoing is true and correct.

Signature _____

Date _____

IN THE UNITED STATES DISTRICT COURT
FOR THE EASTERN DISTRICT OF TEXAS
MARSHALL DIVISION

MULLEN INDUSTRIES LLC *Plaintiff,* v. SAMSUNG ELECTRONICS CO., LTD. and SAMSUNG ELECTRONICS AMERICA, INC., *Defendants*	§ § § § § § § § § § §	Case No. 2:24-CV-00049-JRG

SUPPLEMENTAL PROTECTIVE ORDER REGARDING GOOGLE CONFIDENTIAL INFORMATION AND SOURCE CODE

Plaintiff Mullen Industries LLC ("Mullen"), Defendants Samsung Electronics Co. Ltd, and Samsung Electronics America, Inc. ("Samsung") and non-party Google LLC ("Google"), by and through their counsel, hereby stipulate as follows:

WHEREAS, on July 9, 2024, the Court entered a Protective Order (Dkt. 36) in the above captioned case;

WHEREAS, on September 19, 2024, Mullen served subpoenas on Google in connection with this case including discovery demands that seek the production of Google Protected Material and Google Source Code;

WHEREAS Mullen, Samsung, and Google seek a supplemental protective order limiting disclosure of Google Protected Material and Google Source Code in accordance with Federal Rule of Civil Procedure 26(c) and Paragraphs 22 and 23 of the Protective Order:

THEREFORE, it is hereby stipulated among Mullen, Samsung, and Google and

ORDERED that the following Supplemental Protective Order, comprising amendments to the July 9, 2024 Protective Order (Dkt. 36), will apply to all Protected Materials and Source Code produced by Google. Underlined text identifies additional provisions, and strikethrough text identifies deleted provisions. Appendix A to this Supplemental Protective Order includes a modified Undertaking that applies to this Supplemental Protective Order. For the avoidance of doubt, the Supplemental Protective Order and corresponding amendments do not apply to the Protected Materials and Source Code produced by entities other than Google. With respect to the production of Google Protected Materials and Source Code, the terms "producing Party" and "designating Party" as they appear in both the July 9, 2024 Protective Order and this Supplemental Protective Order shall refer to non-party Google.

. . .

5. "CONFIDENTIAL" documents, information and material may be disclosed only to the following persons, except upon receipt of the prior written consent of the designating party, upon order of the Court, or as set forth in paragraph 13 herein:

. . .

(d) ~~up to one (1) officer level designated employee of each of the Parties who either has responsibility for making decisions dealing directly with the litigation in this Action or who is assisting outside counsel in preparation for proceedings in this Action. Before access is given, the designated employee shall complete the Undertaking attached as Exhibit A hereto, which must be served upon the producing Party with a general description of the designated employee's role in this Action at least seven (7) days before access to the Protected Material is to be given to that designated employee. The producing Party shall have that seven-day period to object to and notify the receiving Party in writing that it objects to disclosure of Protected Material to the designated employee. The Parties agree to promptly confer and use good faith to resolve any such objection;~~

(e) outside consultants or experts[3] (i.e., not existing employees or affiliates of a Party

[3] For any such person, the curriculum vitae shall identify his/her (i) current employer(s), (ii) each person or entity from whom s/he has received compensation or funding for work in his or her

or an affiliate of a Party) retained for the purpose of this litigation, provided that: (1) such consultants or experts are not presently employed by the Parties hereto for purposes other than this Action[4]; (2) before access is given, the consultant or expert has completed the Undertaking attached as Exhibit A hereto and the same is served upon ~~the producing Party~~ Google with a current curriculum vitae of the consultant or expert at least ten (10) days before access to the Protected Material is to be given to that consultant to allow ~~the producing Party~~ Google to object to and notify the receiving Party in writing that it objects to disclosure of Protected Material to the consultant or expert. For the avoidance of doubt, any expert seeking access to Google Protected Material must separately execute the Undertaking attached as Exhibit A to this Supplemental Protective Order and provide the required information to Google. Google has an independent right to object prior to the disclosure of any Google Protected Material to any outside consultant or expert. The mere fact that an expert has been disclosed by either Party to the other Party does not mean that such expert has the right to access Google Protected Material. The Parties and Google agree to promptly confer and use good faith to resolve any such objection. If the Parties and Google are unable to resolve any objection, ~~the objecting Party~~ Google may file a motion with the Court within fifteen (15) days of the notice, or within such other time as the Parties and Google may agree, seeking a protective order with respect to the proposed disclosure. ~~The objecting Party~~ Google shall have the burden of proving the need for a protective order. No disclosure shall occur until all such objections are resolved by agreement or Court order;

. . .

(i) ~~during mock trials, mock jurors to whom disclosure is reasonably necessary and who have signed an undertaking or agreement agreeing not to publicly disclose Protected Material and to keep any information concerning Protected Material Confidential; and~~

. . .

areas of expertise or to whom the s/he has provided professional services, including in connection with a litigation, at any time during the preceding four years; (iii) (by name and number of the case, filing date, and location of court) any litigation in connection with which the s/he has offered expert testimony, including through a declaration, report, or testimony at a deposition or trial, during the preceding four years. If such consultant or expert believes any of this information is subject to a confidentiality obligation to a third-party, then the s/he should provide whatever information can be disclosed without violating any confidentiality agreements, and the Party seeking to disclose Protected Material to the consultant or expert shall be available to meet and confer with the designating Party regarding any such engagement.

[4] For avoidance of doubt, an independent expert or consultant retained (as opposed to employed) by a Party on another litigation would not be precluded under this section.

10. For Protected Material designated RESTRICTED CONFIDENTIAL SOURCE CODE, the following additional restrictions apply:

. . .

(d) The receiving Party's outside counsel and/or expert shall be entitled to take notes relating to the Source Code on~~, at the reviewer's option, (i)~~ a bound notebook (e.g., spiral or other type of permanent bound notebook) via handwritten notes ~~and/or (ii) a separate stand-alone computer ("Notetaking Computer") supplied by the producing Party and kept within the same Source Code Review Room as the standalone Source Code computer(s),~~ but may not copy the Source Code or any portion thereof into the notes; however, the receiving party may include function names, variable names, parameter names, and other individual identifiers derived from Source Code in the notes. ~~The WiFi, Bluetooth, and camera functionalities on the Notetaking Computer will be permanently disabled, and the receiving Party shall not install or insert any added functionality whatsoever as to the Notetaking computer, and shall not attempt to connect the Notetaking Computer to any network.~~ The taking of photographs or video shall not be permitted in the Source Code Review Room. ~~At the end of a review session, the producing Party will print the notes relating to the Source Code, which shall be stamped and treated as "RESTRICTED - ATTORNEYS' EYES ONLY".~~ No copies of all or any portion of the source code may leave the room in which the source code is inspected except as otherwise provided herein. Further, no other written or electronic record of the source code is permitted except as otherwise provided herein. No notes shall be stored on the Source Code Computer ~~or Notetaking Computer~~, or left behind at the site where the inspection computer is made available, and any such notes shall be deleted or destroyed by the producing Party, without reviewing the substance of the notes, upon discovery. Any notes relating to the Source Code shall be stamped and treated as ~~"RESTRICTED - ATTORNEYS' EYES ONLY"~~ "RESTRICTED CONFIDENTIAL SOURCE CODE"

(g) Access to Source Code Material shall be limited to outside counsel and up to ~~five (5)~~ three (3) outside consultants or experts (*i.e.*, not existing employees or affiliates of a Party or an affiliate of a Party) retained for the purpose of this litigation and approved to access such Protected Materials pursuant to paragraph 5(e) above;

. . .

(j) No person shall copy, e-mail, transmit, upload, download, print, photograph or otherwise duplicate any portion of the designated "RESTRICTED CONFIDENTIAL SOURCE CODE" material, except that the receiving Party may request paper copies ("Source Code Printouts") of limited portions of the Source Code Material, but only if and to the extent reasonably necessary for the preparation of court filings, pleadings, expert reports, or other papers, or for deposition or trial.

The designating Party and the receiving Party shall meet and confer regarding any hard copies of the supplier's Source Code requested by the receiving Party that exceed more than 25 consecutive pages, or an aggregate total of more than ~~500~~ 250 pages. The receiving Party shall not request paper copies for the purposes of reviewing the source code other than electronically as set forth in paragraph (a) in the first instance. Within 5 business days or such additional time as necessary due to volume requested, the producing Party will provide the requested material on watermarked or colored paper bearing Bates numbers and the legend "RESTRICTED CONFIDENTIAL SOURCE CODE" unless objected to as discussed below. Even if within the limits described, the producing Party may reasonably challenge, within four (4) business days of the production request for the source code, the amount of source code requested in hard copy form or whether the source code requested in hard copy form is reasonably necessary to any case preparation activity pursuant to the dispute resolution procedure and timeframes set forth in Paragraph 20 whereby the producing Party is the "requesting Party" and the receiving Party is the "designating Party" for purposes of dispute resolution. Contested Source Code Printouts do not need to be produced to the receiving Party until the matter is resolved by the Court;

(k) The receiving Party ~~shall be permitted to make up to four (4) additional hard copies of Source Code Printouts for use as working copies, all of which shall be designated and clearly labeled "RESTRICTED CONFIDENTIAL SOURCE CODE," and the receiving Party shall maintain a log of all such Source Code Printouts. Alternatively, the receiving Party~~ shall be permitted to have the producing Party make ~~some or all of these additional~~ up to four (4) additional hard copies of Source Code Printouts, which the producing Party will deliver to a person identified by the receiving Party who is authorized to receive Source Code Printouts under paragraph 10(g) above.

. . .

(m) ~~The designating Party shall, on request, make a searchable electronic copy of the Source Code available on a Source Code computer during depositions of witnesses who would otherwise be permitted access to such Source Code. The receiving Party shall make such request at the time of the notice for deposition;~~

. . .

(p) ~~A producing Party's~~ Google's Source Code Material may only be transported by the receiving Party at the direction of a person authorized under paragraph 10(g) above to another person authorized under paragraph 10(g) above, on paper, via hand carry~~, Federal Express or other similarly reliable courier~~. Google's Source Code Material may not be transported or transmitted electronically over a network of any kind, including a LAN, an intranet, or the Internet. Source Code Documents may be transmitted electronically only as is reasonably necessary for filing any

Source Code Material with the Court or serving such Source Code Material on another Party;

So Ordered this

Nov 15, 2024

RODNEY GILSTRAP
UNITED STATES DISTRICT JUDGE

IN THE UNITED STATES DISTRICT COURT
FOR THE EASTERN DISTRICT OF TEXAS
MARSHALL DIVISION

MULLEN INDUSTRIES LLC *Plaintiff,* v. SAMSUNG ELECTRONICS CO., LTD. and SAMSUNG ELECTRONICS AMERICA, INC., *Defendants*	§ § § § §	Case No. 2:24-CV-00049-JRG

APPENDIX A UNDERTAKING REGARDING
GOOGLE SUPPLEMENTAL PROTECTIVE ORDER

I, _____, declare that:

1. My address is _____.

   My current employer is _____.

   My current occupation is _____.

2. I have received a copy of the Protective Order and the Supplemental Protective Order Regarding Google Confidential Information and Source Code ("Supplemental Protective Order") in this action. I have carefully read and understand the provisions of the Protective Order and the Supplemental Protective Order.

3. I will comply with all of the provisions of the Protective Order and the Supplemental Protective Order. I will hold in confidence, will not disclose to anyone not qualified under the Protective Order and Supplemental Protective Order, and will use only for purposes of this action any information designated as "CONFIDENTIAL," "RESTRICTED -- ATTORNEYS' EYES ONLY," or "RESTRICTED CONFIDENTIAL

SOURCE CODE" that is disclosed to me.

4. Promptly upon termination of these actions, I will return all documents and things designated as "CONFIDENTIAL," "RESTRICTED -- ATTORNEYS' EYES ONLY," or "RESTRICTED CONFIDENTIAL SOURCE CODE" that came into my possession, and all documents and things that I have prepared relating thereto, to the outside counsel for the party by whom I am employed.

5. I hereby submit to the jurisdiction of this Court for the purpose of enforcement of the Protective Order in this action.

I declare under penalty of perjury that the foregoing is true and correct.

Signature _____

Date _____

IN THE UNITED STATES DISTRICT COURT
FOR THE EASTERN DISTRICT OF TEXAS
MARSHALL DIVISION

MULLEN INDUSTRIES LLC, *Plaintiff*, v. SAMSUNG ELECTRONICS CO., LTD. and SAMSUNG ELECTRONICS AMERICA, INC., *Defendants*.	§ § § § § § § § § § § §	CIVIL ACTION NO. 2:24-cv-00049-JRG

MEMORANDUM OPINION AND ORDER

Before the Court is the Motion to Transfer Venue to the Northern District of California Under 28 U.S.C. § 1404(a) (the "Motion to Transfer") filed by Defendants Samsung Electronics Co., Ltd. ("SEC") and Samsung Electronics America, Inc. ("SEA") (collectively, "Defendants"). (Dkt. No. 37.) Having considered the Motion to Transfer and related briefing, the Court finds that it should be and hereby is **DENIED**. Also before the Court are Defendants' Opposed Motion for Hearing on Samsung's Motion to Transfer Venue to the Northern District of California Under 28 U.S.C. § 1404(a) (Dkt. 37) (Dkt. No. 76) (the "Hearing Request") and Motion to Stay Pending Resolution of Defendants' Motion to Transfer Venue (Dkt. 37) (Dkt. No. 78) (the "Motion to Stay"), which, in light of this Order, are **DENIED AS MOOT**.

I. BACKGROUND

Plaintiff Mullen Industries LLC ("Plaintiff") filed this lawsuit against Defendants on January 26, 2024, accusing Defendants of directly and indirectly infringing nine United States

patents.[1] (Dkt. No. 1.) Specifically, Plaintiff alleges that (i) Defendant's mobile devices with Defendants' STF technology, (ii) Defendants' mobile devices with Google Maps technology, and (iii) Defendants' watches running Wear OS infringe certain of the asserted patents. (*See, e.g.*, Dkt. No. 54; *see also* Dkt. No. 37 at 1-2; Dkt. No. 3; Dkt. No. 57 at 3 n.3.)

Defendants filed the Motion to Transfer on July 19, 2024. (Dkt. No. 37.) In the Motion to Transfer, Defendants request that the Court transfer this case to the Northern District of California based on convenience under Section 1404(a). (*Id.* at 1.) Subsequently, in response to the parties' joint motion, the Court ordered venue discovery. (Dkt. Nos. 39, 40.)

II. LEGAL STANDARD

Section 1404(a) provides that "[f]or the convenience of parties and witnesses, in the interest of justice, a district court may transfer any civil action to any other district or division where it might have been brought." 28 U.S.C. § 1404(a). The first inquiry when analyzing a case's eligibility for § 1404(a) transfer is "whether the judicial district to which transfer is sought would have been a district in which the claim could have been filed." *In re Volkswagen AG*, 371 F.3d 201, 203 (5th Cir. 2004) ("*Volkswagen I*").

Once that threshold is met, courts analyze both public and private factors relating to the convenience of parties and witnesses as well as the interests of particular venues in hearing the case. *See Humble Oil & Ref. Co. v. Bell Marine Serv., Inc.*, 321 F.2d 53, 56 (5th Cir. 1963). "A motion to transfer venue pursuant to § 1404(a) should be granted if the movant demonstrates that the transferee venue is ***clearly more convenient*** taking into consideration" the public and private factors. *In re Radmax, Ltd.*, 720 F.3d 285, 288 (5th Cir. 2013) (emphasis added and cleaned up).

While a plaintiff's choice of venue is not an express factor in this analysis, the appropriate

[1] On December 3, 2024, Plaintiff filed the Second Amended Complaint, which withdrew one of the asserted patents. (*Compare* Dkt. No. 1 *with* Dkt. No. 54.)

deference afforded to the plaintiff's choice is reflected in a defendant's elevated burden of proof. *In re Volkswagen of Am., Inc.*, 545 F.3d 304, 314-15 (5th Cir. 2008) ("*Volkswagen II*"). Rather, the plaintiff's choice of venue contributes to the defendant's burden of proving that the transferee venue is "clearly more convenient" than the transferor venue. *Id.* at 315.

III. DISCUSSION

A. The Motion to Transfer (Dkt. No. 37)

1. Defendants Have Not Shown that Plaintiff Could Have Brought this Case in the Northern District of California

As noted above, the first inquiry when analyzing a case's eligibility for § 1404(a) transfer is "whether the judicial district to which transfer is sought would have been a district in which the claim could have been filed." *Volkswagen I*, 371 F.3d at 203. Only if this statutory requirement is met should the Court determine whether convenience warrants a transfer of the case. *See id.*; *Volkswagen II*, 545 F.3d at 312.

Defendants broadly allege that this case could have been brought in the Northern District of California based on "SEA ha[ving] offices with over 200 regular full-time employees in the NDCA." (Dkt. No. 37 at 7 (citing SEA Decl. ¶ 12 (Dkt. No. 37-2 ¶ 12)).) Plaintiff, however, notes that Defendants do "not identify the address of such 'offices,' nor whether they are home offices of employees or offices that belong to a different entity, neither of which would be sufficient to establish that venue would have been proper as to SEA in NDCA." (Dkt. No. 47 at 3.) In response, Defendants point to "SEA's office list, produced and cited by Samsung, identifying SEA's 385,000 sq. ft. campus at 645 and 665 Clyde Ave., Mountain View, CA." (Dkt. No. 55 at 1 (citing Exs. R-S (Dkt. Nos. 55-5, 55-6)).) Plaintiff counters that Defendants seek to rely on new evidence in their reply. (Dkt. No. 57 at 1.) Plaintiff further counters that this new evidence "is not an 'office' list but

a 'Property Lease' report identifying SEA as 'Owner' of property in CA," but "there is no evidence that Defendant SEA operates a regular and established place of business there." (*Id.*)

The Court agrees that Defendants have failed to meet their burden to show that Plaintiff could have brought this case in the Northern District of California. To determine whether this case "might have been brought" in the Northern District of California, the Court must find either that each Defendant (1) resides in that District or (2) has "committed acts of infringement and has a regular and established place of business." 28 U.S.C. § 1400(b).

Defendants represent that neither SEA nor SEC are a California corporation. "SEC is a Korean corporation with its principal place of business in Suwon, Republic of Korea." (*Id.* at 2.) "SEA is a wholly-owned subsidiary of SEC and a New York corporation with its principal place of business in Ridgefield, New Jersey." (*Id.*) Defendants allege that "SEA has offices with over 200 regular full-time employees in the NDCA." (Dkt. No. 37 at 7.) To support this allegation, Defendants cite a declaration from Colm Malone, the Vice President of R&D Project Management at SEA. (*Id.* (citing Dkt. No. 37-2 ¶ 12).) However, Mr. Malone's declaration merely states that "SEA has several facilities throughout California, including the NDCA, and employs over 600 regular full-time employees in California as of June 30, 2024. This includes over 200 employees in Mountain View, California, as of June 30, 2024." (Dkt. No. 37-2 ¶ 12.) Defendants fail to support this allegation with evidence of these facilities' addresses or support that either Defendant operates a regular and established place of business at these unidentified facilities. Courts in this District have found similar broad allegations insufficient to establish this threshold issue. *E.g.*, *Ax Wireless LLC v. Dell Inc.*, No. 2:22-cv-0277-RWS-RSP, 2023 WL 7490047, at *2 (E.D. Tex. Nov. 12, 2023). While Defendants attempt to cure this deficiency in their reply by introducing new evidence (Dkt. No. 55 at 1), Defendants are prohibited from doing so. *Fundamental Innovation Sys. Int'l LLC v.*

LG Elecs., Inc., No. 2:16-cv-01425-JRG-RSP, 2018 WL 279091, at *2 (E.D. Tex. Jan. 3, 2018) ("A defendant seeking transfer cannot provide a cursory statement regarding the threshold jurisdictional burden, then wait for a plaintiff to challenge that statement, and only then come forward with more."), *objs. overruled*, 2018 WL 837711 (E.D. Tex. Feb. 13, 2018), *pet. denied In re LG Elecs., Inc.*, No. 2018-134, 2018 U.S. App. LEXIS 39409 (Fed. Cir. Apr. 24, 2018).

Additionally, Defendants fail to allege that they have committed acts of infringement in the Northern District of California. "While the Court does not fault Defendants for not admitting that they infringe, the Court does find that Defendants' failure to allege in the Motion that they commit *alleged* acts of infringement in [the Northern District of California] is an independent basis for determining that this action could not have been brought in the [Northern District of California]." *Iarnach Techs. Ltd. v. Charter Commc'ns Inc., et al.*, No. 2:24-cv-00230-JRG, 2025 WL 509445, at *3 (E.D. Tex. Feb. 14, 2025).

Accordingly, the Court finds that Defendants have failed to carry their burden on the threshold issue to show that this case could have been brought in the Northern District of California. While in light of this the Court need not consider the private and public interest factors, the Court has done so in an abundance of cation, and in doing so also finds that Defendants have failed to demonstrate that the Northern District of California would be a "clearly more convenient forum," as explained below.

2. Private Interest Factors

The private factors include: (i) the relative ease of access to sources of proof; (ii) the availability of compulsory process to secure the attendance of witnesses; (iii) the cost of attendance for willing witnesses; and (iv) all other practical problems that make trial of a case easy, expeditious, and inexpensive. *Volkswagen I*, 371 F.3d at 203 (citing *Piper Aircraft Co. v. Reyno*, 454 U.S. 235, 241 n.6 (1981)).

a. The Relative Ease of Access to Sources of Proof

For this factor to weigh in favor of transfer, the movant must demonstrate that transfer will result in more convenient access to sources of proof. *Remmers v. United States*, 2009 WL 3617597, at *4 (E.D. Tex. Oct. 28, 2009). Courts consider the distance that documents or other evidence must be transported from their existing location to the trial venue. *Uniloc USA, Inc. v. Activision Blizzard, Inc.*, 2014 WL 11609813, at *2 (E.D. Tex. July 16, 2014) (citing *Volkswagen II*, 545 F.3d at 316) (noting that this factor is still relevant even if documents are stored electronically). This factor turns on which party "most probably [has] the greater volume of documents relevant to the litigation and their presumed location in relation to the transferee and transferor venues." *Id.* The movant must identify sources of proof with enough specificity that a court can determine whether transfer will increase the convenience of the parties. *J2 Global Commc'ns, Inc. v. Proctus IP Sols., Inc.*, 2009 WL 440525, at *2 (E.D. Tex. Feb. 20, 2009).

Defendants argue that "the bulk of relevant evidence for deciding infringement will come from (1) third-party Google in the NDCA, which developed Google Maps and Wear OS; and (2) SEC in Korea, which developed the accused SmartThings Find application and adapted Wear OS software for Samsung watches." (Dkt. No. 37 at 9.) "As to [Defendants'] evidence in Korea, because Korea is outside of either this District or the NDCA, [Defendants contend that] the location of that evidence is neutral to the analysis." (*Id.* at 10.) Defendants argue that while "SEA has offices in Plano and likely maintains certain financial and marketing documents there, that same fact has not prevented transfer from this District to the NDCA in several past cases . . . ." (*Id.*) Defendants also argue that seven third-party prior art artists are in the Northern District of California or California generally. (*Id.*)

Plaintiff asserts that Defendants concede, and uncontroverted evidence establishes, that "SEA has offices in Plano and likely maintains certain financial and marketing documents there."

(Dkt. No. 47 at 4-5 (quoting Dkt. No. 37 at 10).) Plaintiff also asserts that Defendants concede that their evidence in Korea is neutral in the transfer analysis. (*Id.* (citing Dkt. No. 37 at 10).) Plaintiff contends that Defendants tested the accused STF technology in the Eastern District of Texas. (*Id.* at 5.) Plaintiff argues that the Court should afford less weight to the location of Google Maps source code because Google Maps is only one of the accused technologies. (*Id.* at 6.) Plaintiff also argues that "Wear OS software allegedly possessed by Google is not relevant" because Defendants admit that they load their "Korea-based adapted version of the Wear OS software onto the accused products." (*Id.* at 6 n.4.) Plaintiff further argues that Defendants' argument regarding potential prior art evidence is speculative. (*Id.* at 6.)

The Court finds that this factor weighs slightly against transfer. Defendants identify relevant infringement documents with SEC in Korea and non-party Google in the Northern District of California. As this Court has stated and Defendants concede, "[a]s a foreign corporation with documents well outside the United States, the relative ease of access to its documents will not substantially change across different districts and is thus neutral." *AGIS Software Dev. LLC v. HTC Corp.*, No. 2:17-cv-00514-JRG, 2018 WL 4680557, at *7 (E.D. Tex. Sept. 28, 2018); *see also In re Planned Parenthood Fed'n Am., Inc.*, 52 F.4th 625, 630-31 (5th Cir. 2022) (finding that this factor weighs less strongly on the transfer analysis when "the vast majority of the evidence [is] electronic, and therefore equally accessible in either forum"). Thus, Defendants' documents in Korea are equally inconvenient and accessible for both this Court and the Northern District of California and are neutral in the transfer analysis.

For non-party Google documents, while the Court agrees that these documents are much closer to the transferee district—either in or near the Northern District of California—the Court recognizes that non-party Google documents are only relevant to Plaintiff's infringement claims

against Defendants' mobile devices with Google Maps technology. Non-party Google documents are not relevant to Plaintiff's infringement claims against Defendants' mobile devices with Defendants' SFT technology and Defendants' watches running Wear OS software. While Defendants assert that "Wear OS is designed and developed by Google," Defendants admit that "SEC ***adapts*** [Wear OS] for use for [Defendants'] watch products" and the "source code for its ***adapted version*** of Wear OS [is] in Korea." (Dkt. No. 37 at 3 (emphasis added).) Thus, non-party Google documents in the Northern District of California are entitled to only minimal weight. *See, e.g.*, *Jawbone Innovations, LLC v. Samsung Elecs. Co.*, No. 2:21-cv-00186-JRG-RSP, 2022 WL 4004195, at *3 (E.D. Tex. Aug. 31, 2022) ("this is due only slight weight because Bixby is only one of a long list of features being accused in this case.").

Plaintiff conversely identifies sources of proof located in this District. These documents include Defendants' damages-related documents concerning marketing, valuation, financials, and consumer insights and value drivers of the accused products. Neither Plaintiff nor Defendants identify the quantity of relevant documents stored in either location. On the limited record before it, the Court is not in the position to decide which type of documents are more relevant based on little more than attorney argument. *Cardware Inc. v. Samsung Elecs. Co.*, No. 2:22-cv-00141-JRG-RSP, 2023 WL 2871052, at *2 (E.D. Tex. Apr. 8, 2023) (finding this factor neutral where "the record establishes that evidence related to design and development is located in the NDCA whereas evidence related to damages is located in the EDTX").

Defendants attempt to rely on seven prior artists that "are likely also to have evidence in California relating to their prior work, including documents, source code, prototypes, or samples." (Dkt. No. 37 at 5-6, 10.) However, Defendants provide no evidence that these individuals have information regarding the alleged prior art or where such information is stored. Further, it is unclear

whether Defendants have charted any of these alleged pieces of prior art in their invalidity contentions such that they are relevant to Defendants' invalidity defenses. While Defendants are not required "to show that the potential witness has more than relevant and material information at this point in the litigation," *In re Genentech, Inc.*, 566 F.3d 1338, 1343 (Fed. Cir. 2009), Defendants must still show that these purported pieces of prior art are relevant. *Cf. In re Hulu, LLC*, No. 2021-142, 2021 WL 3278194, at *3 (Fed. Cir. Aug. 2, 2021) (finding that the district court abused its discretion in affording identified prior art witnesses zero weight where the "proposed prior art witnesses directly related to prior art that was specifically mentioned in the asserted patents themselves, heightening their potential relevance.").

On balance, the Court finds that this factor weighs slightly against transfer.

b. The Availability of the Compulsory Process to Secure the Attendance of Witnesses

The second private interest factor instructs the Court to consider the availability of compulsory process to secure the attendance of witnesses, particularly non-party witnesses whose attendance may need to be secured by a court order. *See Volkswagen II*, 545 F.3d at 315-16. This factor favors transfer where "non-party witnesses . . . are outside the Eastern District's subpoena power" and "a proper venue that does enjoy absolute subpoena power for both depositions and trial" is available. *Id.* at 316 (cleaned up). Federal district courts have the absolute power to compel attendance of a trial, hearing, or deposition "within 100 miles of where the person resides, is employed, or regularly transacts business in person." Fed. R. Civ. P. 45(c)(1)(A). "[T]he availability of compulsory process receives less weight when it has not been alleged or shown that any witness would be unwilling to testify." *Planned Parenthood*, 52 F.4th at 630-31 (cleaned up).

Defendants argue that this factor "strongly favors transfer because numerous relevant third-party witnesses reside in the NDCA or California." (Dkt. No. 37 at 7.) Defendants assert that "at

least fourteen relevant third-party witnesses are in the NDCA." (*Id.*) Defendants argue that eleven non-party Google engineers are the "most knowledgeable about the design of the accused features of Google Maps and of Wear OS as provided to" Defendants. (*Id.* at 7-8.) Defendants argue that "seven prior art witnesses with knowledge of relevant prior art reside in California." (*Id.* at 8.) Defendants also argue that individuals knowledgeable about Plaintiff's third-party license are in the Northern District of California. (*Id.*)

Plaintiff responds that "[a]t least three unwilling witnesses in this District possess relevant knowledge regarding the development of Samsung's IoT platform for its SmartThings application, which includes Samsung's STF technology." (Dkt. No. 47 at 7-8.) Plaintiff argues that the non-party Google witnesses Defendants identify are not "unwilling witnesses" because "(i) they 'voluntarily provided a declaration in support of Samsung's Motion to Transfer', (ii) 'Samsung does not deny that [the third party] has indemnity obligations to Samsung' and (iii) Google has 'been coordinating with Samsung . . . on . . . *inter parte* review . . . petitions.'" (*Id.* at 8-9 (quoting *Demaray LLC v. Samsung Elecs. Co., Ltd.*, No. 6:20-cv-00636 (ADA), 2021 U.S. Dist. LEXIS 222472, *12).) Plaintiff asserts that "it is inconceivable that all 14 Google witnesses will testify" and Defendants do not allege "that any of them possesses unique knowledge." (*Id.* at 9.) Plaintiff also argues that "once source code is obtained from Google in discovery, there will be no need for any Google witness to testify at trial." (*Id.*) Regarding the purported prior art witness, Plaintiff responds that "their relevance is purely speculative . . . ." (*Id.*) Plaintiff further argues that Plaintiff's third-party license speaks for itself, and live testimony is not required. (*Id.*)

The Fifth Circuit has instructed that "the availability of compulsory process [factor] receives less weight when it has not been alleged or shown that any witness would be unwilling to testify." *Planned Parenthood*, 52 F.4th at 630-31 (cleaned up); *see also In re TikTok, Inc.*, 85 F.4th

352, 360 (5th Cir. 2023). Defendants have neither shown nor alleged that any non-party witness would be unwilling to testify in this case. Further, Defendants do not identify a single witness who they expect to testify at trial. *See R2 Sols. LLC v. Databricks Inc.*, No. 4:23-cv-01147, 2024 WL 4932719, at *4 (E.D. Tex. Dec. 2, 2024) (finds this face neutral where "neither party asserts that any non-party witness is unwilling to attend trial."). On the record before it, the Court has no way of knowing whether any of these witnesses may be sought for trial testimony, let alone whether any such witnesses would be unwilling and require compulsory process. This should end the inquiry for this factor here, and the Court could find that this factor weighs against transfer. However, even assuming that Defendants' identified witnesses are unwilling to testify at trial, this factor does not weigh in favor or transfer.

Concerning the non-party Google witnesses, the Court does not find them to be unwilling witnesses in this case. Simply because a witness is not a party to the case does not make them an unwilling witness that the Court will consider under the compulsory process factor. Plaintiff points out, and Defendants fail to rebut, that the non-party Google witnesses voluntarily provided declarations in support of Defendants' Motion to Transfer, Google likely owes indemnity to Samsung, and Defendants and Google are co-petitioners in *inter partes* review petitions against the asserted patents.[2] Thus, the Court will consider the non-party Google witnesses under the willing witness factor of the transfer analysis.

The other potential "unwilling" witnesses that Defendants identify are prior art artists who are purportedly in California and individuals knowledgeable of Plaintiff's third-party license. Concerning the prior art artists, as discussed above, Defendants provide no more than mere

[2] In their Reply, Defendants assert that Plaintiff made a "flawed legal argument[]" that Defendants "must show Google witnesses to be unwilling." (Dkt. No. 55 at 3-4.) While Defendants are correct that there is a presumption that non-party witnesses are unwilling, Defendants fail to appreciate the Fifth Circuit's instructions in *Planned Parenthood* as Plaintiff identified. (Dkt. No. 47 at 8-9 (citing *Planned Parenthood*, 52 F.4th at 630-31).)

speculation regarding these individuals. Defendants provide no evidence that these individuals have information regarding the alleged prior art, and it is unclear whether Defendants have charted any of these alleged pieces of prior art in their invalidity contentions. While Defendants are not required "to show that the potential witness has more than relevant and material information at this point in the litigation," *In re Genentech, Inc.*, 566 F.3d 1338, 1343 (Fed. Cir. 2009), Defendants must show that these purported pieces of prior art are at least relevant. Concerning the individuals knowledgeable of Plaintiff's third-party license, while the Court does not see the relevance or necessity of such testimony, the Court recognizes that the transferee forum would be more convenient for these individuals.

The Court does not find Plaintiff's argument that Defendants are likely only to call a few non-party Google witnesses persuasive. The Federal Circuit has "rejected the . . . categorical assumption that defendants are likely to call few if any of the proposed party witnesses or prior-art witnesses that are identified for purposes of supporting transfer motions." *In re Juniper Networks, Inc.*, 14 F.4th 1313, 1319 (Fed. Cir. 2021) (collecting cases). Concerning Plaintiff's identification of three unwilling witnesses who have knowledge "regarding the development of Samsung's IoT platform for its SmartThings application," the Court does not find this argument persuasive. Plaintiff does not accuse Defendants' IoT platform of infringement. Thus, individuals with knowledge of Defendants' IoT platform are not relevant to the transfer analysis. Additionally, as with Defendants, Plaintiff does not allege that it intends to call any of these witnesses at trial. The Fifth Circuit has stated that it "cannot say that the district court committed a clear abuse of discretion in holding that this factor is neutral when petitioners have failed to identify any unwilling non-party witness." *TikTok*, 85 F.4th at 361.

Defendants seek transfer based on convenience—a request for which *Defendants* bear the burden—yet Defendants fail to provide the Court with sufficient evidence to conclude that their proposed forum would be any more convenient than this District under this factor. Accordingly, the Court finds that this factor is neutral.

c. The Cost of Attendance for Willing Witnesses

The third private interest factor considers the cost of attendance for willing witnesses. When analyzing this factor, all parties and witnesses must be considered. *Volkswagen I*, 371 F.3d at 204. The Federal Circuit has described this factor as being the most important. *Genentech*, 566 F.3d at 1343. The Fifth Circuit has established a so-called "100-mile rule": when the distance between the transferor and proposed transferee venues exceeds 100 miles, "the factor of inconvenience to witnesses increases in direct relationship to the additional distance to be traveled." *Volkswagen I*, 371 F.3d at 201; *Genentech*, 566 F.3d at 1343.

Defendants argue that witnesses with relevant knowledge of the design and development of the accused products reside in or around the Northern District of California or in Korea. (Dkt. No. 37 at 10-12.) Plaintiff argues that witnesses with knowledge of marketing, financials, damages, and testing—specifically, Defendants' employees—reside in this District. (Dkt. No. 47 at 10-11.) Plaintiff also identifies nine of Defendants' employees in this District "with relevant knowledge regarding Samsung's development of its IoT platform." (*Id.* at 11-12.)

As an initial matter, this factor concerns willing witnesses "*for trial*." *TikTok*, 85 F.4th at 361 (emphasis added). While both parties identify witnesses with potentially relevant knowledge, neither party states that they will be witnesses *for trial*. The Court could find, based on the parties' failure to identify willing witnesses for trial, that this factor is neutral in the transfer analysis. However, to be fulsome, the Court will address the parties' identified witnesses under this factor and assume—though it is not required—that the parties intend to call these witnesses at trial.

Regarding Defendants' Korean witnesses, the Federal Circuit and Fifth Circuit have found that traveling from Asia to California "would greatly reduce the time and inconvenience of travel" as opposed to traveling from Asia to Texas. *In re Samsung Elecs. Co., Ltd.*, No. 2023-146, 2023 WL 8642711, at *2 (Fed. Cir. Dec. 14, 2023); *TikTok*, 85 F.4th at 361. Similarly, the Northern District of California is clearly more convenient for Defendants' infringement witnesses who live in or around the Northern District of California. However, weighing against transfer are Defendants' employees that Plaintiff identifies as relevant to damages in this District.[3]

Additionally, the Court considers the non-party Google witnesses under this factor since the Court found that Defendants failed to meet their burden to establish that these witnesses would be unwilling to testify at trial. (*Supra* Section III.A.2.b.) Defendants identified thirteen non-party Google witnesses as relevant to the design and development of Google Maps who are in or around the Northern District of California. (Dkt. No. 37 at 4.) Defendants identified two non-party Google witnesses in or around the Northern District of California or one non-party Google witness in the United Kingdom as relevant to the design and development of Google Wear OS. (*Id.* at 5.) As discussed above, the Court does not find Google Wear OS relevant here because, as Defendants admit, "Samsung watches use an ***adapted version*** of Google's Wear OS software for generating notifications of calls and other events, which Mullen accuses of infringement." (*Id.* (emphasis added).) Regarding the individuals with knowledge relevant to Google Maps, the Court finds that these individuals only slightly favor transfer because Google Maps is only one of the accused features in this case. *See, e.g.*, *Jawbone*, 2022 WL 4004195, at *3 ("this is due only slight weight because Bixby is only one of a long list of features being accused in this case.").

[3] While Plaintiff identifies nine of Defendants' employees in this District with relevant knowledge of Defendants' IoT platform, as discussed above, the Court does not find these witnesses relevant to the transfer analysis. (*See supra* Section III.A.2.b.)

Accordingly, the Court finds that this factor slightly favors transfer.

d. Other Practical Problems

The fourth factor considers "all other practical problems that make trial of a case easy, expeditious and inexpensive." *Volkswagen I*, 545 F.3d at 315. Defendants argue that "[t]his case is in its early stages, so transfer would not prejudice" Plaintiff. (Dkt. No. 37 at 12.) Plaintiff argues that "this factor weighs against transfer because, to Plaintiff's prejudice, there will be no obligation for a NDCA court to adopt the current schedule nor to prevent Samsung from attempting to redo its contentions." (Dkt. No. 47 at 13.)

The Court finds that this factor is neutral in the transfer analysis.

3. Public Interest Factors

The public factors include: (i) the administrative difficulties flowing from court congestion; (ii) the local interest in having localized interests decided at home; (iii) the familiarity of the forum with the law that will govern the case; and (iv) the avoidance of unnecessary problems of conflict of laws or in the application of foreign law. *Volkswagen I*, 371 F.3d at 203 (citing *Piper Aircraft*, 454 U.S. at 241 n.6).

a. Court Congestion

"To the extent that court congestion is relevant, the speed with which a case can come to trial and be resolved may be a factor." *Genentech*, 566 F.3d at 1347. This factor is the most speculative, and this factor alone should not outweigh other factors. *Id.*

Defendants argue that this factor is neutral because "[t]here is no urgent need for disposition of this matter" since Plaintiff is a non-practicing entity. (Dkt. No. 37 at 13-14.) Defendants also contend that "while this District may have a shorter median time to trial than the NDCA, this should not weigh against transfer." (*Id.* at 14.) Plaintiff responds that the median time

to trial in this District is shorter than in the Northern District of California, and this District is less congested. (Dkt. No. 47 at 14.)

The Court finds that this factor is neutral in the transfer analysis. Here, the parties agree that this District has a significantly faster median time-to-trial than the Northern District of California. In fact, the difference in the median time-to-trial in this District and the Northern District of California is measured in *years*. While this factor is far from dispositive standing alone, the differences in time to trial should not be unduly discounted. The Fifth Circuit recognizes that "the district court is better placed" to evaluate "docket efficiency." *Planned Parenthood*, 52 F.4th at 631. The case is timely proceeding to trial before this District. *Id.* (finding that this factor normally counsels against transfer when a "case appears to be timely proceeding to trial before the" transferor venue).

Nevertheless, this Court recognizes that the Federal Circuit has instructed that courts should not assign weight against transfer where the plaintiff "is not engaged in product competition in the marketplace and is not threatened in the market in a way that, in other patent cases, might add urgency to case resolution." *In re Google LLC*, 58 F.4th 1379, 1383 (Fed. Cir. 2023). As this Court has stated, "[w]hile this Court finds it perplexing to consider the marketplace status of the parties in assessing this *public* interest factor related to court congestion, it is bound by the Federal Circuit's decision in *[In re Google]* to afford this factor no weight based on time-to-trial differences." *Emerging Auto. LLC v. Kia Corp.*, No. 2:23-cv-00434-JRG, 2024 WL 3170398, at *13 (E.D. Tex. June 25, 2024). Here, Plaintiff does not compete with Defendants in the marketplace. Based on those circumstances and the Federal Circuit's guidance, the Court finds it should not assign weight against transfer.

Accordingly, the Court finds this factor neutral in the transfer analysis.

b. Local Interest

This factor analyzes the "factual connection" that a case has with the transferee and transferor venues. *Volkswagen I*, 371 F.3d at 206. This factor considers the relationship between the dispute and the community from which the jury pool will be drawn, as "jury duty is a burden that ought not to be imposed upon the people of a community which has no relation to the litigation." *Id.* Local interests that could apply to any judicial district or division in the United States are disregarded in favor of particularized local interests. *In re TS Tech USA Corp.*, 551 F.3d 1315, 1321 (Fed. Cir. 2008); *Volkswagen II*, 545 F.3d at 318.

The parties argue that their preferred forum has a stronger local interest based on previously asserted arguments. Defendants argue that the Northern District of California has a strong local interest because some of the accused products were designed and developed there. (Dkt. No. 37 at 13.) Plaintiff responds that Defendants have more than a mere "general presence" in this District based on Defendants' "EDTX-based evidence and employees who work on aspects of the accused products." (Dkt. No. 47 at 13-14.) Plaintiff also responds that Defendants' "reliance on non-party Google is also overstated and cannot override EDTX's local interest in this case resulting from Samsung's ties to this District." (*Id.* at 14.)

Defendants admit that SEA maintains an office in this District. In fact, SEA advertised that its office in this district "is home to [SEA's] second biggest employee population in the U.S. across multiple divisions . . . ." (Dkt. No. 47-3.) Defendants admit that as of October 2024, SEA has 604 employees in this District—out of 998 identified employees—that work in different business units relevant to the accused products. (Dkt. No. 47-2 at 8-12.) Defendants also do not dispute that Defendants have tested at least one of the accused functionalities in this District. Defendants have not presented evidence that any ***party*** maintains a significant presence in the Northern District of California. Defendants emphasize that non-parties such as Google and SEA's subsidiary STI have

a presence in the Northern District of California. However, non-parties "are irrelevant when determining whether localized interests weigh in favor of transfer" and, thus, absent other evidence, the Northern District of California does not have a stronger local interest in this case than the Eastern District of Texas. *See Astute Tech., LLC v. Learners Digest Int'l LLC*, No. 2:12-CV-00689-WCB, 2014 WL 12596468, at *10 (E.D. Tex. Apr. 28, 2014) (Bryson, J., sitting by designation) ("While LDI argues that the Western District of Wisconsin has an interest in determining if technology employed by one of its resident corporations, Sonic Foundry, infringes a valid patent, that interest, affecting only a third party that is a stranger to the lawsuit, is not of sufficient magnitude to be an important consideration in the transfer decision.").

Accordingly, the Court finds that this factor weighs against transfer.

c. Familiarity of the Forum with Law and Conflict of Law

The parties agree that the third and fourth public interest factors are neutral in the transfer analysis. (Dkt. No. 37 at 13-14; Dkt. No. 47 at 14.) Therefore, the Court finds these factors neutral.

4. Balancing the Factors[4]

Given the foregoing factors, the Court must determine whether the Northern District of California is "clearly more convenient" than the Eastern District of Texas. The Fifth Circuit has been careful to emphasize that district courts should not merely engage in a "raw counting" exercise that tallies up the factors favoring transfer and the factors militating against transfer. *In re Radmax*, 720 F.3d 285, 290 n.8 ("We do not suggest—nor has this court held—that a raw counting of the factors in each side, weighing each the same and deciding transfer only on the resulting 'score,' is the proper methodology."). Instead, the Court must make factual determinations to ascertain the degree of actual convenience, if any, and whether such rises to the level of "clearly

[4] In its opposition, Plaintiff also argued that Defendant's 30(b)(6) venue deponent was unprepared. (Dkt. No. 47 at 14-15.) The Court finds that it does not need to address this argument in ruling on the Motion to Transfer.

more convenient." *See id.* Where the present and proposed forums are both roughly similar in terms of convenience, courts should not conclude that the proposed transferee forum is "clearly more convenient." *Volkswagen II*, 545 F.3d at 315. While this Court does not hold that "clearly more convenient" is equal to "clear and convincing," a movant must show materially more than a mere preponderance of convenience, lest the standard have no real or practical meaning. *See id.* When carefully applying the convenience factors and the related factual arguments in each unique case, courts should be careful not to lose sight of the plaintiff's choice of forum and its historical significance in our jurisprudence. *Id.* ("[W]hen the transferee venue is not clearly more convenient than the venue chosen by the plaintiff, the plaintiff's choice should be respected.").

Having found one factor weighs slightly against transfer, one factor weighs slightly in favor of transfer, one factor weighs against transfer, and the remaining factors weigh neutrally, the Court concludes that the Northern District of California is not a "clearly more convenient" forum for this case. Accordingly, considering the weight of the specific factors and the facts of this case, the Court finds that Defendants' Motion to Transfer (Dkt. No. 37) should be denied.

B. The Motion to Stay (Dkt. No. 78)

In the Motion to Stay, Defendants request that the Court stay the above-captioned case pending resolution of Defendants' Motion to Transfer. (Dkt. No. 78.) As stated above, the Court finds that the Motion to Transfer should be denied. As the Court has ruled on the Motion to Transfer, the Court finds that the Motion to Stay should be denied as moot.

IV. CONCLUSION

For the foregoing reasons, the Court finds that the Motion to Transfer (Dkt. No. 37) should be and hereby is **DENIED**. The Court holds that the Motion to Stay (Dkt. No. 78) is **DENIED AS MOOT**. The Court further holds that the Hearing Request (Dkt. No. 76) is **DENIED AS MOOT**.

So ORDERED and SIGNED this 25th day of March, 2025.

RODNEY GILSTRAP
UNITED STATES DISTRICT JUDGE

JRG4,JURY,PATENT/TRADEMARK,PROTECTIVE−ORDER

U.S. District Court
Eastern District of TEXAS [LIVE] (Marshall)
CIVIL DOCKET FOR CASE #: 2:24−cv−00049−JRG

Mullen Industries LLC v. SAMSUNG ELECTRONICS CO., LTD. et al
Assigned to: District Judge Rodney Gilstrap
Cause: 35:271 Patent Infringement

Date Filed: 01/26/2024
Jury Demand: Plaintiff
Nature of Suit: 830 Patent
Jurisdiction: Federal Question

Date Filed	#	Docket Text
01/26/2024	1	COMPLAINT *for Patent Infringement* against SAMSUNG ELECTRONICS AMERICA, INC., SAMSUNG ELECTRONICS CO., LTD. (Filing fee $ 405 receipt number ATXEDC−9942696.), filed by Mullen Industries LLC. (Attachments: # 1 Exhibit 1 − Patent No. US11234117, # 2 Exhibit 2 − Patent No. 11190633, # 3 Exhibit 3 − Patent No. 11122418, # 4 Exhibit 4 − Patent No. 11109218, # 5 Exhibit 5 − Patent No. 11096039, # 6 Exhibit 6 − Patent No. 9635540, # 7 Exhibit 7 − Patent No. 9204283, # 8 Exhibit 8 − Patent No. 8374575, # 9 Exhibit 9 − Patent No. 11246024, # 10 Civil Cover Sheet)(Davis, Stafford) (Entered: 01/26/2024)
01/26/2024		Case assigned to District Judge Rodney Gilstrap. (ch,) (Entered: 01/26/2024)
01/26/2024		In accordance with the provisions of 28 USC Section 636(c), you are hereby notified that a U.S. Magistrate Judge of this district court is available to conduct any or all proceedings in this case including a jury or non−jury trial and to order the entry of a final judgment. The form Consent to Proceed Before Magistrate Judge is available on our website. All signed consent forms, excluding pro se parties, should be filed electronically using the event *Notice Regarding Consent to Proceed Before Magistrate Judge*. (ch,) (Entered: 01/26/2024)
01/26/2024	2	SUMMONS Issued as to SAMSUNG ELECTRONICS AMERICA, INC., SAMSUNG ELECTRONICS CO., LTD.. (Attachments: # 1 Additional Attachment(s))(ch,) (Entered: 01/26/2024)
01/26/2024	3	Notice of Filing of Patent/Trademark Form (AO 120). AO 120 mailed to the Director of the U.S. Patent and Trademark Office. (Davis, Stafford) (Entered: 01/26/2024)
01/26/2024	4	Fed. R. Civ. P. 7.1(a)(1) Disclosure Statement filed by Mullen Industries LLC (Davis, Stafford) (Entered: 01/26/2024)
01/26/2024	5	NOTICE of Attorney Appearance by Catherine Susan Bartles on behalf of Mullen Industries LLC (Bartles, Catherine) (Entered: 01/26/2024)
01/30/2024	6	NOTICE of Attorney Appearance by Peter F Snell on behalf of Mullen Industries LLC (Snell, Peter) (Entered: 01/30/2024)
02/02/2024	7	AFFIDAVIT of Service for Summons and Complaint served on Samsung Electronics America, Inc. on 2/1/24, filed by Mullen Industries LLC. (Davis, Stafford) (Entered: 02/02/2024)
02/07/2024	8	UNOPPOSED MOTION for Extension of Time to File Answer , *MOVE, OR OTHERWISE RESPOND TO PLAINTIFFS COMPLAINT AND WAIVER OF FOREIGN SERVICE REQUIREMENT* by SAMSUNG ELECTRONICS AMERICA, INC., SAMSUNG ELECTRONICS CO., LTD.. (Attachments: # 1 Proposed Order)(Smith, Melissa) (Entered: 02/07/2024)
02/12/2024	9	ORDER granting 8 Motion for Extension of Time to Answer re 8 UNOPPOSED MOTION for Extension of Time to File Answer , *MOVE, OR OTHERWISE RESPOND TO PLAINTIFFS COMPLAINT AND WAIVER OF FOREIGN SERVICE REQUIREMENT* SAMSUNG ELECTRONICS AMERICA, INC. answer due 5/22/2024; SAMSUNG ELECTRONICS CO., LTD. answer due 5/22/2024. Signed by District Judge Rodney Gilstrap on 2/10/2024. (ch,) (Entered: 02/12/2024)

03/05/2024	10	NOTICE of Attorney Appearance by Gregory Blake Thompson on behalf of SAMSUNG ELECTRONICS AMERICA, INC., SAMSUNG ELECTRONICS CO., LTD. (Thompson, Gregory) (Entered: 03/05/2024)
04/17/2024	11	Scheduling/Case Management Conference set for 5/29/2024 at 10:00 AM before District Judge Rodney Gilstrap.. Signed by District Judge Rodney Gilstrap on 4/17/2024. (BS) (Entered: 04/17/2024)
05/15/2024	12	NOTICE OF COMPLIANCE by Mullen Industries LLC (Snell, Peter) (Entered: 05/15/2024)
05/22/2024	13	MOTION Defendants Samsung Electronics Co., Ltd. and Samsung Electronics America, Inc.'s Partial Rule 12(b)(6) Motion to Dismiss Plaintiff Mullen Industries LLC's Complaint (Dkt. 1) re 1 Complaint,, by SAMSUNG ELECTRONICS AMERICA, INC., SAMSUNG ELECTRONICS CO., LTD.. (Attachments: # 1 Proposed Order)(Smith, Melissa) (Entered: 05/22/2024)
05/22/2024	14	NOTICE of Attorney Appearance by Darin W Snyder on behalf of SAMSUNG ELECTRONICS AMERICA, INC., SAMSUNG ELECTRONICS CO., LTD. (Snyder, Darin) (Entered: 05/22/2024)
05/22/2024	15	Fed. R. Civ. P. 7.1(a)(1) Disclosure Statement filed by SAMSUNG ELECTRONICS AMERICA, INC., SAMSUNG ELECTRONICS CO., LTD. (Smith, Melissa) (Entered: 05/22/2024)
05/22/2024	16	NOTICE of Attorney Appearance by Luann Loraine Simmons on behalf of SAMSUNG ELECTRONICS AMERICA, INC., SAMSUNG ELECTRONICS CO., LTD. (Simmons, Luann) (Entered: 05/22/2024)
05/22/2024	17	NOTICE of Attorney Appearance by Xin−Yi Zhou on behalf of SAMSUNG ELECTRONICS AMERICA, INC., SAMSUNG ELECTRONICS CO., LTD. (Zhou, Xin−Yi) (Entered: 05/22/2024)
05/22/2024	18	NOTICE of Attorney Appearance by Bill Trac on behalf of SAMSUNG ELECTRONICS AMERICA, INC., SAMSUNG ELECTRONICS CO., LTD. (Trac, Bill) (Entered: 05/22/2024)
05/22/2024	19	NOTICE of Attorney Appearance − Pro Hac Vice by Mark Liang on behalf of SAMSUNG ELECTRONICS AMERICA, INC., SAMSUNG ELECTRONICS CO., LTD.. Filing fee $ 100, receipt number ATXEDC−10153503. (Liang, Mark) (Entered: 05/22/2024)
05/22/2024	20	NOTICE of Attorney Appearance − Pro Hac Vice by Stacy Yae on behalf of SAMSUNG ELECTRONICS AMERICA, INC., SAMSUNG ELECTRONICS CO., LTD.. Filing fee $ 100, receipt number ATXEDC−10153504. (Yae, Stacy) (Entered: 05/22/2024)
05/22/2024	21	NOTICE of Attorney Appearance − Pro Hac Vice by Paige Hardy, I on behalf of SAMSUNG ELECTRONICS AMERICA, INC., SAMSUNG ELECTRONICS CO., LTD.. Filing fee $ 100, receipt number ATXEDC−10153512. (Hardy, Paige) (Entered: 05/22/2024)
05/24/2024	22	NOTICE of Attorney Appearance − Pro Hac Vice by Marc J Pensabene on behalf of SAMSUNG ELECTRONICS AMERICA, INC., SAMSUNG ELECTRONICS CO., LTD.. Filing fee $ 100, receipt number ATXEDC−10156710. (Pensabene, Marc) (Entered: 05/24/2024)
05/29/2024		Minute Entry for proceedings held before District Judge Rodney Gilstrap: Scheduling Conference/Case Management Conference held on 5/29/2024. Counsel for the parties appeared. Court asked whether the parties consented to trial before the U.S. Magistrate Judge. Court proceeded to provide counsel Claim Construction and Jury Selection/Trial dates. (Court Reporter Shelly Holmes) (aeb) (Entered: 06/07/2024)
06/05/2024	23	RESPONSE to Motion re 13 MOTION Defendants Samsung Electronics Co., Ltd. and Samsung Electronics America, Inc.'s Partial Rule 12(b)(6) Motion to Dismiss Plaintiff Mullen Industries LLC's Complaint (Dkt. 1) re 1 Complaint,, *filed by Mullen Industries LLC*. (Attachments: # 1 Affidavit/Declaration of Peter Snell In Support of Mullen's Response to Samsung's Motion, # 2 Exhibit 1, # 3 Exhibit 2, # 4 Exhibit 3, # 5 Exhibit 4, # 6 Exhibit 5)(Snell, Peter) (Entered: 06/05/2024)

06/06/2024	24	NOTICE of Attorney Appearance by Cason Garrett Cole on behalf of SAMSUNG ELECTRONICS AMERICA, INC., SAMSUNG ELECTRONICS CO., LTD. (Cole, Cason) (Entered: 06/06/2024)
06/06/2024	25	NOTICE of Attorney Appearance − Pro Hac Vice by Kyla Butler on behalf of SAMSUNG ELECTRONICS AMERICA, INC., SAMSUNG ELECTRONICS CO., LTD.. Filing fee $ 100, receipt number ATXEDC−10176527. (Butler, Kyla) (Entered: 06/06/2024)
06/12/2024	26	REPLY to Response to Motion re 13 MOTION Defendants Samsung Electronics Co., Ltd. and Samsung Electronics America, Inc.'s Partial Rule 12(b)(6) Motion to Dismiss Plaintiff Mullen Industries LLC's Complaint (Dkt. 1) re 1 Complaint,, *filed by SAMSUNG ELECTRONICS AMERICA, INC., SAMSUNG ELECTRONICS CO., LTD.*. (Smith, Melissa) (Entered: 06/12/2024)
06/12/2024	27	JOINT MOTION For Entry Of Agreed Discovery Order by Mullen Industries LLC. (Attachments: # 1 Proposed Order Entry of Agreed Discovery)(Snell, Peter) (Entered: 06/12/2024)
06/12/2024	28	JOINT MOTION For Entry Of Partially Disputed Docket Control Order by Mullen Industries LLC. (Attachments: # 1 Proposed Order Docket Control)(Snell, Peter) (Entered: 06/12/2024)
06/14/2024	29	DISCOVERY ORDER granting 27 JOINT MOTION For Entry Of Agreed Discovery Order (Motion(s) 27 terminated). Signed by District Judge Rodney Gilstrap on 6/14/2024. (CH) (Entered: 06/14/2024)
06/14/2024	30	DOCKET CONTROL ORDER granting 28 JOINT MOTION For Entry Of Partially Disputed Docket Control Order. Pretrial Conference set for 9/29/2025 at 09:00 AM before District Judge Rodney Gilstrap., Jury Selection set for 11/3/2025 at 09:00AM before District Judge Rodney Gilstrap., Markman Hearing set for 5/15/2025 at 09:00 AM before District Judge Rodney Gilstrap (Motion(s) 28 terminated). Signed by District Judge Rodney Gilstrap on 6/14/2024. (CH) (Entered: 06/14/2024)
06/25/2024	31	NOTICE of Attorney Appearance − Pro Hac Vice by Brad M Scheller on behalf of Mullen Industries LLC. Filing fee $ 100, receipt number ATXEDC−10207109. (Scheller, Brad) (Entered: 06/25/2024)
06/26/2024	32	NOTICE of Attorney Appearance − Pro Hac Vice by Paul Stephen St. Marie, Jr on behalf of Mullen Industries LLC. Filing fee $ 100, receipt number ATXEDC−10208348. (St. Marie, Paul) (Entered: 06/26/2024)
06/27/2024	33	JOINT MOTION for Protective Order *(Entry of Partially Disputed)* by Mullen Industries LLC. (Attachments: # 1 Affidavit/Declaration of Peter F. Snell In Support of Plaintiff's Positions Regarding Protective Order, # 2 Exhibit A − Protective Order for Patent Cases, # 3 Exhibit 1, # 4 Exhibit 2, # 5 Exhibit 3)(Snell, Peter) (Entered: 06/27/2024)
06/27/2024	34	NOTICE OF COMPLIANCE by Mullen Industries LLC *(Regarding Paragraphs 1 & 3 Of The Discovery Order)* (Snell, Peter) (Entered: 06/27/2024)
06/27/2024	35	NOTICE OF COMPLIANCE by SAMSUNG ELECTRONICS AMERICA, INC., SAMSUNG ELECTRONICS CO., LTD. (Pensabene, Marc) (Entered: 06/27/2024)
07/09/2024	36	PROTECTIVE ORDER (Motion(s) 33 terminated). Signed by District Judge Rodney Gilstrap on 7/9/2024. (CH) (Entered: 07/09/2024)
07/19/2024	37	SEALED MOTION *TO TRANSFER VENUE TO THE NORTHERN DISTRICT OF CALIFORNIA UNDER 28 U.S.C. § 1404(a)* by SAMSUNG ELECTRONICS AMERICA, INC., SAMSUNG ELECTRONICS CO., LTD.. (Attachments: # 1 Affidavit/Declaration HanJun Ryu, # 2 Affidavit/Declaration Colm Malone, # 3 Affidavit/Declaration Calvin On, # 4 Affidavit/Declaration Hiba Fakhoury, # 5 Affidavit/Declaration Cason Cole, # 6 Exhibit A, # 7 Exhibit B, # 8 Exhibit C, # 9 Exhibit D, # 10 Exhibit E, # 11 Exhibit F, # 12 Exhibit G, # 13 Exhibit H, # 14 Exhibit I, # 15 Exhibit J, # 16 Exhibit K, # 17 Exhibit L, # 18 Exhibit M, # 19 Exhibit N, # 20 Exhibit O, # 21 Proposed Order)(Smith, Melissa) (Entered: 07/19/2024)

07/26/2024	38	REDACTION to 37 SEALED MOTION *TO TRANSFER VENUE TO THE NORTHERN DISTRICT OF CALIFORNIA UNDER 28 U.S.C. § 1404(a)* by SAMSUNG ELECTRONICS AMERICA, INC., SAMSUNG ELECTRONICS CO., LTD.. (Attachments: # 1 Affidavit/Declaration, # 2 Affidavit/Declaration, # 3 Affidavit/Declaration, # 4 Affidavit/Declaration, # 5 Affidavit/Declaration Cason Cole, # 6 Exhibit A, # 7 Exhibit B, # 8 Exhibit C, # 9 Exhibit D, # 10 Exhibit E, # 11 Exhibit G, # 12 Exhibit I, # 13 Exhibit J, # 14 Exhibit K, # 15 Exhibit L, # 16 Exhibit M, # 17 Exhibit N, # 18 Exhibit O)(Smith, Melissa) (Entered: 07/26/2024)
07/31/2024	39	JOINT MOTION For Entry Of Agreed Venue Discovery Order re 37 SEALED MOTION *TO TRANSFER VENUE TO THE NORTHERN DISTRICT OF CALIFORNIA UNDER 28 U.S.C. § 1404(a)* by Mullen Industries LLC. (Attachments: # 1 Proposed Order Agreed Venue Discovery Order)(Snell, Peter) (Entered: 07/31/2024)
08/05/2024	40	ORDER granting 39 JOINT MOTION For Entry Of Agreed Venue Discovery Order re 37 SEALED MOTION TO TRANSFER VENUE TO THE NORTHERN DISTRICT OF CALIFORNIA UNDER 28 U.S.C. § 1404(a). Signed by District Judge Rodney Gilstrap on 8/5/2024. (CH) (Entered: 08/05/2024)
09/26/2024	41	MOTION to Quash *the Samsung Defendant's Venue Deposition Notices To The Extent They Seek Third−Party Confidential Information* by Mullen Industries LLC. (Attachments: # 1 Proposed Order (Discovery) regarding Mullen's Motion to Quash, # 2 Affidavit/Declaration of Peter F. Snell in Support of Plaintiff's Motion to Quash, # 3 Exhibit A)(Snell, Peter) (Entered: 09/26/2024)
10/10/2024	42	SEALED RESPONSE re 41 MOTION to Quash *the Samsung Defendant's Venue Deposition Notices To The Extent They Seek Third−Party Confidential Information filed by SAMSUNG ELECTRONICS AMERICA, INC., SAMSUNG ELECTRONICS CO., LTD.*. (Attachments: # 1 Affidavit/Declaration P. Hardy, # 2 Exhibit A, # 3 Exhibit B, # 4 Exhibit C, # 5 Proposed Order)(Smith, Melissa) (Entered: 10/10/2024)
10/10/2024	43	NOTICE *OF DESIGNATION OF LEAD COUNSEL* by SAMSUNG ELECTRONICS AMERICA, INC., SAMSUNG ELECTRONICS CO., LTD. (Smith, Melissa) (Entered: 10/10/2024)
10/11/2024	44	REDACTION to 42 Sealed Response to Motion, by SAMSUNG ELECTRONICS AMERICA, INC., SAMSUNG ELECTRONICS CO., LTD.. (Attachments: # 1 Affidavit/Declaration P. Hardy, # 2 Exhibit A, # 3 Exhibit B, # 4 Exhibit C, # 5 Proposed Order)(Smith, Melissa) (Entered: 10/11/2024)
11/08/2024	45	MEMORANDUM OPINION AND ORDER granting in part and denying in part 41 Motion to Quash. Signed by District Judge Rodney Gilstrap on 11/08/2024. (KLC) (Entered: 11/08/2024)
11/13/2024	46	JOINT MOTION For Entry of Agreed Google Supplemental Protective Order by Mullen Industries LLC. (Attachments: # 1 Supplemental Protective Order Regarding Google Confidential Information and Source Code)(Snell, Peter) (Entered: 11/13/2024)
11/15/2024	47	SEALED RESPONSE re 37 SEALED MOTION *TO TRANSFER VENUE TO THE NORTHERN DISTRICT OF CALIFORNIA UNDER 28 U.S.C. § 1404(a)* filed by Mullen Industries LLC. (Attachments: # 1 Affidavit/Declaration of Peter Snell In Support of Plaintiff Mullen Industries LLC's Opposition to Samsung's Motion to Transfer Venue to the Northern District of California, # 2 Exhibit 1, # 3 Exhibit 2, # 4 Exhibit 3, # 5 Exhibit 4, # 6 Exhibit 5, # 7 Exhibit 6, # 8 Exhibit 7, # 9 Exhibit 8, # 10 Exhibit 9, # 11 Exhibit 10, # 12 Exhibit 11, # 13 Exhibit 12, # 14 Exhibit 13, # 15 Exhibit 14, # 16 Exhibit 15, # 17 Exhibit 16, # 18 Exhibit 17, # 19 Exhibit 18, # 20 Exhibit 19, # 21 Exhibit 20, # 22 Exhibit 21, # 23 Exhibit 22, # 24 Exhibit 23, # 25 Exhibit 24, # 26 Exhibit 25, # 27 Exhibit 26, # 28 Exhibit 27, # 29 Exhibit 28, # 30 Exhibit 29, # 31 Exhibit 30, # 32 Exhibit 31, # 33 Exhibit 32, # 34 Exhibit 33, # 35 Exhibit 34, # 36 Exhibit 35, # 37 Exhibit 36)(Snell, Peter) (Additional attachment(s) added on 11/15/2024: # 38 Proposed Order) (jmb). (Entered: 11/15/2024)
11/18/2024	48	SUPPLEMENTAL PROTECTIVE ORDER REGARDING GOOGLE CONFIDENTIAL INFORMATION AND SOURCE CODE. Signed by District Judge Rodney Gilstrap on 11/15/2024. (KLC) (Entered: 11/18/2024)

11/19/2024	49	UNOPPOSED MOTION for Extension of Time to File Response/Reply as to 37 SEALED MOTION *TO TRANSFER VENUE TO THE NORTHERN DISTRICT OF CALIFORNIA UNDER 28 U.S.C. § 1404(a)* by SAMSUNG ELECTRONICS CO., LTD., SAMSUNG ELECTRONICS AMERICA, INC.. (Attachments: # 1 Proposed Order)(Smith, Melissa) (Entered: 11/19/2024)
11/20/2024	50	REDACTION to 47 Sealed Response to Motion,,,, *to Transfer Venue to the Northern District of California Under 28 U.S. Code § 1404(a)* by Mullen Industries LLC. (Attachments: # 1 Affidavit/Declaration, # 2 Exhibit 2, # 3 Exhibit 3, # 4 Exhibit 5, # 5 Exhibit 13, # 6 Exhibit 14, # 7 Exhibit 15, # 8 Exhibit 16, # 9 Exhibit 17, # 10 Exhibit 19, # 11 Exhibit 21, # 12 Exhibit 23, # 13 Exhibit 26, # 14 Exhibit 27, # 15 Exhibit 28, # 16 Exhibit 29, # 17 Exhibit 30, # 18 Exhibit 31, # 19 Exhibit 32, # 20 Exhibit 33, # 21 Exhibit 34, # 22 Exhibit 35, # 23 Exhibit 36, # 24 Proposed Order)(Snell, Peter) (Entered: 11/20/2024)
11/21/2024	51	ORDER granting 49 Unopposed Motion for Extension of Time to File Reply in Support of 37 Samsung's Motion to Transfer Venue to the Northern District of California under 28 U.S.C. § 1404(a). Reply due by 12/3/2024. Signed by District Judge Rodney Gilstrap on 11/21/2024. (jmb) (Entered: 11/22/2024)
11/21/2024	52	MEMORANDUM OPINION AND ORDER. Defendants' Partial Motion to Dismiss (Dkt. No. 13) is GRANTED for the reasons stated herein. (Motion(s) 13 terminated). Signed by District Judge Rodney Gilstrap on 11/21/2024. (jmb) (Entered: 11/22/2024)
11/27/2024	53	FIRST AMENDED COMPLAINT *FOR PATENT INFRINGEMENT* against SAMSUNG ELECTRONICS AMERICA, INC., SAMSUNG ELECTRONICS CO., LTD., filed by Mullen Industries LLC. (Attachments: # 1 Exhibit 1 − U.S. Patent No. 11,234,117, # 2 Exhibit 2 − U.S. Patent No. 11,190,633, # 3 Exhibit 3 − U.S. Patent No. 11,122,418, # 4 Exhibit 4 − U.S. Patent No. 11,109,218, # 5 Exhibit 5 − U.S. Patent No. 11,096,039, # 6 Exhibit 6 − Kyle Hood LinkedIn, # 7 Exhibit 7 − U.S. Patent No. 9,204,283, # 8 Exhibit 8 − U.S. Patent No. 8,374,575, # 9 Exhibit 9 − U.S. Patent No. 11,246,024)(Snell, Peter) (Entered: 11/27/2024)
12/03/2024	54	SECOND AMENDED COMPLAINT *FOR PATENT INFRINGEMENT* against SAMSUNG ELECTRONICS AMERICA, INC., SAMSUNG ELECTRONICS CO., LTD., filed by Mullen Industries LLC. (Attachments: # 1 Exhibit 1 − U.S. Patent No. 11,234,117, # 2 Exhibit 2 − U.S. Patent No. 11,190,633, # 3 Exhibit 3 − U.S. Patent No. 11,122,418, # 4 Exhibit 4 − U.S. Patent No. 11,109,218, # 5 Exhibit 5 − U.S. Patent No. 11,096,039, # 6 Exhibit 6 − Kyle Hood LinkedIn, # 7 Exhibit 7 − U.S. Patent No. 9,204,283, # 8 Exhibit 8 − U.S. Patent No. 8,374,575, # 9 Exhibit 9 − U.S. Patent No. 11,246,024)(Snell, Peter) (Entered: 12/03/2024)
12/03/2024	55	SEALED REPLY to Response re 37 SEALED MOTION *TO TRANSFER VENUE TO THE NORTHERN DISTRICT OF CALIFORNIA UNDER 28 U.S.C. § 1404(a) filed by SAMSUNG ELECTRONICS CO., LTD., SAMSUNG ELECTRONICS AMERICA, INC.*. (Attachments: # 1 Affidavit/Declaration C. Uptegrove, # 2 Affidavit/Declaration M. Liang, # 3 Exhibit P, # 4 Exhibit Q, # 5 Exhibit R, # 6 Exhibit S, # 7 Exhibit T, # 8 Exhibit U, # 9 Exhibit V, # 10 Exhibit W, # 11 Exhibit X, # 12 Exhibit Y, # 13 Exhibit Z, # 14 Exhibit AA, # 15 Exhibit AB, # 16 Exhibit AC, # 17 Exhibit AD, # 18 Exhibit AE, # 19 Exhibit AF, # 20 Exhibit AG, # 21 Exhibit AH, # 22 Exhibit AI, # 23 Exhibit AJ, # 24 Exhibit AK, # 25 Exhibit AL, # 26 Exhibit AM, # 27 Exhibit AN, # 28 Exhibit AO)(Smith, Melissa) (Entered: 12/03/2024)
12/04/2024	56	REDACTION to 55 Sealed Reply to Response to Motion,,, by SAMSUNG ELECTRONICS CO., LTD., SAMSUNG ELECTRONICS AMERICA, INC.. (Attachments: # 1 Exhibit U, # 2 Exhibit V, # 3 Exhibit W, # 4 Exhibit X, # 5 Exhibit Y, # 6 Exhibit Z, # 7 Exhibit AA, # 8 Exhibit AB, # 9 Exhibit AC, # 10 Exhibit AD)(Smith, Melissa) (Entered: 12/04/2024)
12/10/2024	57	SEALED SUR−REPLY to Reply to Response re 37 SEALED MOTION *TO TRANSFER VENUE TO THE NORTHERN DISTRICT OF CALIFORNIA UNDER 28 U.S.C. § 1404(a)* filed by Mullen Industries LLC. (Attachments: # 1 Affidavit/Declaration of Peter Snell In Support of Mullen's Sur−Reply In Opposition to Samsung's Motion to Transfer Venue to the Northern District of California, # 2 Exhibit 37, # 3 Exhibit 38, # 4 Exhibit 39, # 5 Exhibit 40)(Snell, Peter) (Entered: 12/10/2024)

12/10/2024	58	JOINT MOTION FOR EXTENSION OF DEADLINE TO MOVE, ANSWER, OR OTHERWISE RESPOND TO PLAINTIFFS SECOND AMENDED COMPLAINT AND ASSOCIATED BRIEFING DEADLINES by SAMSUNG ELECTRONICS CO., LTD., SAMSUNG ELECTRONICS AMERICA, INC.. (Attachments: # 1 Proposed Order)(Smith, Melissa) (Entered: 12/10/2024)
12/11/2024	59	REDACTION to 57 Sealed Sur−Reply to Reply to Response to Motion, by Mullen Industries LLC. (Attachments: # 1 Affidavit/Declaration of Peter Snell In Support of Mullen's Sur−Reply In Opposition to Samsung's Motion to Transfer Venue to the Northern District of California, # 2 Exhibit 37, # 3 Exhibit 38, # 4 Exhibit 39, # 5 Exhibit 40)(Snell, Peter) (Entered: 12/11/2024)
12/12/2024	60	ORDER granting 58 Motion for Extension of Deadline to Move, Answer, or Otherwise Respond to Plaintiffs Second Amended Complaint and Associated Briefing Deadlines. Signed by District Judge Rodney Gilstrap on 12/11/2024. (KLC) (Entered: 12/12/2024)
12/20/2024	61	MOTION to Dismiss *PARTIAL RULE 12(b)(6) MOTION TO DISMISS PLAINTIFF MULLEN INDUSTRIES LLCS SECOND AMENDED COMPLAINT (DKT. 54)* by SAMSUNG ELECTRONICS CO., LTD., SAMSUNG ELECTRONICS AMERICA, INC.. (Attachments: # 1 Proposed Order)(Smith, Melissa) (Entered: 12/20/2024)
01/08/2025	62	RESPONSE in Opposition re 61 MOTION to Dismiss *PARTIAL RULE 12(b)(6) MOTION TO DISMISS PLAINTIFF MULLEN INDUSTRIES LLCS SECOND AMENDED COMPLAINT (DKT. 54) filed by Mullen Industries LLC*. (Attachments: # 1 Affidavit/Declaration of Peter F. Snell In Support of Plaintiff Mullen Industries LLC's Opposition to Samsung's Partial Rule 12(b)(6) Motion to Dismiss Mullen's Second Amended Complaint, # 2 Proposed Order, # 3 Exhibit 1, # 4 Exhibit 2, # 5 Exhibit 3, # 6 Exhibit 4, # 7 Exhibit 5, # 8 Exhibit 6, # 9 Exhibit 7, # 10 Exhibit 8)(Snell, Peter) (Entered: 01/08/2025)
01/09/2025	63	JOINT MOTION to Amend/Correct 30 Order,, Terminate Motions,, Scheduling Order/Docket Control Order, by Mullen Industries LLC. (Attachments: # 1 Proposed Order − First Amended Docket Control Order)(Snell, Peter) (Entered: 01/09/2025)
01/09/2025	64	NOTICE OF COMPLIANCE by Mullen Industries LLC (Snell, Peter) (Entered: 01/09/2025)
01/10/2025	65	FIRST AMENDED DOCKET CONTROL ORDER. Signed by District Judge Rodney Gilstrap on 01/10/2025. (KLC) (Entered: 01/10/2025)
01/10/2025	66	UNOPPOSED MOTION Leave To Serve Amended Invalidity Contentions − *Defendant Samsung's Unopposed Motion for Leave to Serve Amended Invalidity Contentions* by SAMSUNG ELECTRONICS CO., LTD., SAMSUNG ELECTRONICS AMERICA, INC.. (Attachments: # 1 Exhibit 1, # 2 Exhibit 2, # 3 Exhibit 3, # 4 Proposed Order)(Pensabene, Marc) (Entered: 01/10/2025)
01/17/2025	67	ORDER granting 66 Motion for Leave to Serve Amended Invalidity Contentions. Signed by District Judge Rodney Gilstrap on 01/16/2025. (KLC) (Entered: 01/17/2025)
01/21/2025	68	MOTION to Stay *PENDING INTER PARTES REVIEW* by SAMSUNG ELECTRONICS CO., LTD., SAMSUNG ELECTRONICS AMERICA, INC.. (Attachments: # 1 Affidavit/Declaration B. Trac, # 2 Exhibit 1, # 3 Exhibit 2, # 4 Exhibit 3, # 5 Exhibit 4, # 6 Exhibit 5, # 7 Exhibit 6, # 8 Exhibit 7, # 9 Exhibit 8, # 10 Exhibit 9, # 11 Exhibit 10, # 12 Exhibit 11, # 13 Exhibit 12, # 14 Exhibit 13, # 15 Exhibit 14, # 16 Exhibit 15, # 17 Exhibit 16, # 18 Exhibit 17, # 19 Exhibit 18, # 20 Exhibit 19, # 21 Proposed Order)(Smith, Melissa) (Entered: 01/21/2025)
01/22/2025	69	JOINT MOTION to Amend/Correct 65 Order by Mullen Industries LLC. (Attachments: # 1 Proposed Order − Second Amended Docket Control Order)(Snell, Peter) (Entered: 01/22/2025)
01/22/2025	70	REPLY to Response re 61 MOTION to Dismiss *PARTIAL RULE 12(b)(6) MOTION TO DISMISS PLAINTIFF MULLEN INDUSTRIES LLCS SECOND AMENDED COMPLAINT (DKT. 54) filed by SAMSUNG ELECTRONICS CO., LTD., SAMSUNG ELECTRONICS AMERICA, INC.*. (Smith, Melissa) (Entered: 01/22/2025)

01/23/2025	71	ORDER denying 68 Motion to Stay Pending Inter Partes Review. Signed by District Judge Rodney Gilstrap on 1/22/2025. (NKL) (Entered: 01/23/2025)
01/24/2025	72	SECOND AMENDED DOCKET CONTROL ORDER. Signed by District Judge Rodney Gilstrap on 01/23/2025. (KLC) (Entered: 01/24/2025)
01/30/2025	73	JOINT MOTION For Entry of E−Discovery Order by Mullen Industries LLC. (Attachments: # 1 Proposed Order E−Discovery Order)(Snell, Peter) (Entered: 01/30/2025)
01/31/2025	74	SUR−REPLY to Reply to Response re 61 MOTION to Dismiss *PARTIAL RULE 12(b)(6) MOTION TO DISMISS PLAINTIFF MULLEN INDUSTRIES LLCS SECOND AMENDED COMPLAINT (DKT. 54) filed by Mullen Industries LLC*. (Attachments: # 1 Affidavit/Declaration of Peter F. Snell In Support of Plaintiff's Sur−Reply Brief in Opposition to Samsung's Partial Rule 12(b)(6) Motion to Dismiss Mullen's Second Amended Complaint, # 2 Exhibit 1)(Snell, Peter) (Entered: 01/31/2025)
01/31/2025	75	E−DISCOVERY ORDER. (Motion(s) 73 terminated). Signed by District Judge Rodney Gilstrap on 1/31/2025. (slo) (Entered: 01/31/2025)
02/03/2025	76	OPPOSED MOTION for Hearing re 37 SEALED MOTION *TO TRANSFER VENUE TO THE NORTHERN DISTRICT OF CALIFORNIA UNDER 28 U.S.C. § 1404(a)* by SAMSUNG ELECTRONICS CO., LTD., SAMSUNG ELECTRONICS AMERICA, INC.. (Attachments: # 1 Proposed Order)(Smith, Melissa) (Entered: 02/03/2025)
02/10/2025	77	JOINT MOTION to Amend/Correct *Docket Control Order* by SAMSUNG ELECTRONICS CO., LTD., SAMSUNG ELECTRONICS AMERICA, INC.. (Attachments: # 1 Proposed Order)(Smith, Melissa) (Entered: 02/10/2025)
02/10/2025	78	MOTION to Stay *PENDING RESOLUTION OF DEFENDANTS MOTION TO TRANSFER VENUE (DKT. 37)* by SAMSUNG ELECTRONICS CO., LTD., SAMSUNG ELECTRONICS AMERICA, INC.. (Attachments: # 1 Proposed Order)(Smith, Melissa) (Entered: 02/10/2025)
02/14/2025	79	THIRD AMENDED DOCKET CONTROL ORDER re 77 Motion to Amend/Correct Docket Control Order. Signed by District Judge Rodney Gilstrap on 2/14/2025. (NKL) (Entered: 02/14/2025)
02/20/2025	80	NOTICE of Attorney Appearance − Pro Hac Vice by Li Guo on behalf of SAMSUNG ELECTRONICS CO., LTD., SAMSUNG ELECTRONICS AMERICA, INC.. Filing fee $ 100, receipt number ATXEDC−10686782. (Guo, Li) (Entered: 02/20/2025)
02/20/2025	81	Joint Claim Construction and Prehearing Statement by Mullen Industries LLC, SAMSUNG ELECTRONICS CO., LTD., and SAMSUNG ELECTRONICS AMERICA, INC. (Attachments: # 1 Exhibit A to 4−3 Disclosure, # 2 Exhibit B to 4−3 Disclosure, # 3 Exhibit C to 4−3 Disclosure)(Snell, Peter) (Entered: 02/20/2025)
02/24/2025	82	RESPONSE in Opposition re 78 MOTION to Stay *PENDING RESOLUTION OF DEFENDANTS MOTION TO TRANSFER VENUE (DKT. 37) filed by Mullen Industries LLC*. (Snell, Peter) (Entered: 02/24/2025)
03/03/2025	83	REPLY to Response re 78 MOTION to Stay *PENDING RESOLUTION OF DEFENDANTS MOTION TO TRANSFER VENUE (DKT. 37) filed by SAMSUNG ELECTRONICS CO., LTD., SAMSUNG ELECTRONICS AMERICA, INC.*. (Attachments: # 1 Affidavit/Declaration C. Cole, # 2 Exhibit A, # 3 Exhibit B, # 4 Exhibit C, # 5 Exhibit D, # 6 Exhibit E, # 7 Exhibit F, # 8 Exhibit G, # 9 Exhibit H, # 10 Exhibit I, # 11 Exhibit J, # 12 Exhibit K, # 13 Exhibit L)(Smith, Melissa) (Entered: 03/03/2025)
03/11/2025	84	JOINT MOTION to Amend/Correct *Docket Control Order* by Mullen Industries LLC. (Attachments: # 1 Proposed Order − Fourth Amended Docket Control Order)(Snell, Peter) (Additional attachment(s) added on 3/11/2025: # 2 Revised Proposed Order) (NKL). (Entered: 03/11/2025)
03/12/2025	85	FOURTH AMENDED DOCKET CONTROL ORDER re 84 Motion to Amend/Correct Docket Control Order. Signed by District Judge Rodney Gilstrap on 3/12/25. (kcv) (Entered: 03/12/2025)

03/13/2025	86	NOTICE of Attorney Appearance − Pro Hac Vice by Hannah Edge on behalf of Mullen Industries LLC. Filing fee $ 100, receipt number ATXEDC−10726246. (Edge, Hannah) (Entered: 03/13/2025)
03/14/2025	87	NOTICE of Attorney Appearance − Pro Hac Vice by Robert Sweeney on behalf of Mullen Industries LLC. Filing fee $ 100, receipt number ATXEDC−10726579. (Sweeney, Robert) (Entered: 03/14/2025)
03/20/2025	88	CLAIM CONSTRUCTION BRIEF filed by Mullen Industries LLC. (Attachments: # 1 Affidavit/Declaration of Peter F. Snell In Support Of Plaintiff Mullen Industries LLC's Opening Claim Construction Brief, # 2 Exhibit 1 − U.S. Patent No. 9,204,283, # 3 Exhibit 2 − U.S. Patent No. 8,374,575, # 4 Exhibit 3 − U.S. Patent No. 11,234,117, # 5 Exhibit 4 − U.S. Patent No. 11,246,024, # 6 Exhibit 5 − U.S. Patent No. 11,096,039, # 7 Exhibit 6 − U.S. Patent No. 11,109,218, # 8 Exhibit 7 − U.S. Patent No. 11,190,633, # 9 Exhibit 8 − U.S. Patent No. 11,122,418, # 10 Exhibit 9, # 11 Exhibit 10, # 12 Exhibit 11, # 13 Exhibit 12, # 14 Exhibit 13)(Snell, Peter) (Entered: 03/20/2025)
03/25/2025	89	ORDER APPOINTING Technical Advisor. Michael Dean Paul appointed. Signed by District Judge Rodney Gilstrap on 03/25/2025. (KLC) (Entered: 03/25/2025)
03/25/2025	90	MEMORANDUM OPINION AND ORDER (Motion(s) 78 , 76 terminated). Signed by District Judge Rodney Gilstrap on 03/25/2025. (KLC) (Entered: 03/25/2025)
04/02/2025	91	UNOPPOSED MOTION FOR LEAVE TO INCREASE PAGE LIMITS FOR MARKMAN BRIEFING by SAMSUNG ELECTRONICS CO., LTD., SAMSUNG ELECTRONICS AMERICA, INC.. (Attachments: # 1 Proposed Order)(Smith, Melissa) (Entered: 04/02/2025)
04/03/2025	92	ORDER granting 91 Motion for Leave to Increase Page Limits for Markman Briefing. Signed by District Judge Rodney Gilstrap on 04/03/2025. (KLC) (Entered: 04/03/2025)
04/03/2025	93	NOTICE of Attorney Appearance − Pro Hac Vice by Laura B. Gore on behalf of SAMSUNG ELECTRONICS CO., LTD., SAMSUNG ELECTRONICS AMERICA, INC.. Filing fee $ 100, receipt number ATXEDC−10765024. (Gore, Laura) (Entered: 04/03/2025)
04/03/2025	94	NOTICE of Attorney Appearance − Pro Hac Vice by Hyun Min Han on behalf of SAMSUNG ELECTRONICS CO., LTD., SAMSUNG ELECTRONICS AMERICA, INC.. Filing fee $ 100, receipt number ATXEDC−10765125. (Han, Hyun) (Entered: 04/03/2025)
04/08/2025	95	UNOPPOSED MOTION to Withdraw as Attorney *for Kayla Butler* by SAMSUNG ELECTRONICS AMERICA, INC., SAMSUNG ELECTRONICS CO., LTD.. (Attachments: # 1 Proposed Order)(Smith, Melissa) (Entered: 04/08/2025)
04/08/2025	96	UNOPPOSED MOTION to Withdraw as Attorney *for Stacy Yae* by SAMSUNG ELECTRONICS AMERICA, INC., SAMSUNG ELECTRONICS CO., LTD.. (Attachments: # 1 Proposed Order)(Smith, Melissa) (Entered: 04/08/2025)
04/09/2025	97	UNOPPOSED MOTION FOR LEAVE TO SERVE AMENDED INVALIDITY CONTENTIONS by SAMSUNG ELECTRONICS AMERICA, INC., SAMSUNG ELECTRONICS CO., LTD.. (Attachments: # 1 Proposed Order)(Smith, Melissa) (Entered: 04/09/2025)
04/09/2025	98	ORDER granting 95 Motion to Withdraw as Attorney. Attorney Kyla Butler terminated. Signed by District Judge Rodney Gilstrap on 4/9/2025. (wea) (Entered: 04/10/2025)
04/09/2025	99	ORDER granting 96 Motion to Withdraw as Attorney. Attorney Stacy Yae terminated. Signed by District Judge Rodney Gilstrap on 4/9/2025. (wea) (Entered: 04/10/2025)
04/10/2025	100	RESPONSIVE CLAIM CONSTRUCTION BRIEF filed by SAMSUNG ELECTRONICS AMERICA, INC., SAMSUNG ELECTRONICS CO., LTD.. (Attachments: # 1 Affidavit/Declaration M. Liang, # 2 Exhibit A, # 3 Exhibit B, # 4 Exhibit C, # 5 Exhibit D, # 6 Exhibit E, # 7 Exhibit F, # 8 Exhibit G, # 9 Exhibit H)(Smith, Melissa) (Entered: 04/10/2025)

04/14/2025	101	ORDER granting 97 Unopposed Motion for Leave to Serve Amended Invalidity Contentions. Signed by District Judge Rodney Gilstrap on 4/14/2025. (jmb) (Entered: 04/14/2025)
04/24/2025	102	REPLY CLAIM CONSTRUCTION BRIEF filed by Mullen Industries LLC. (Attachments: # 1 Affidavit/Declaration of Peter F. Snell In Support Of Plaintiff Mullen Industries LLC's Reply Claim Construction Brief, # 2 Exhibit 14, # 3 Exhibit 15)(Snell, Peter) (Entered: 04/24/2025)
04/28/2025	103	UNOPPOSED MOTION to Withdraw as Attorney *for Paul St. Marie* by Mullen Industries LLC. (Attachments: # 1 Proposed Order Granting Plaintiff's Unopposed Motion For Withdraw)(Snell, Peter) (Entered: 04/28/2025)
04/28/2025	104	ORDER granting 103 Motion to Withdraw as Attorney. Attorney Paul Stephen St. Marie, Jr. terminated. Signed by District Judge Rodney Gilstrap on 4/28/2025. (jmb) (Entered: 04/29/2025)
04/30/2025	105	Order−The Court REFERS the above−captioned case to the Honorable Roy S. Payne for the limited purpose of conducting the Claim Construction hearing. Signed by District Judge Rodney Gilstrap on 04/28/2025. (mdj) Modified on 5/1/2025 (mdj). (Entered: 04/30/2025)
04/30/2025	106	NOTICE of Attorney Appearance by Laura M Burson on behalf of SAMSUNG ELECTRONICS AMERICA, INC., SAMSUNG ELECTRONICS CO., LTD. (Burson, Laura) (Entered: 04/30/2025)
05/01/2025		NOTICE of Hearing: Markman Hearing RESET for 5/16/2025 at 01:30 PM before Magistrate Judge Roy S. Payne. (wea) (Entered: 05/01/2025)
05/01/2025	107	Joint Claim Construction Chart by Mullen Industries LLC, Samsung Electronics Co., Ltd., and Samsung Electronics America, Inc. (Attachments: # 1 Exhibit A to 4−5, # 2 Exhibit B to 4−5)(Snell, Peter) (Entered: 05/01/2025)
05/02/2025	108	MOTION for Hearing re 61 MOTION to Dismiss *PARTIAL RULE 12(b)(6) MOTION TO DISMISS PLAINTIFF MULLEN INDUSTRIES LLCS SECOND AMENDED COMPLAINT (DKT. 54)* by SAMSUNG ELECTRONICS AMERICA, INC., SAMSUNG ELECTRONICS CO., LTD.. (Attachments: # 1 Proposed Order)(Smith, Melissa) (Entered: 05/02/2025)
05/02/2025	109	RESPONSE in Opposition re 108 MOTION for Hearing re 61 MOTION to Dismiss *PARTIAL RULE 12(b)(6) MOTION TO DISMISS PLAINTIFF MULLEN INDUSTRIES LLCS SECOND AMENDED COMPLAINT (DKT. 54) filed by Mullen Industries LLC*. (Attachments: # 1 Proposed Order Denying Samsung's Opposed Motion for Hearing on the Rule 12(b)(6) Motion)(Snell, Peter) (Entered: 05/02/2025)
05/02/2025	110	NOTICE of Attorney Appearance by Ryan K Yagura on behalf of SAMSUNG ELECTRONICS AMERICA, INC., SAMSUNG ELECTRONICS CO., LTD. (Yagura, Ryan) (Entered: 05/02/2025)

IN THE UNITED STATES DISTRICT COURT
FOR THE EASTERN DISTRICT OF TEXAS
MARSHALL DIVISION

MULLEN INDUSTRIES LLC, *Plaintiff,* v. SAMSUNG ELECTRONICS CO., LTD., and SAMSUNG ELECTRONICS AMERICA, INC., *Defendants.*	Case No. 2:24-cv-00049 **JURY TRIAL DEMANDED**

MULLEN INDUSTRIES LLC'S
COMPLAINT FOR PATENT INFRINGEMENT

Plaintiff Mullen Industries LLC ("Mullen Industries" or "Plaintiff") for its Complaint against Defendant Samsung Electronics Co., Ltd. ("SEC") and Defendant Samsung Electronics America, Inc. ("SEA", and collectively with SEC, "Samsung" or "Defendants") for patent infringement under 35 U.S.C. § 271 relating to U.S. Patent Nos. 11,246,024 (the "'024 Patent"), 11,234,117 (the "'117 Patent"), 11,190,633 (the "'633 Patent"), 11,122,418 (the "'418 Patent"), 11,109,218 (the "'218 Patent"), 11,096,039 (the "'039 Patent"), 9,635,540 (the "'540 Patent"), 9,204,283 (the "'283 Patent"), and 8,374,575 (the "'575 Patent" and collectively, the "Patents-in-Suit") alleges as follows:

INTRODUCTION

1. The Patents-in-Suit are directed to technological advancements and security improvements in regards to mobile phones, tablets, smart watches, wireless computers, and server systems. The Patents-in-Suit and additional patented and patent pending technology arose from the research and development of Jeff Mullen and his company Mullen Industries LLC.

2. Jeff Mullen is an inventor, technologist, electrical and computer engineer, MBA graduate, and founder of Mullen Industries LLC.

3. Jeff Mullen has innovated prolifically across a wide array of technologies since the early 2000s, including, for example, with regard to wireless and cellular communications systems and devices, security improvements regarding the same, augmented reality and virtual reality devices, and autonomous defense systems.

4. By way of example, the Patents-in-Suit identify problems that existed in the art of mobile devices and global positioning system technology. *See, e.g.*, '418 Patent at 1:28-33. To address these problems, the Patents-in-Suit disclose technological advancements and security improvements in regards to, for example, "systems and methods … for locating cellular phones … [and] for allowing a user of a cellular phone … to locate the position of a different user's cellular phone … based upon requestor-assigned access rights." *See, e.g.*, '418 Patent at 1:37-43.

5. The Patents-in-Suit teach, for example, that "[i]n order for users to be identified by other users' cell phones or locating devices a user profile may need to be stored remotely from such devices. In such instances user profiles would be used as the locating identifier and the devices into which these profiles are logged into (recognized by) would allow for the user to be located." *Id*. at 9:53-65; *see also* 2:59-3:13, 11:3-24, 12:42-13:3.

6. The Patents-in-Suit disclose, for example, wireless devices that communicate with a backend server system to provide location-based services and features. For example, the Patents-in-Suit teach a mobile device that can receive and display location information regarding another mobile device by "contact[ing] the remote database, hav[ing] his/her identity recognized, hav[ing] his/her access rights for the requested user location determined, and, if the requesting user has the correct access rights, be[ing] provided with the requested user's location." *Id*. at 5:11-44.

7. The Patents-in-Suit describe additional technological advancements and security improvements in regards to wireless devices and server systems. For example, the Patents-in-Suit describe that "different types of access levels may be provided that allow a user to filter location information to a different user." *See id*. at 1:49-54. Such access rights can vary, for example, by time (e.g., location is only accessible for a certain amount of time) or place (e.g., only an approximate location, but not an exact location, may be accessed). *Id*. at 1:55-2:2.

8. As additional examples, the Patents-in-Suit solve technical challenges related to receiving and providing event notifications and location-based information, such as location markers on a map, navigable directions, and distance information, on mobile devices with small display screens. *E.g.*, *id*. at 2:22-34, 8:6-21; '633 Patent at 1:47-2:11.

SAMSUNG'S WILLFUL INFRINGEMENT

9. Jeff Mullen's patented innovations have been widely cited by others. By way of example, the Patents-in-Suit have been cited well over 100 times by others in U.S. Patent Office proceedings.

10. On information and belief, Samsung has possessed knowledge of the Patents-in-Suit and Samsung's infringement thereof since before the filing of the present Complaint.

11. For example, before the filing of the present Complaint, Samsung and/or its subsidiaries and/or representatives conducted one or more meetings with Jeff Mullen.

12. On information and belief, as a result of such one or more meetings, Samsung as a large technology company has possessed knowledge of and monitored the patents and patent applications invented by Jeff Mullen, including the patent applications that ultimately issued as the Patents-in-Suit. On information and belief, as a result of such monitoring, Samsung became aware of each Patent-in-Suit before the filing of the present Complaint. In addition, on information

and belief, Samsung knew that at least Samsung phones, tablets, and servers, which include location-based technologies including at least the ones referenced in this Complaint (e.g., Samsung SmartThings Find), and Samsung watches, which include motion-sensing and notification technologies including at least the ones referenced in this Complaint, infringed the Patents-in-Suit on each date that Samsung incorporated such infringing technologies into Samsung phones, tablets, watches, and servers.

13. On information and belief, Samsung also possessed knowledge of the Patents-in-Suit and of Samsung's infringement thereof before the filing of the present Complaint as a result of Samsung's industry monitoring efforts and corresponding knowledge of Mullen Industries LLC's prior patent infringement suit against Apple Inc., which is Samsung's primary competitor with regard to at least Samsung phones, tablets, watches, and servers. On information and belief, Samsung possessed knowledge of the Patents-in-Suit and of Samsung's infringement thereof upon learning of Mullen Industries LLC's prior suit against Apple Inc. because the prior suit was directed to the same Patents-in-Suit that are the subject of the present Complaint, as well as location-based technologies in Apple phones, tablets, watches, and servers, and motion-sensing and notification technologies in Apple watches, that are similar to the corresponding technologies that Samsung provides in the Samsung phones, tablets, watches, and servers that are the subject of the present Complaint. *See Mullen Industries LLC v. Apple Inc.*, 6:22-cv-00145 (W.D. Tex.), Dkt. 1 (Complaint dated February 9, 2022); *see also Mullen Industries LLC v. Apple Inc.*, 6:22-cv-00145 (W.D. Tex.), Dkt. 25 (Amended Complaint dated May 6, 2022).

14. On information and belief, as a large technology company, Samsung analyzed each of the Patents-in-Suit when it became aware of each such patent and determined how its products

infringed at that time and in each instance thereafter in which Samsung incorporated the infringing technologies into Samsung's phones, tablets, watches, and servers.

15. Notwithstanding Samsung's knowledge of the Patents-in-Suit and Samsung's infringement thereof, Samsung has and continues to willfully infringe the Patents-in-Suit.

16. On information and belief, as a large technology company, to the extent Samsung failed to investigate its infringement upon learning of the Patents-in-Suit, Samsung has been willfully blind.

17. On information and belief, Samsung has and continues to willfully infringe each of the Patents-in-Suit notwithstanding that Samsung knew or should have known, both before and after the filing of the present Complaint, that its actions constituted an unjustifiably high risk of infringement, and notwithstanding that the risk of Samsung's infringement of the Patents-in-Suit was either known to Samsung or so obvious that it should have been known to Samsung both before and after the filing of the present Complaint.

18. On information and belief, Samsung's infringement of the Patents-in-Suit has and continues to be willful, wanton, malicious, bad-faith, deliberate, consciously wrongful, and flagrant.

THE PARTIES

MULLEN INDUSTRIES LLC

19. Plaintiff Mullen Industries LLC is a limited liability company organized and existing under the laws of the State of Delaware.

SAMSUNG

20. On information and belief, Defendant Samsung Electronics Co., Ltd. ("SEC") is a company organized and existing under the laws of the Republic of Korea, with its principal place of business located at 129 Samsung-Ro, Yeongtong-Gu, Suwon-Shi, Gyeonggi-Do, 16677,

Republic of Korea. On information and belief, SEC's Information Technology & Mobile Communications division is responsible for the design, manufacture, testing, and sale of Samsung mobile devices, such as phones, tablets, and watches, and related servers, software and applications, around the world including in the United States.

21. On information and belief, Defendant Samsung Electronics America, Inc. ("SEA") is a corporation organized and existing under the laws of the State of New York with its principal place of business at 85 Challenger Road, Ridgefield Park, New Jersey 07660. On information and belief, SEA is a wholly owned subsidiary of SEC. SEA has business locations in this District, including at 6625 Excellence Way, Plano, Texas 75023 and 2601 Preston Road, Frisco, Texas 75034. On information and belief, Defendant SEA is responsible for the design, manufacture, testing, and sale of Samsung mobile devices, such as phones, tablets, and watches, and related servers, software and applications, in the United States, including in this District. Defendant SEA may be served at least via its registered agent for service of process in Texas, CT Corporation System, 1999 Bryan Street, Suite 900, Dallas, Texas 75201.

JURISDICTION AND VENUE

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

23. This Court has personal jurisdiction over Samsung. Samsung regularly conducts business and has committed acts of patent infringement within this judicial District and the State of Texas that give rise to this action and has established minimum contacts with this forum such that exercise of jurisdiction over Samsung would not offend traditional notions of fair play and substantial justice. Samsung has committed and continues to commit acts of infringement in this

District and State by, among other things, offering to sell, selling, using (e.g., testing), importing, having made, and making products and services that infringe the Patents-in-Suit.

24. Venue is proper in this District under 28 U.S.C. §§ 1391 and 1400. Samsung is registered to do business in Texas and, upon information and belief, Samsung has transacted business in this District, has committed acts of direct infringement in this District, and has regular and established places of business in this District as set forth above.

25. For example, on information and belief, SEA maintains regular and established places of business in this District, including at 6625 Excellence Way, Plano, Texas 75023 and 2601 Preston Road, Frisco, Texas 75034 and has committed acts of infringement in this District. Further, on information and belief, SEC directs and controls the actions of SEA such that it too maintains regular and established places of business in this District, including at 6625 Excellence Way, Plano, Texas 75023 and 2601 Preston Road, Frisco, Texas 75034 and has committed acts of infringement in this District.

26. Additionally, venue is proper as to SEC, a foreign corporation, because suits against foreign entities are proper in any judicial district under 28 U.S.C. § 1391(c)(3).

27. Samsung is subject to this Court's jurisdiction pursuant to due process and the Texas Long Arm Statute due at least to its substantial business in this State and District, including (a) at least part of its past infringing activities, (b) regularly doing or soliciting business in Texas, and/or (c) engaging in persistent conduct and/or deriving substantial revenue from goods and services provided to customers in Texas.

28. Defendants have not contested proper venue and exercise of personal jurisdiction in this District for patent infringement actions in the past. See, e.g., Answer, ¶¶ 13, 18, *Cal. Inst. Tech. v. Samsung Elecs. Co., Ltd. et al.*, No. 2:21-cv-00446, Dkt. 19 (E.D. Tex. Apr. 5, 2022);

Answer to Amended Complaint, ¶¶ 6, 7, *Jawbone Innovations, LLC v. Samsung Elecs. Co., Ltd. et al.*, No. 2:21-cv-00186, Dkt. 27 (E.D. Tex. Dec. 9, 2021).

THE PATENTS-IN-SUIT

29. On January 25, 2022, the United States Patent and Trademark Office duly and legally issued U.S. Patent No. 11,234,117 (the "'117 Patent") entitled "Systems and Methods for Locating Cellular Phones and Security Measures for the Same." A true and correct copy of the '117 Patent is attached hereto as Exhibit 1.

30. On November 30, 2021, the United States Patent and Trademark Office duly and legally issued U.S. Patent No. 11,190,633 (the "'633 Patent") entitled "Systems and Methods for Providing Remote Incoming Call Notification for Cellular Phones." A true and correct copy of the '633 Patent is attached hereto as Exhibit 2.

31. On September 14, 2021, the United States Patent and Trademark Office duly and legally issued U.S. Patent No. 11,122,418 (the "'418 Patent") entitled "Systems and Methods for Locating Cellular Phones and Security Measures for the Same." A true and correct copy of the '418 Patent is attached hereto as Exhibit 3.

32. On August 31, 2021, the United States Patent and Trademark Office duly and legally issued U.S. Patent No. 11,109,218 (the "'218 Patent") entitled "Systems and Methods for Locating Cellular Phones and Security Measures for the Same." A true and correct copy of the '218 Patent is attached hereto as Exhibit 4.

33. On August 17, 2021, the United States Patent and Trademark Office duly and legally issued U.S. Patent No. 11,096,039 (the "'039 Patent") entitled "Systems and Methods for Locating Cellular Phones and Security Measures for the Same." A true and correct copy of the '039 Patent is attached hereto as Exhibit 5.

34. On April 25, 2017, the United States Patent and Trademark Office duly and legally issued U.S. Patent No. 9,635,540 (the "'540 Patent") entitled "Systems and Methods for Locating Cellular Phones and Security Measures for the Same." A true and correct copy of the '540 Patent is attached hereto as Exhibit 6.

35. On December 1, 2015, the United States Patent and Trademark Office duly and legally issued U.S. Patent No. 9,204,283 (the "'283 Patent") entitled "Systems and Methods for Locating Cellular Phones and Security Measures for the Same." A true and correct copy of the '283 Patent is attached hereto as Exhibit 7.

36. On February 12, 2013, the United States Patent and Trademark Office duly and legally issued U.S. Patent No. 8,374,575 (the "'575 Patent") entitled "Systems and Methods for Locating Cellular Phones and Security Measures for the Same." A true and correct copy of the '575 Patent is attached hereto as Exhibit 8.

37. On February 8, 2022, the United States Patent and Trademark Office duly and legally issued U.S. Patent No. 11,246,024 (the "'024 Patent") entitled "Systems and Methods for Locating Cellular Phones and Security Measures for the Same." A true and correct copy of the '024 Patent is attached hereto as Exhibit 9.

38. Mullen Industries LLC is the sole and exclusive owner of all right, title, and interest in and to the Patents-in-Suit, and holds the exclusive right to take all actions necessary to enforce its rights to the Patents-in-Suit, including the filing of this action. Mullen Industries LLC also has the right to recover all damages for past, present, and future infringement of the Patents-in-Suit.

39. Pursuant to and because Plaintiff, the present owner of the Patents-in-Suit, and Jeff Mullen, the prior owner of the Patents-in-Suit, have complied with 35 U.S.C. §§ 286 and 287(a), Plaintiff is entitled to past damages for Samsung's infringement beginning six years prior to the

filing date of the present Complaint. Plaintiff is also entitled to damages for Samsung's continuing infringement until the expiration of the last to expire of the Patents-in-Suit.

COUNT I
INFRINGEMENT OF U.S. PATENT NO. 11,234,117

40. All of the preceding paragraphs of this Complaint are incorporated by reference as if fully set forth herein.

41. Plaintiff has not licensed or otherwise authorized Samsung to make, have made, use, offer for sale, sell, export, or import any products that embody the inventions of the '117 Patent.

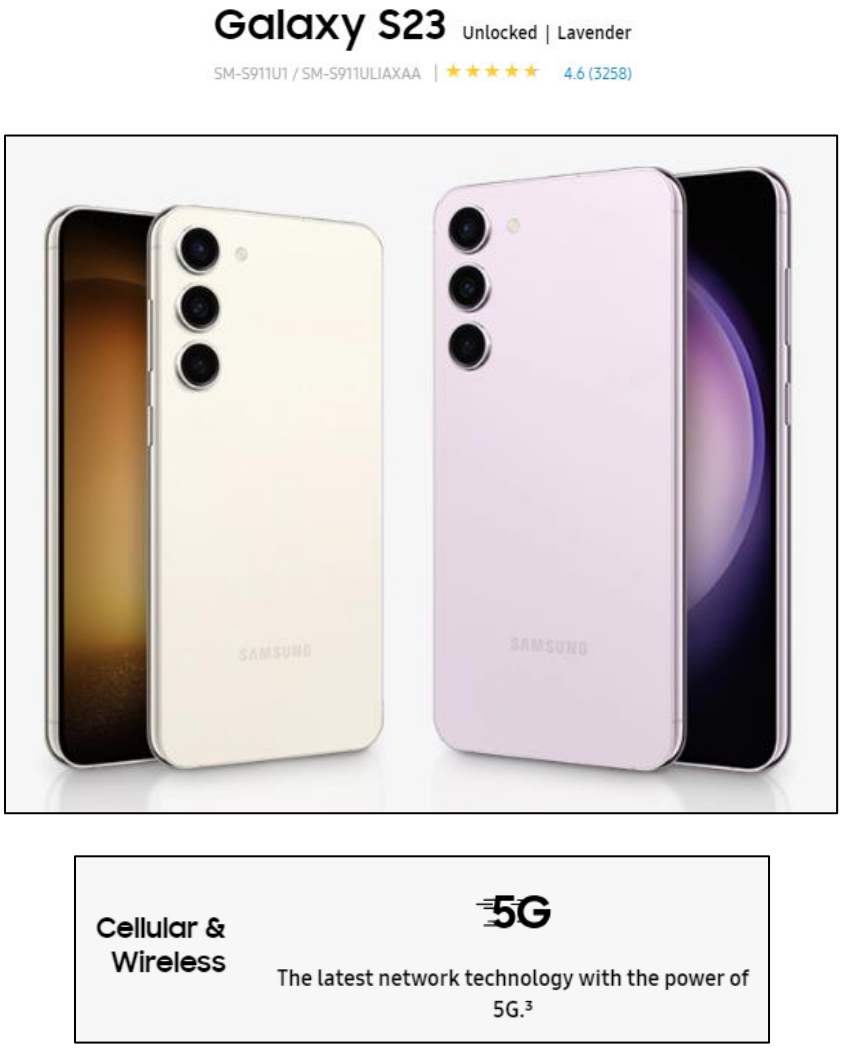
42. Samsung has directly infringed the '117 Patent, either literally or under the doctrine of equivalents, without authority and in violation of 35 U.S.C. § 271, by making, using, offering to sell, selling, exporting from, and/or importing into the United States products that satisfy each and every limitation of one or more claims of the '117 Patent.

43. On information and belief, Samsung's products that infringe the '117 Patent include at least Samsung's mobile phones and tablet computers. E.g., https://www.samsung.com/us/smartphones/; https://www.samsung.com/us/tablets/. Collectively, the Samsung products that infringe the '117 Patent are referred to as the "'117 Accused Products."

44. Samsung has directly infringed one or more claims of the '117 Patent by making, using (e.g., testing), offering to sell, selling, and/or importing into the United States the accused Samsung phones and tablets.

45. For example, Samsung has directly infringed claim 15 of the '117 Patent. Each of the '117 Accused Products comprises a wireless telephone. Each Samsung phone is capable of,

for example, supporting telephonic communications over cellular networks including 5G. E.g.:[1,2,3]

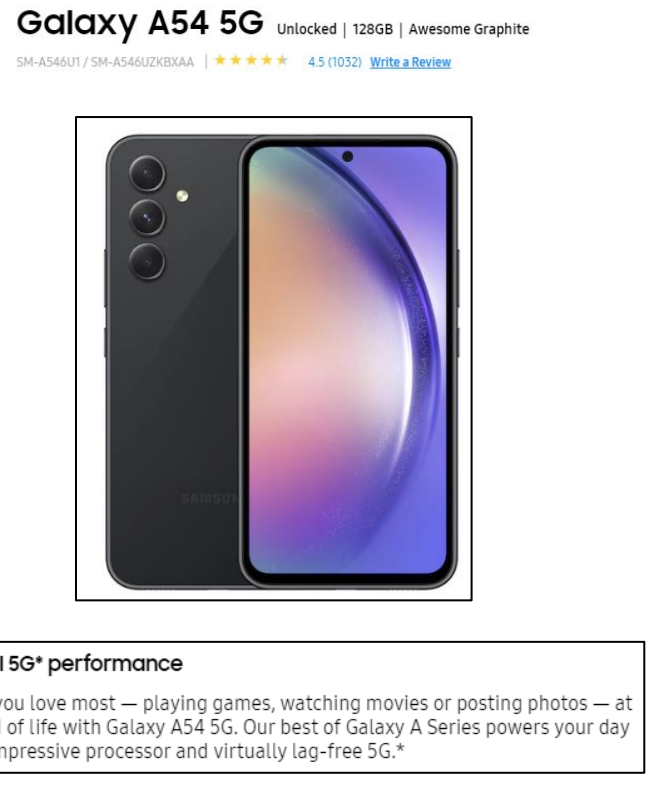


[1] https://www.samsung.com/us/smartphones/galaxy-s23/buy/galaxy-s23-128gb-unlocked-sm-s911uliaxaa/.

[2] https://www.samsung.com/us/smartphones/galaxy-s22/buy/galaxy-s22-128gb-verizon-sm-s901ulvavzw/?modelCode=SM-S901ULVAVZW.

[3] https://www.samsung.com/us/mobile/phones/galaxy-a54/buy/?modelCode=SM-A546UZKAATT.

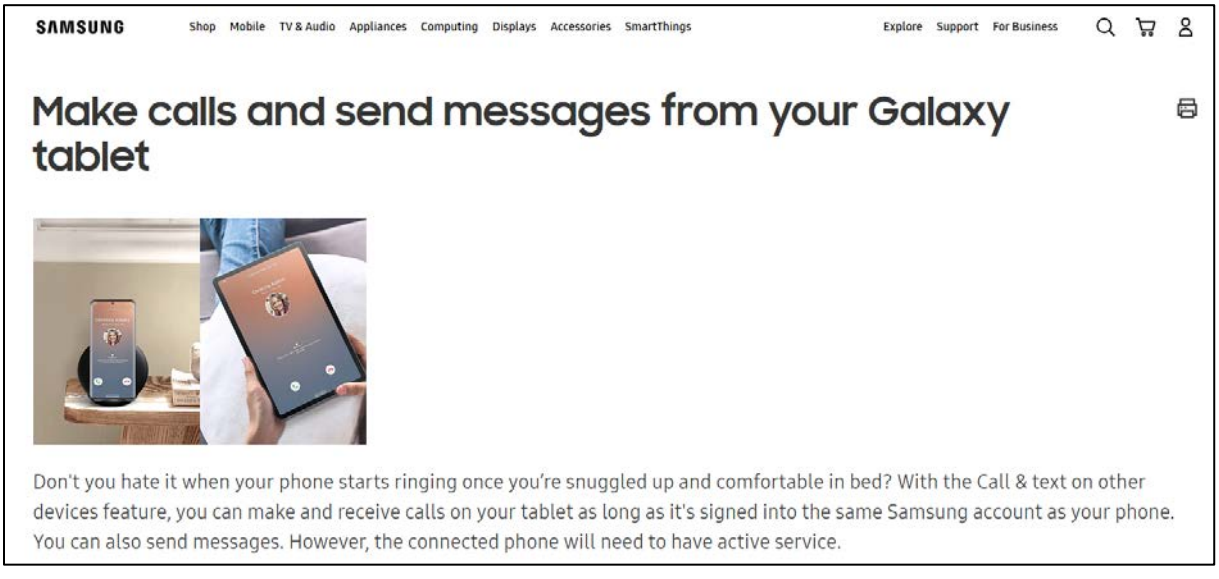




46. As another example, each Samsung tablet is likewise capable of supporting wireless

telephonic communications over, for example, Wi-Fi or cellular networks such as 5G. E.g.:[4,5]

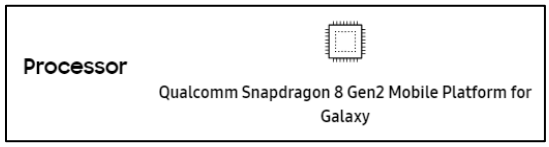




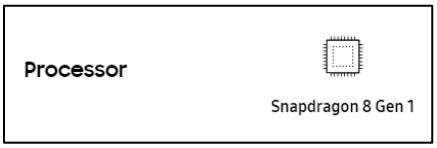
[4] https://www.samsung.com/us/tablets/galaxy-tab-s9/.

[5] https://www.samsung.com/us/support/answer/ANS00083152/.

47. Each of the ’117 Accused Products comprises a processor. For example, Samsung Galaxy S23 phones include a Snapdragon 8 Gen 2 Mobile Platform system-on-chip processor. E.g.:[6]



48. As another example, Samsung Galaxy S22 phones include a Snapdragon 8 Gen 1 system-on-chip processor. E.g.:[7]



49. As another example, Samsung A54 phones include an Exynos 1380 system-on-chip processor. E.g.:[8]

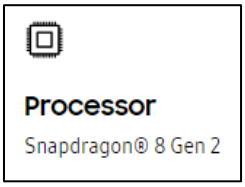


[6] https://www.samsung.com/us/smartphones/galaxy-s23/buy/galaxy-s23-128gb-unlocked-sm-s911uliaxaa/.

[7] https://www.samsung.com/us/smartphones/galaxy-s22/buy/galaxy-s22-128gb-verizon-sm-s901ulvavzw/?modelCode=SM-S901ULVAVZW.

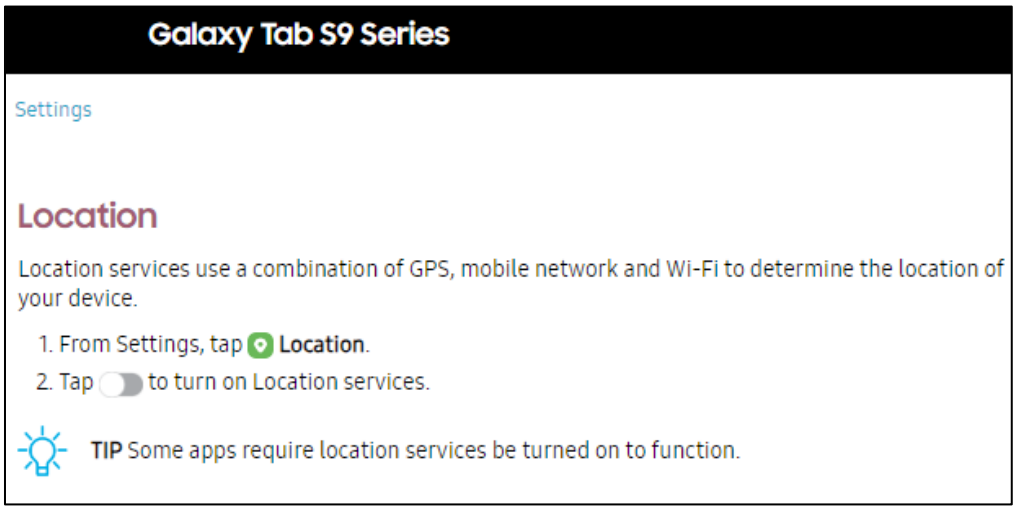
[8] https://semiconductor.samsung.com/us/processor/showcase/smartphone/.

50. As another example, Samsung Galaxy Tab S9 Ultra tablet computers include a Snapdragon 8 Gen 2 processor. E.g.:[9]



51. Each of the '117 Accused Products comprises a positioning system for determining a location of the device. For example, Samsung phones and tablets include a global positioning system ("GPS"). E.g.:[10,11]

Your Galaxy phone includes a GPS antenna to track real-time location data. You can easily turn on and off location service on your phone. You can also improve location accuracy to get more accurate location services. See how easy it is to enable and set up your location settings below.



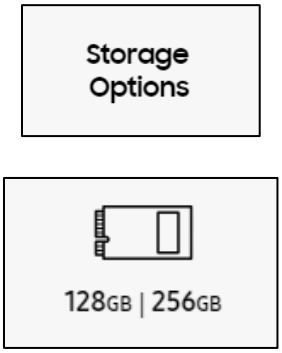
[9] https://www.samsung.com/us/tablets/galaxy-tab-s9/.

[10] https://www.samsung.com/latin_en/support/mobile-devices/how-to-activate-my-location-and-change-settings-for-location-permissions/.

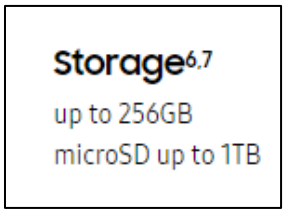
[11] https://downloadcenter.samsung.com/content/PM/202308/20230808065803698/EB/SAM_X710_X810_X818_X910_EN_FINAL_230624/location_d1e8811.html.

52. As another example, the ’117 Accused Products are operable to determine a location of the device on the basis of, for example, Wi-Fi signals in the vicinity of the device.[12]

53. Each of the ’117 Accused Products comprises memory storing programming. For example, each Samsung phone and tablet includes memory for storing programming capable of executing on the phone or tablet, respectively. Each Samsung Galaxy S23 and Galaxy S22 phone includes the following storage capacity, including for the Android operating system (“OS”) and applications. E.g.:[13]



54. As another example, the Samsung Galaxy Tab S9 includes the following storage capacity, including for an OS and applications. E.g.:[14]



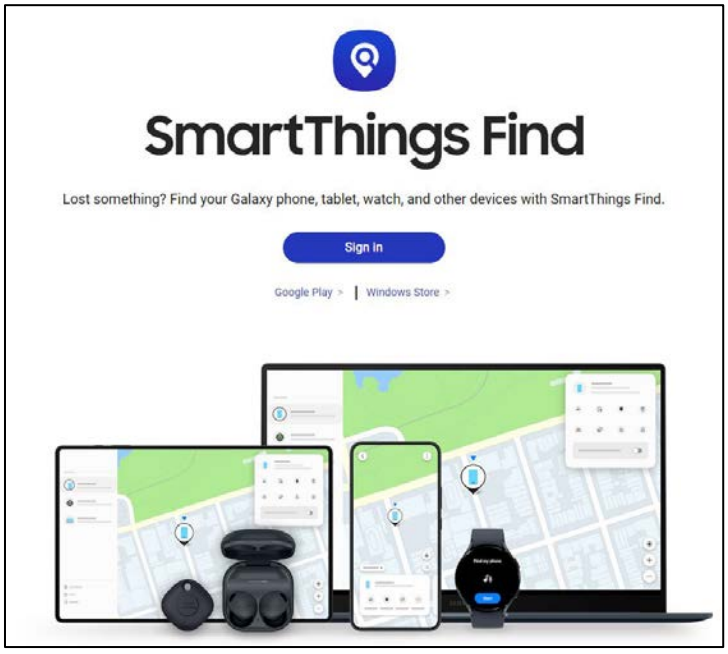
55. Each of the ’117 Accused Products stores programming in its memory capable of

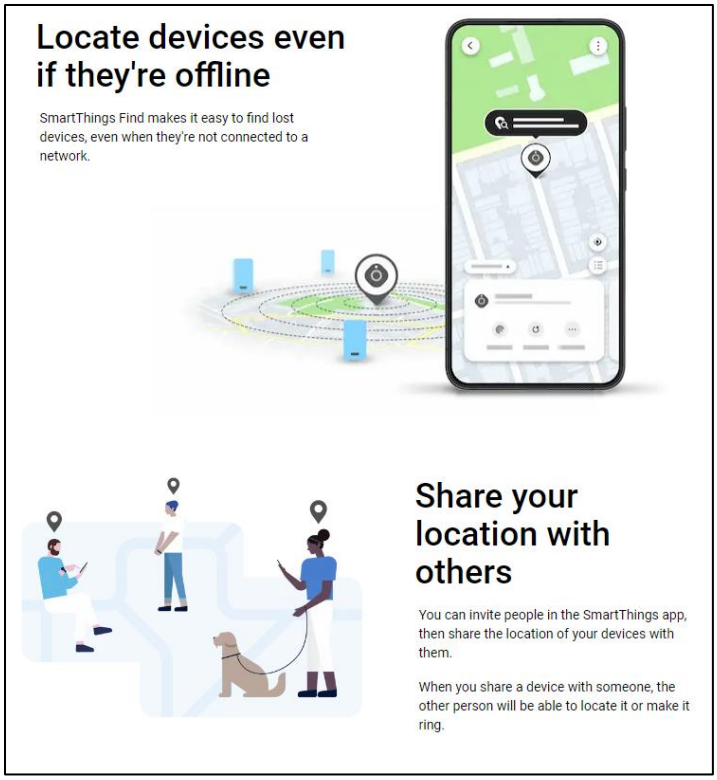
[12] E.g., https://downloadcenter.samsung.com/content/PM/202308/20230808065803698/EB/SAM_X710_X810_X818_X910_EN_FINAL_230624/location_d1e8811.html.

[13] https://www.samsung.com/us/smartphones/galaxy-s22/buy/galaxy-s22-128gb-verizon-sm-s901ulvavzw/?modelCode=SM-S901ULVAVZW (Galaxy S22); see also https://www.samsung.com/us/smartphones/galaxy-s23/buy/galaxy-s23-128gb-unlocked-sm-s911uliaxaa/ (Galaxy S23).

[14] https://www.samsung.com/us/tablets/galaxy-tab-s9/.

providing location-based services and features including, for example, Samsung SmartThings Find. E.g.:[15]



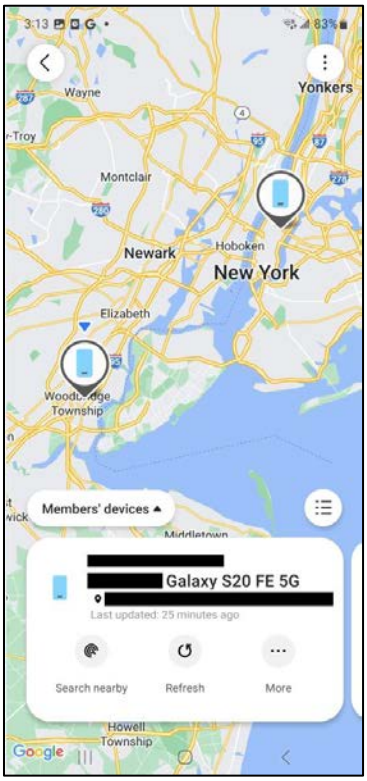


[15] https://smartthingsfind.samsung.com/login?result=true.

56. On information and belief, Samsung SmartThings Find is preinstalled on at least Samsung phones and tablets.

57. Each of the ’117 Accused Products includes programming capable of displaying a plurality of users, wherein each one of said plurality of users is associated to a different one of a plurality of wireless telephones.

58. For example, each of the ’117 Accused Products includes Samsung SmartThings Find programming capable of displaying a plurality of users, wherein each one of said plurality of users is associated to a different one of a plurality of wireless telephones. E.g.:

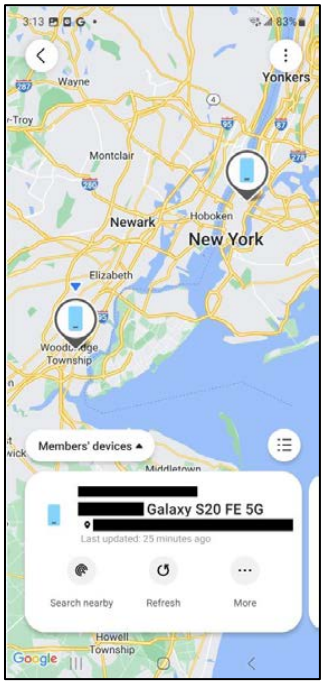


Samsung A54 phone (Redacted screen shot showing the display in Samsung SmartThings Find of a first user (center-left portion of the display) and a second user (top-right portion of the display)).

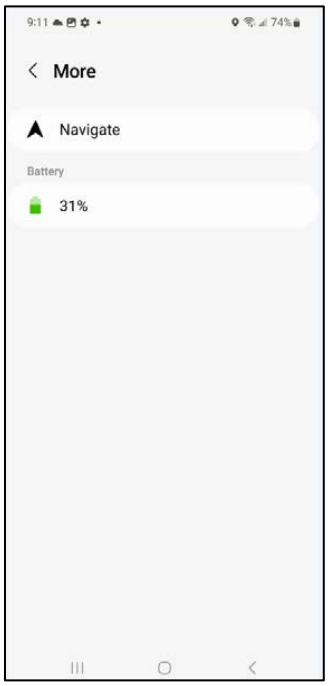
59. Each of the ’117 Accused Products comprises programming capable of receiving a first manual input in a form of a selection of one of said plurality of users.

60. For example, each of the ’117 Accused Products comprises Samsung SmartThings

Find programming capable of receiving a first manual input in a form of a selection of one of said plurality of users. E.g.:



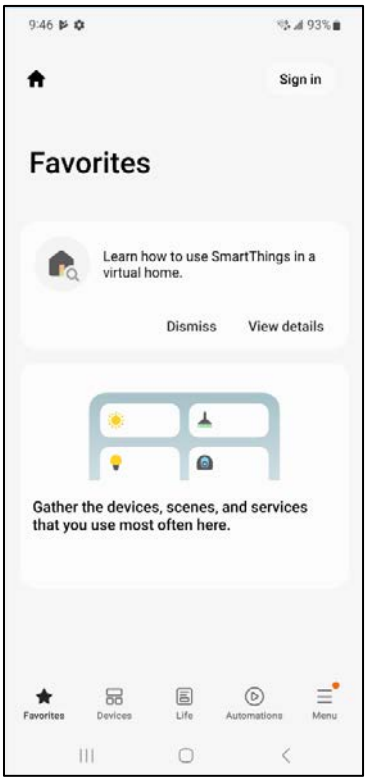
Samsung A54 phone (Redacted screen shot showing the display of a plurality of users, each of which can be manually selected by a user of the Samsung A54 phone).



Samsung A54 phone (Screen shot showing the display in Samsung SmartThings Find of an option to "Navigate" to a particular user's location, which display is provided after a user of the Samsung A54 phone manually selects that particular user from a map display in Samsung SmartThings Find).

61. Each of the '117 Accused Products comprises programming capable of receiving an input in a form of a login and a second manual input in a form of a password.

62. For example, each of the '117 Accused Products comprises Samsung SmartThings Find programming capable of receiving an input in a form of a login and a second manual input in a form of a password. E.g.:



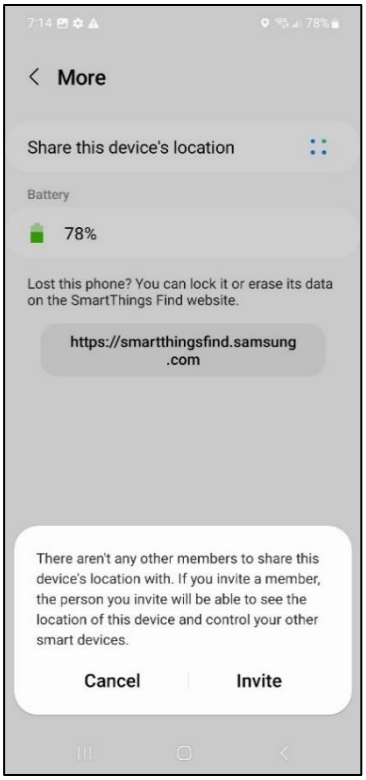
Samsung A54 phone (Screen shot showing that a user must "Sign in" (using a login and password) to access Samsung SmartThings Find location-based features).

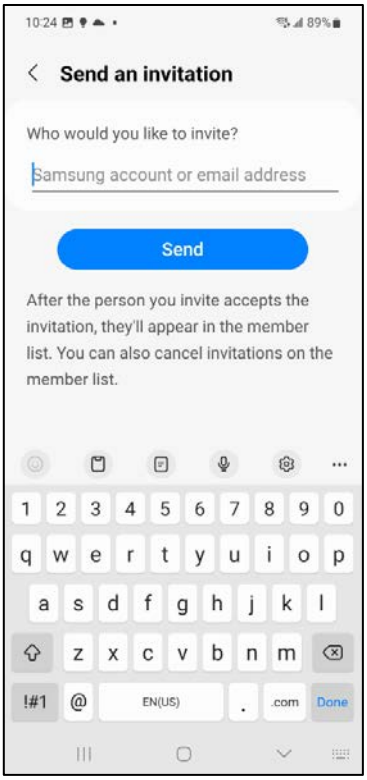
63. Each of the '117 Accused Products comprises programming capable of providing said login and said password to a remote server for use in determining whether to allow access of location information for said one of said plurality of wireless telephones associated to said selected

one of said plurality of users, said determining including identifying a user of said wireless telephone using said login, determining said password is associated with said login, and determining whether said selected one of said plurality of users has provided access rights for said location information to said user of said wireless telephone. For example, each Samsung phone and Samsung tablet programmed with the location-based services and features of Samsung SmartThings Find, is capable of providing the device user's login and associated password to a server, which determines on the basis of such information whether the selected one of said plurality of users has provided to said device user access rights for said location information of said selected one of said plurality of users. Only specific authenticated users associated with specific logins are permitted to access another user's location information.

64. Each of the '117 Accused Products comprises programming capable of assigning location access rights to said one of said plurality of wireless telephones associated with said selected one of said plurality of users for obtaining said location of said wireless telephone.

65. For example, each Samsung phone and Samsung tablet programmed with the location-based services and features of Samsung SmartThings Find is capable of displaying an option for a device user to assign location access rights to a selected one of a plurality of users. E.g.:

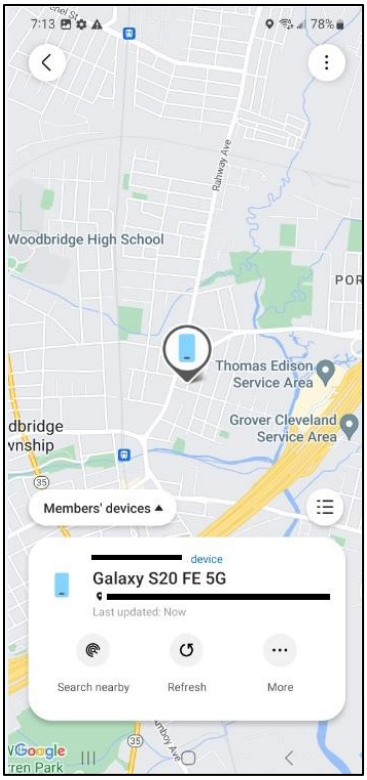




Samsung A54 phone (Screen shots showing the capability to assign to another user in Samsung SmartThings Find location access rights to see the Samsung A54 phone's location).

66. Each of the '117 Accused Products comprises programming capable of receiving said location information for said one of said plurality of wireless telephones from a server and displaying said location information.

67. For example, each Samsung phone and Samsung tablet programmed with the location-based services and features of Samsung SmartThings Find is capable of receiving from a server and displaying location information for a selected one of the plurality of wireless telephones on, for example, a map. E.g.:



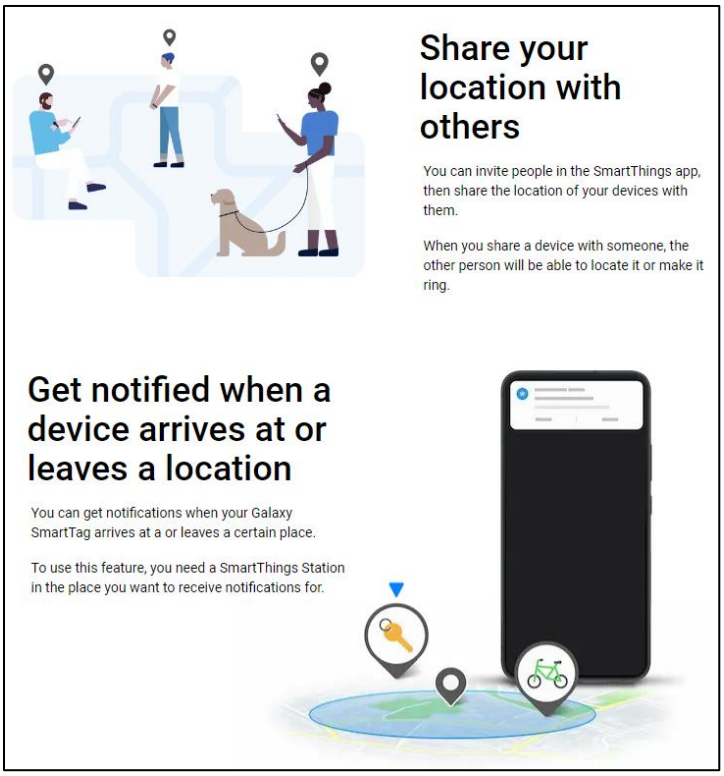
Samsung A54 phone (Redacted screen shot showing the display in Samsung SmartThings Find of a location of another user).

68. Samsung has also indirectly infringed the ’117 Patent by actively inducing and contributing to the infringement of the ’117 Patent by others, including customers, resellers, and retailers. On information and belief, Samsung had knowledge of the ’117 Patent and of its infringement thereof before the filing of the present Complaint for at least the reasons described above in paragraphs 9-18.

69. On information and belief, Samsung has specifically induced and intended others, such as customers, resellers, and retailers, to infringe the ’117 Patent by, for example, using or selling the ’117 Accused Products, and knew that such others perform acts that constituted direct infringement. For example, Samsung has provided instructions to its customers regarding the infringing use and operation of the ’117 Accused Products. When others have followed such instructions, they have directly infringed one or more claims of the ’117 Patent. By providing such

instructions, Samsung knew and intended that others would follow such instructions, and thereby directly infringe one or more claims of the '117 Patent. Thus, Samsung knew that its actions actively induced infringement by others.

70. For example, Samsung has instructed end users how to open and use Samsung SmartThings Find, for example, for sharing location information with others. E.g.:[16]



71. Samsung has also contributed to the direct infringement of the '117 Patent by others because the location-based technologies of the '117 Accused Products have no substantial non-infringing use and are a material part of the invention. On information and belief, there is no substantial way to utilize the location-based technologies of the '117 Accused Products (e.g., within Samsung SmartThings Find) and not infringe the '117 Patent. Samsung contributes to the direct infringement of the '117 Patent when, for example, Samsung causes or instructs end users

[16] https://smartthingsfind.samsung.com/login?result=true.

to download updates to the programming on the ’117 Accused Products that, together with such products’ hardware and/or other software, infringes the ’117 Patent.

72. Plaintiff has suffered damages as a result of Samsung’s infringement of the ’117 Patent in an amount to be proved at trial.

73. On information and belief, Samsung’s infringement of the ’117 Patent has been willful.

74. Plaintiff should be awarded damages in accordance with 35 U.S.C. §§ 271, 281, and 284, in an amount adequate to compensate for Samsung’s infringement of the ’117 Patent, but in no event less than a reasonable royalty for the use made of the inventions by Samsung together with interest and costs as fixed by the Court.

COUNT II
INFRINGEMENT OF U.S. PATENT NO. 11,190,633

75. Plaintiff references and incorporates by reference the preceding paragraphs of this Complaint as if fully set forth herein.

76. Plaintiff has not licensed or otherwise authorized Samsung to make, use, offer for sale, sell, export, or import any products that embody the inventions of the ’633 Patent.

77. Samsung has and continues to directly infringe the ’633 Patent, either literally or under the doctrine of equivalents, without authority and in violation of 35 U.S.C. § 271, by making, using (e.g., testing), offering to sell, selling, exporting from, and/or importing into the United States products that satisfy each and every limitation of one or more claims of the ’633 Patent.

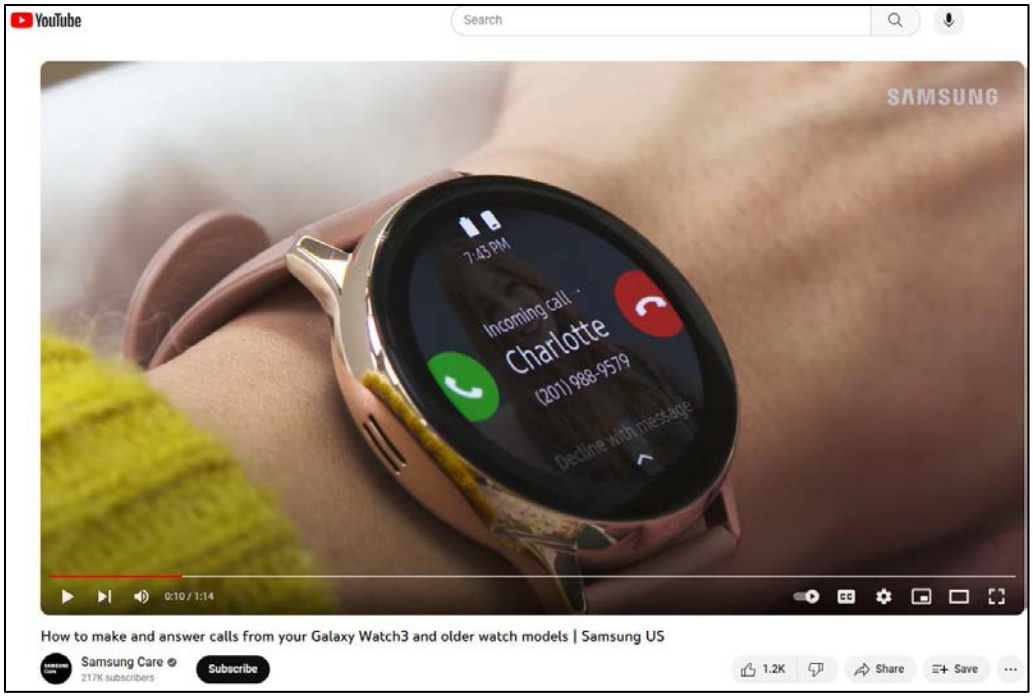
78. On information and belief, Samsung’s products that infringe the ’633 Patent include at least Samsung’s smart watches. E.g., https://www.samsung.com/us/watches/. Collectively, the Samsung products that infringe the ’633 Patent are referred to as the “’633 Accused Products.”

79. Samsung has and continues to directly infringe one or more claims of the ’633 Patent including, for example, at least claim 1 of the ’633 Patent, by making, using (e.g., testing), offering to sell, selling, and/or importing into the United States the ’633 Accused Products, each of which comprises a watch for use with a mobile telephonic device that provides notification of an incoming call. For example, each Samsung watch is a watch for use with a mobile phone, where the Samsung watch notifies a user of an incoming call to the phone. E.g.:[17,18]



[17] https://www.samsung.com/us/watches/.

[18] https://www.youtube.com/watch?app=desktop&v=Cr3-8NDt3Hk.



80. Each of the ’633 Accused Products comprises a watch band, a second watch band, and a buckle, where said buckle is coupled to said second watch band. E.g.:[19]



[19] https://www.samsung.com/us/watches/.



81. Each of the ’633 Accused Products comprises a device operable to receive first wireless communication signals associated with a first event and second wireless communication signals associated with a second event from said mobile telephonic device, wherein said first event and second event are different. For example, each Samsung watch is operable to receive wireless communication signals from a phone associated with notification events. Such notification events include, for example, an incoming call, missed call, voice message, text message, reminder, and calendar notification, which are different events. E.g.:[20,21,22,23,24,25]

[20] https://www.youtube.com/watch?app=desktop&v=Cr3-8NDt3Hk (incoming call notification).

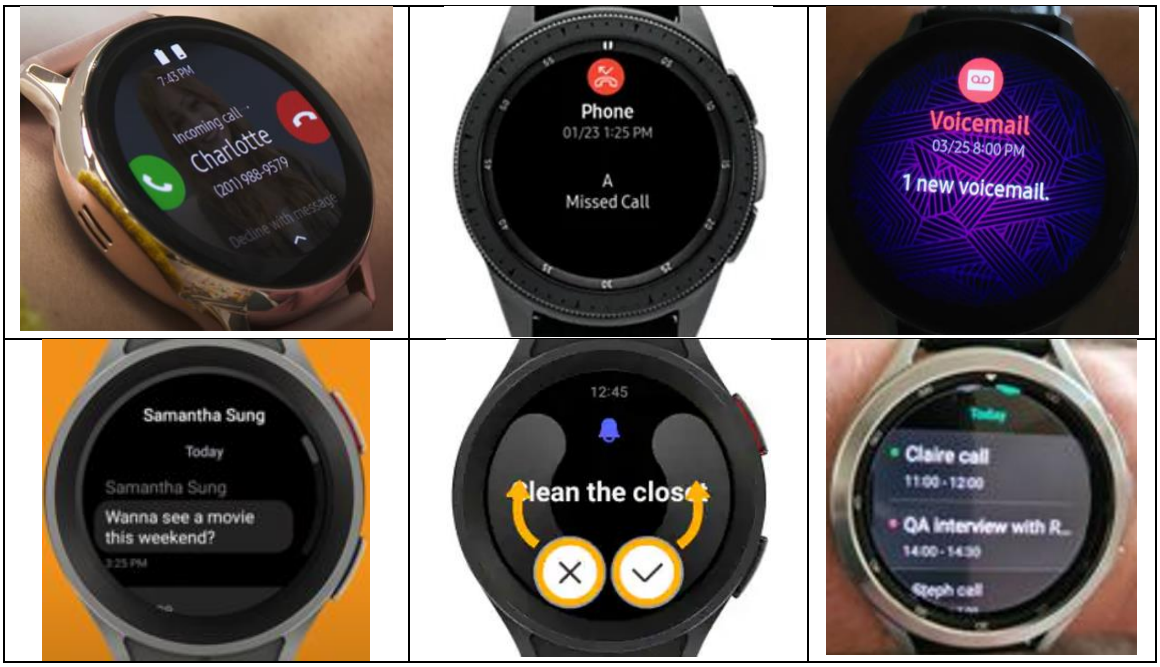
[21] https://medium.com/@iOSTrixFixX/call-function-in-samsung-galaxy-watch-with-iphone-613a2949c4d2 (missed call notification).

[22] https://www.reddit.com/r/GalaxyWatch/comments/n1bsbk/voicemail_notification_wont_go_away_but_no/?rdt=54836 (voicemail notification).

[23] https://www.youtube.com/watch?app=desktop&v=h_oRlZFILlY (text message notification).

[24] https://www.att.com/device-support/article/wireless/KM1498216/Samsung/SamsungSMR925U (reminder notification).

[25] https://eu.community.samsung.com/t5/wearables/galaxy-watch-4-classic-calendar-entries-amp-notification/td-p/3873477 (calendar notification).



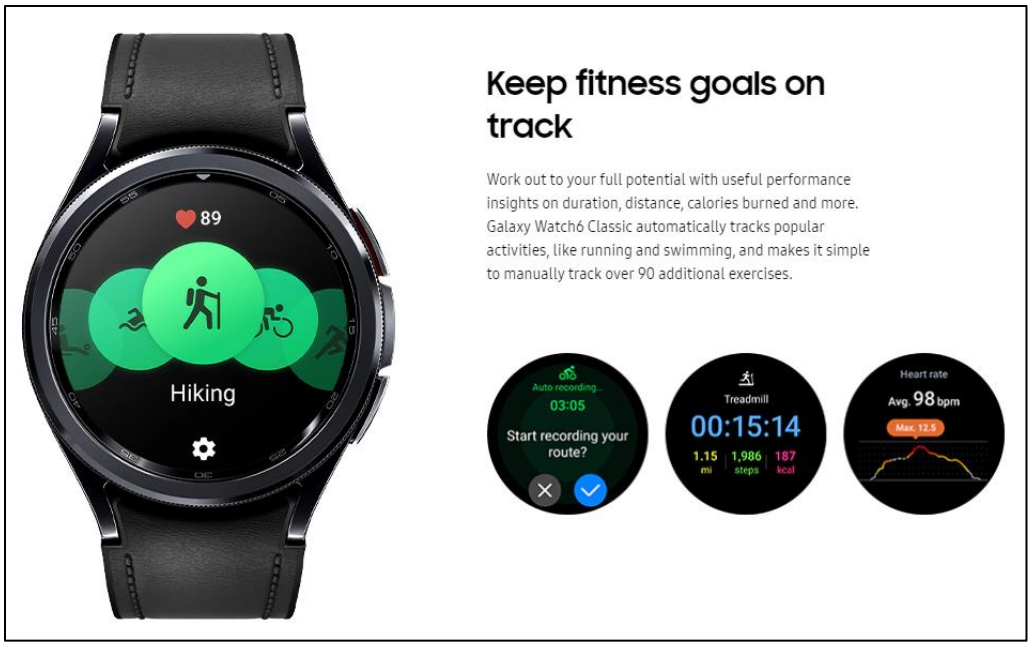
82. Each of the ’633 Accused Products comprises a battery. E.g.:[26]



83. Each of the ’633 Accused Products comprises motion sensing operable to distinguish between a plurality of different types of motion. For example, each Samsung watch

[26] https://www.samsung.com/us/watches/galaxy-watch6-classic/#performance.

includes an accelerometer and a gyroscope.[27] Samsung watches also include, for example, step detection motion sensing: E.g.:[28]

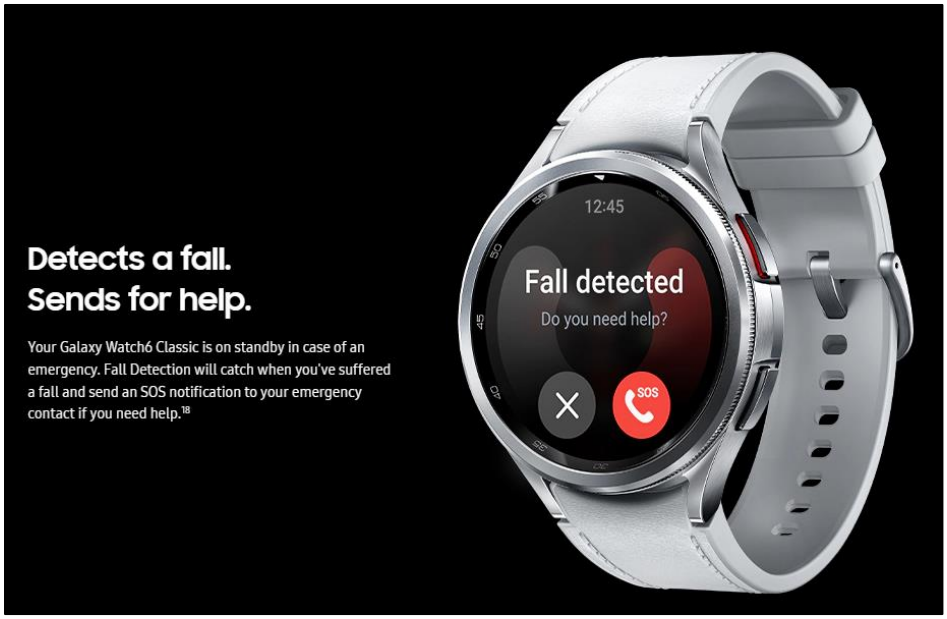


84. As another example, Samsung watches include fall detection motion sensing. E.g.:[29]

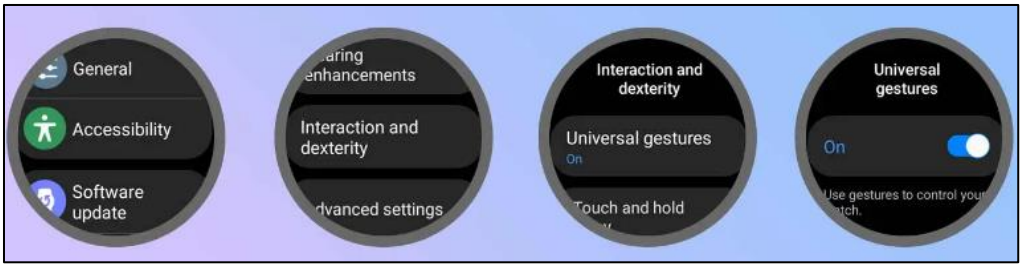
[27] E.g., https://developer.samsung.com/tizen/blog/en-us/2019/04/15/how-to-use-sensors-on-a-galaxy-watch.

[28] https://www.samsung.com/us/watches/galaxy-watch6-classic/#performance.

[29] https://www.samsung.com/us/watches/galaxy-watch6-classic/#performance.



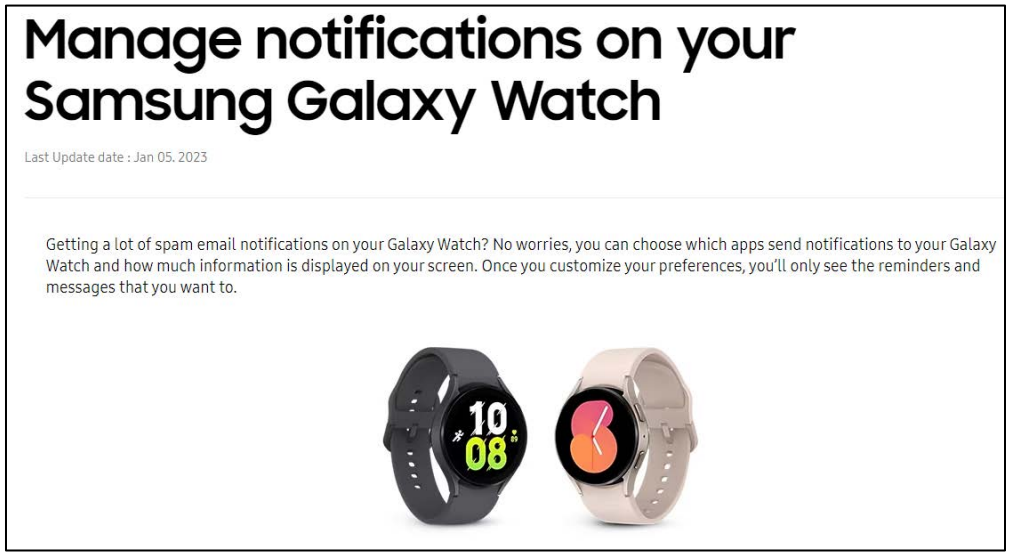
85. In addition, Samsung watches include Universal Gestures sensing to convert different types of gestures into action commands. E.g.:[30]



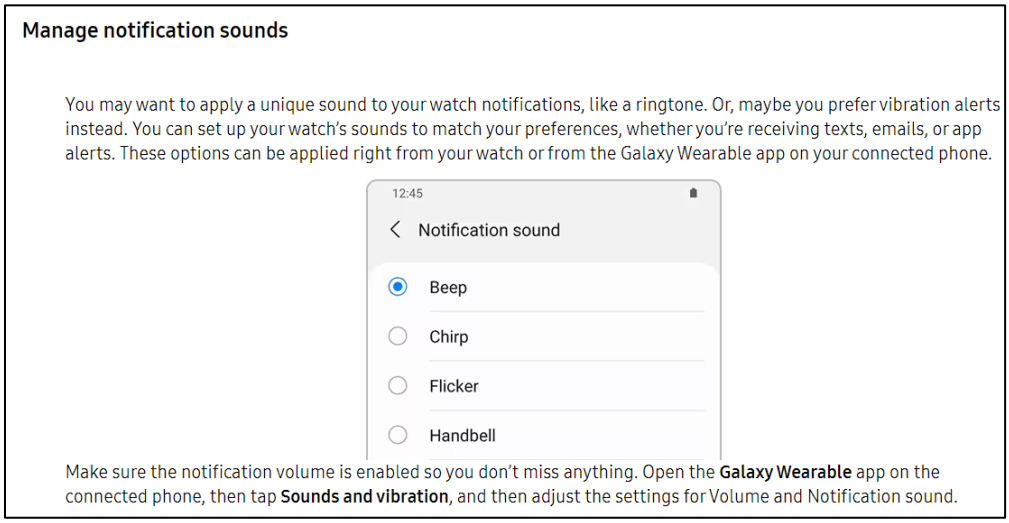
Gesture	Action
Shake your wrist twice	Turn on Universal Gestures
Pinch your thumb and index finger	Next item
Double pinch	Previous item
Make a fist	Tap
Make a fist twice	Open the action menu

[30] https://9to5google.com/2023/06/09/interactive-gestures-galaxy-watch/.

86. Each of the '633 Accused Products is operable to provide first user-perceivable notification signals that are dependent upon said received first communication signals, and said device is operable to provide second user perceivable notification signals that are dependent upon said second communication signals. For example, each Samsung watch is operable to provide various visual displays as well as audio and haptic signals that can be perceived by a user and that correspond to various respective notifications. E.g.:[31]



...



[31] https://www.samsung.com/latin_en/support/mobile-devices/manage-notifications-on-your-samsung-galaxy-watch/.

87. Samsung also has and continues to indirectly infringe the ’633 Patent by actively inducing and contributing to the infringement of the ’633 Patent by others, including customers, resellers, and retailers. On information and belief, Samsung has possessed knowledge of the ’633 Patent and of its infringement thereof both before and after the filing of the present Complaint for at least the reasons described above in paragraphs 9-18.

88. On information and belief, Samsung has and continues to specifically induce and intend that others, such as customers, resellers, and retailers, infringe the ’633 Patent by, for example, using or selling the ’633 Accused Products, and has and continues to know that such others perform acts that constitute direct infringement. For example, Samsung has and continues to provide instructions to its customers regarding the infringing use and operation of the ’633 Accused Products. See e.g., Samsung’s website instructions identified in the foregoing paragraphs regarding the motion-sensing and notification technologies of Samsung’s watches. When others follow such instructions, they have and continue to directly infringe one or more claims of the ’633 Patent. By providing such instructions, Samsung has and continues to know and intend that others will follow such instructions, and thereby directly infringe one or more claims of the ’633 Patent. Thus, Samsung has and continues to know that its actions actively induce infringement by others.

89. Samsung also has and continues to contribute to the direct infringement of the ’633 Patent by others because the motion-sensing and notification technologies of the ’633 Accused Products have no substantial non-infringing use and are a material part of the invention. On information and belief, there is no substantial way to utilize the motion-sensing and notification technologies of the ’633 Accused Products and not infringe the ’633 Patent. Samsung contributes to the direct infringement of the ’633 Patent when, for example, Samsung causes or instructs end users to download updates to the programming on the ’633 Accused Products that, together with

such products' hardware and/or other software, infringes the '633 Patent.

90. Plaintiff has and continues to suffer damages as a result of Samsung's infringement of the '633 Patent in an amount to be proved at trial.

91. On information and belief, Samsung's infringement of the '633 Patent has and continues to be willful.

92. Plaintiff should be awarded damages in accordance with 35 U.S.C. §§ 271, 281, and 284 in an amount adequate to compensate for Samsung's infringement of the '633 Patent but in no event less than a reasonable royalty for the use made of the inventions by Samsung, together with interest and costs as fixed by the Court.

COUNT III
INFRINGEMENT OF U.S. PATENT NO. 11,122,418

93. Plaintiff references and incorporates by reference the preceding paragraphs of this Complaint as if fully set forth herein.

94. Plaintiff has not licensed or otherwise authorized Samsung to make, have made, use, offer for sale, sell, export, or import any products that embody the inventions of the '418 Patent.

95. Samsung has directly infringed the '418 Patent, either literally or under the doctrine of equivalents, without authority and in violation of 35 U.S.C. § 271, by making, using (e.g., testing), offering to sell, selling, exporting from, and/or importing into the United States products that satisfy each and every limitation of one or more claims of the '418 Patent.

96. On information and belief, Samsung's products that infringe the '418 Patent include at least Samsung's mobile phones and tablet computers. E.g., https://www.samsung.com/us/smartphones/; https://www.samsung.com/us/tablets/. Collectively, the Samsung products that infringe the '418 Patent are referred to as the "'418 Accused Products."

97. Samsung has directly infringed one or more claims of the '418 Patent including, for example, at least claim 1 of the '418 Patent, by making, using (e.g., testing), offering to sell, selling, and/or importing into the United States the '418 Accused Products, each of which comprises a system that is capable of providing location-based services and features. For example, each Samsung phone and Samsung tablet includes memory for storing programming capable of executing on the phone or tablet, respectively.[32]

98. Each Samsung phone and Samsung tablet stores programming in its memory capable of providing location-based services and features including, for example, Samsung SmartThings Find.[33]

99. Each of the '418 Accused Products comprises a first wireless device, wherein a location of said first wireless device is operable of being determined. For example, Samsung phones and tablets include a global positioning system operable to determine a location of the phone or tablet, respectively.[34,35] In addition, Samsung phones and tablets are operable to determine a location of the phone or tablet on the basis of, for example, Wi-Fi signals in the vicinity of the device.[36]

100. Each of the '418 Accused Products is operable to provide said location of said first wireless device to a remote system, which location is operable of being requested by a second

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[32] E.g., https://www.samsung.com/us/smartphones/galaxy-s22/buy/galaxy-s22-128gb-verizon-sm-s901ulvavzw/?modelCode=SM-S901ULVAVZW (Galaxy S22); see also https://www.samsung.com/us/smartphones/galaxy-s23/buy/galaxy-s23-128gb-unlocked-sm-s911uliaxaa/ (Galaxy S23); https://www.samsung.com/us/tablets/galaxy-tab-s9/.

[33] E.g., https://smartthingsfind.samsung.com/login?result=true.

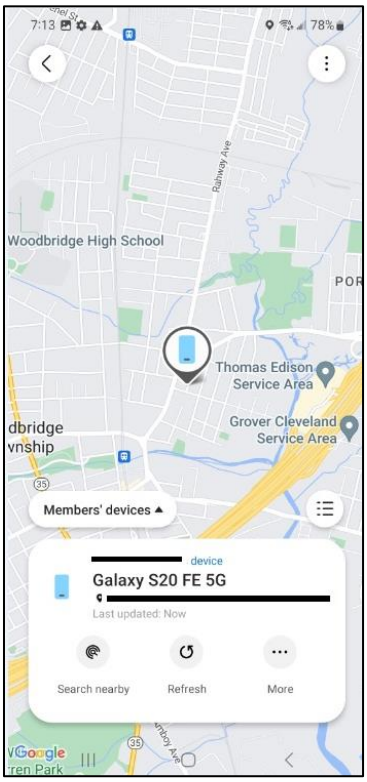
[34] https://www.samsung.com/latin_en/support/mobile-devices/how-to-activate-my-location-and-change-settings-for-location-permissions/.

[35] https://downloadcenter.samsung.com/content/PM/202308/20230808065803698/EB/SAM_X710_X810_X818_X910_EN_FINAL_230624/location_d1e8811.html.

[36] *Id*.

wireless device outside of a call for communication between said first wireless device and said second wireless device. Each Samsung phone and tablet programmed with the foregoing location-based services and features is capable of providing the location of the phone or tablet, respectively, to a remote server system, which location is operable of being requested by a second wireless device outside of a call for communication between said first wireless device and said second wireless device.

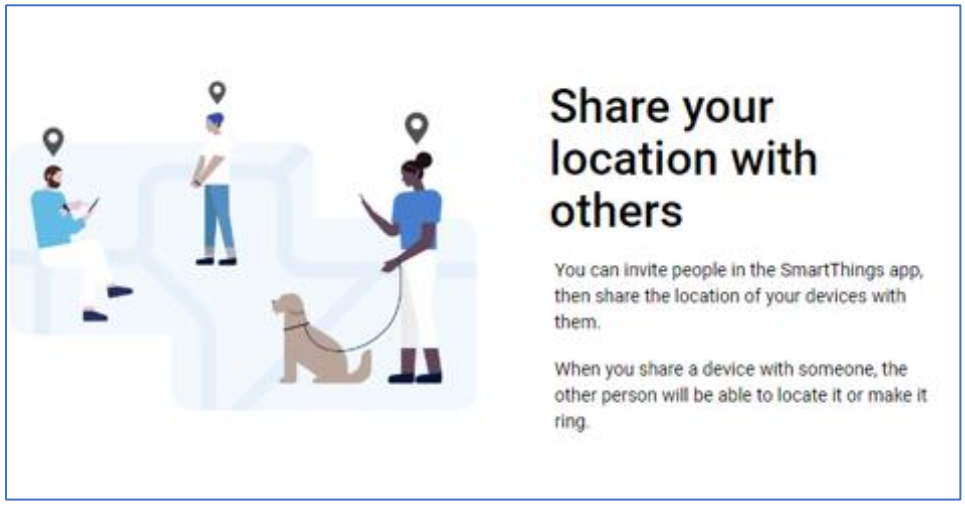
101. For example, the location of the Samsung phone or tablet is operable to be requested via Samsung SmartThings Find by a second wireless device, and outside of a call for communication between the first wireless device and the second wireless device. E.g.:



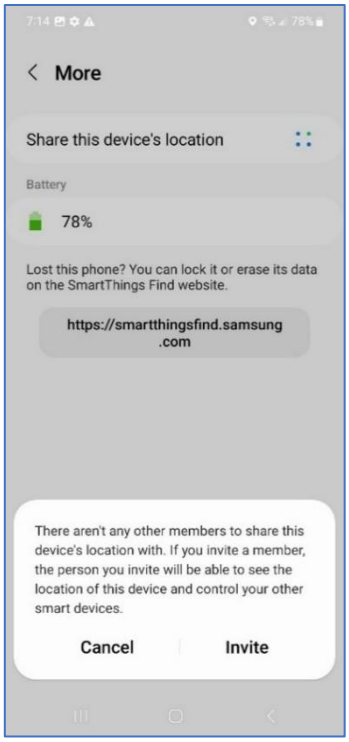
Samsung A54 phone (Redacted screen shot showing the display in Samsung SmartThings Find of another user's location outside of a call for communication; likewise, the location of the Samsung A54 phone can be requested and displayed on such user's Samsung Galaxy S20 FE 5G phone outside of a call for communication).

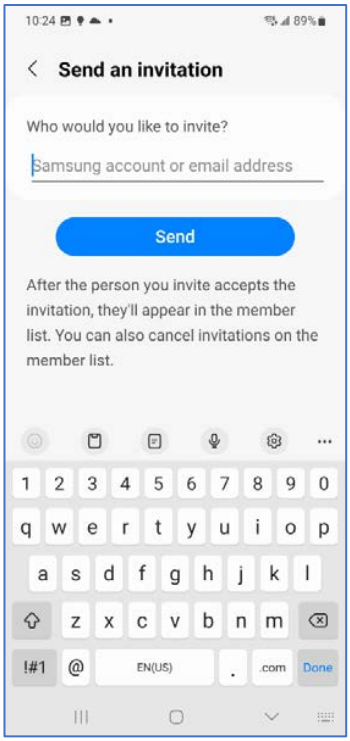
102. Each of the ’418 Accused Products is operable to provide a permission by said first wireless device for said second wireless device to access location information about said location, wherein said permission is operable of being stored in said remote system, said remote system is located remotely from said first and second wireless devices, and said location information is operable of being provided from said remote system to said second wireless device in accordance with said permission outside of said call.

103. For example, each Samsung phone and tablet programmed with the location-based services and features of Samsung SmartThings Find is operable to provide, for storage in a remote server system, a permission for the second wireless device to access location information about the phone or tablet’s location. Each Samsung phone and tablet programmed with the location-based services and features of Samsung SmartThings Find includes, for example, options to add and/or remove devices that can access the phone or tablet’s location from the remote server system. Such options, when selected, instruct the remote server system to change the wireless device(s) authorized to view the first wireless device’s location data. E.g.:[37]



[37] https://smartthingsfind.samsung.com/login?result=true.

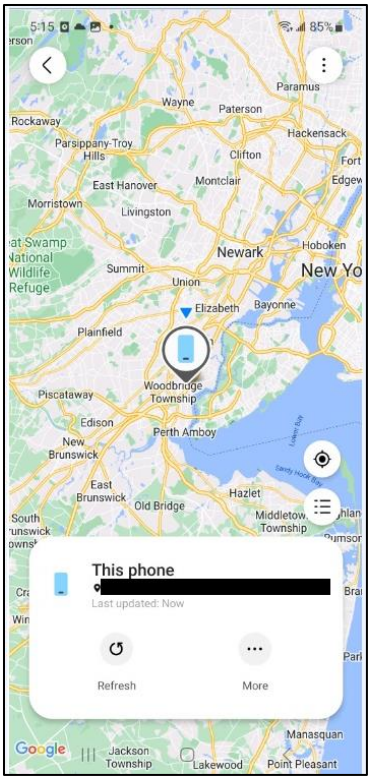




Samsung A54 phone (Screen shots showing the capability in Samsung SmartThings Find to allow another user to see the A54 phone's location).

104. Each of the '418 Accused Products is operable to provide a first map provided with respect to said location.

105. For example, each of the '418 Accused Products is operable to provide in Samsung SmartThings Find a first map provided with respect to said location. E.g.:



Samsung A54 phone (Redacted screen shot showing in Samsung SmartThings Find a map provided with respect to the location of the Samsung A54 phone).

106. Samsung has also indirectly infringed the ’418 Patent by actively inducing and contributing to the infringement of the ’418 Patent by others, including customers, resellers, and retailers. On information and belief, Samsung had knowledge of the ’418 Patent and of its infringement thereof before the filing of the present Complaint for at least the reasons described above in paragraphs 9-18.

107. On information and belief, Samsung has specifically induced and intended others, such as customers, resellers, and retailers, to infringe the ’418 Patent by, for example, using or selling the ’418 Accused Products, and knew that such others perform acts that constituted direct infringement. For example, Samsung has provided instructions to its customers regarding the infringing use and operation of the ’418 Accused Products. When others have followed such instructions, they have directly infringed one or more claims of the ’418 Patent. By providing such

instructions, Samsung knew and intended that others would follow such instructions, and thereby directly infringe one or more claims of the '418 Patent. Thus, Samsung knew that its actions actively induced infringement by others.

108. For example, Samsung has instructed end users how to open and use Samsung SmartThings Find, for example, for location sharing with other users outside of a call for communication.[38]

109. Samsung has also contributed to the direct infringement of the '418 Patent by others because the location-based technologies of the '418 Accused Products have no substantial non-infringing use and are a material part of the invention. On information and belief, there is no substantial way to utilize the location-based technologies of the '418 Accused Products (e.g., within Samsung SmartThings Find) and not infringe the '418 Patent. Samsung contributes to the direct infringement of the '418 Patent when, for example, Samsung causes or instructs end users to download updates to the programming on the '418 Accused Products that, together with such products' hardware and/or other software, infringes the '418 Patent.

110. Plaintiff has suffered damages as a result of Samsung's infringement of the '418 Patent in an amount to be proved at trial.

111. On information and belief, Samsung's infringement of the '418 Patent has been willful.

112. Plaintiff should be awarded damages in accordance with 35 U.S.C. §§ 271, 281, and 284 in an amount adequate to compensate for Samsung's infringement of the '418 Patent but in no event less than a reasonable royalty for the use made of the inventions by Samsung, together with interest and costs as fixed by the Court.

[38] https://smartthingsfind.samsung.com/login?result=true.

COUNT IV
INFRINGEMENT OF U.S. PATENT NO. 11,109,218

113. Plaintiff references and incorporates by reference the preceding paragraphs of this Complaint as if fully set forth herein.

114. Plaintiff has not licensed or otherwise authorized Samsung to make, use, offer for sale, sell, export, or import any products that embody the inventions of the '218 Patent.

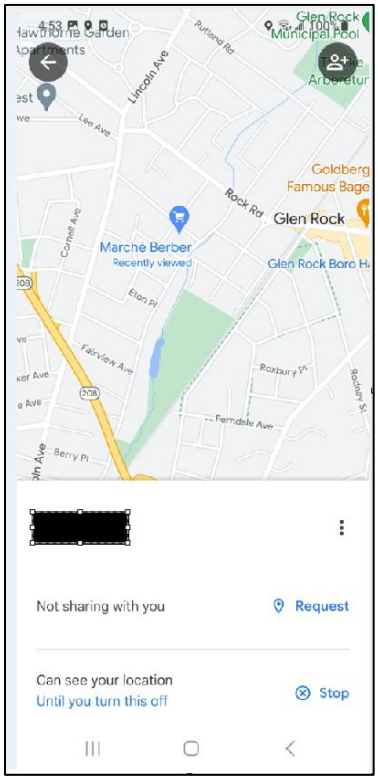
115. Samsung has and continues to directly infringe the '218 Patent, either literally or under the doctrine of equivalents, without authority and in violation of 35 U.S.C. § 271, by making, using (e.g., testing), offering to sell, selling, exporting from, and/or importing into the United States products that satisfy each and every limitation of one or more claims of the '218 Patent.

116. On information and belief, Samsung's products that infringe the '218 Patent include at least Samsung's mobile phones and tablet computers. E.g., https://www.samsung.com/us/smartphones/; https://www.samsung.com/us/tablets/. Collectively, the Samsung products that infringe the '218 Patent are referred to as the "'218 Accused Products."

117. Samsung has and continues to directly infringe one or more claims of the '218 Patent including, for example, at least claim 11 of the '218 Patent, by making, using, offering to sell, selling, and/or importing into the United States the '218 Accused Products, each of which comprises a system capable of providing location-based services and features. For example, each Samsung phone and tablet stores in memory programming capable of providing location-based services and features including, for example, Samsung SmartThings Find and Google Maps.

118. Each of the '218 Accused Products comprises a wireless telephonic device. For example, each Samsung phone is capable of supporting telephonic communications over cellular networks such as 5G. Each Samsung tablet is likewise capable of supporting telephonic communications over, for example, WiFi using WiFi calling and/or cellular networks such as 5G.

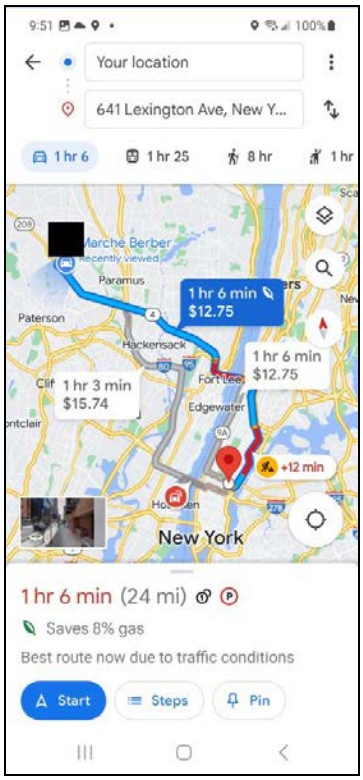
119. Each of the ’218 Accused Products is operable to provide a display screen after a request from said wireless telephonic device for access to a first location of a first wireless device, wherein said display screen includes a map provided from a perspective of said wireless telephonic device. For example, each Samsung phone and tablet programmed with Google Maps is capable of requesting a location of a first wireless device from a server when, for example, a user of the phone or tablet accesses the Google Maps application. Each Samsung phone and tablet programmed with Google Maps is capable of displaying an option to access a first location of a first wireless device when, for example, a user of the phone or tablet or has shared its location with the first wireless device and either the first wireless device has not yet provided reciprocal location access rights or has revoked the user’s location access rights. E.g.:



Samsung Galaxy S23 (Redacted screen shot showing the display in Google Maps of an option to request location access rights from a first wireless device (“Request”)).

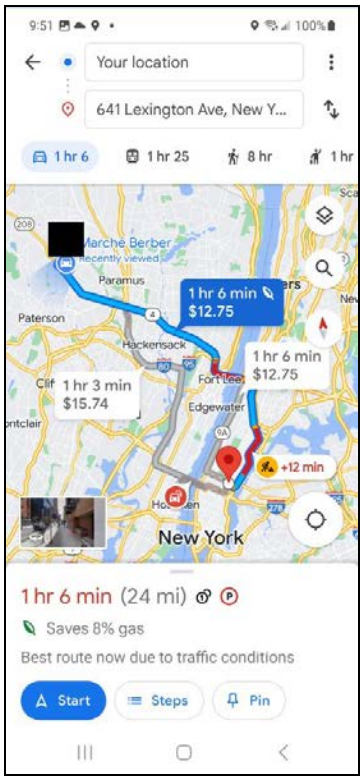
120. On information and belief, Google Maps is preinstalled on at least Samsung phones and tablets.

121. After each such Samsung phone and tablet requests access to the first location of the first wireless device, each such phone and tablet is operable to provide a display screen that includes a map provided from a perspective of the Samsung phone or tablet, respectively. E.g.:



Samsung Galaxy S23 (Redacted screen shot showing the display in Google Maps of a map from the perspective of the Samsung Galaxy S23 phone, where the location of the phone ("Your location") is marked with a blue spot on the map in the top left portion of the display).

122. Each of the '218 Accused Products is also operable to provide on such a display screen indicia on said map representative of said first location, indicia on said map representative of a second user according to a second location obtained from a second wireless device, a distance from said wireless telephonic device to said first location, a compass, an address of said first location, and a travel time based on at least the first location and the location of said wireless telephonic device. E.g.:



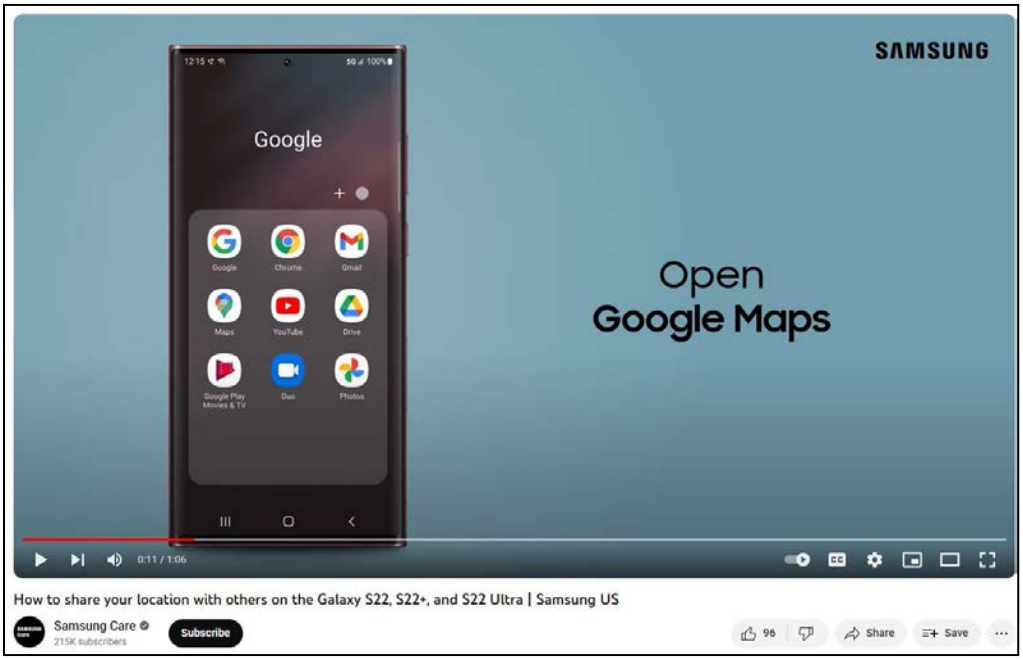
Samsung Galaxy S23 (Redacted screen shot showing the display in Google Maps of (i) indicia on a map representative of said first location (identified as the destination point of the travel route); (ii) indicia on said map representative of a second user according to a second location obtained from a second wireless device (identified as the location marker redacted by a black square box in the top left portion of the display , on top of the blue spot that reflects the location of the Galaxy S23 phone); (iii) a distance from the Galaxy S23 phone to said first location ("24 mi[les]"); (iv) a compass (shown towards the right-middle edge of the display); (v) an address of said first location ("641 Lexington Ave …"); and (vi) a travel time based on at least the first location and the location of said wireless telephonic device (e.g., "1 hr 6 min")).

123. Samsung also has and continues to indirectly infringe the '218 Patent by actively inducing and contributing to the infringement of the '218 Patent by others, including customers, resellers, and retailers. On information and belief, Samsung has possessed knowledge of the '218 Patent and of its infringement thereof both before and after the filing of the present Complaint for at least the reasons described above in paragraphs 9-18.

124. On information and belief, Samsung has and continues to specifically induce and intend that others, such as customers, resellers, and retailers, infringe the '218 Patent by, for

example, using or selling the '218 Accused Products, and has and continues to know that such others perform acts that constitute direct infringement. For example, Samsung has and continues to provide instructions to its customers regarding the infringing use and operation of the '218 Accused Products. When others have and continue to follow such instructions, they directly infringe one or more claims of the '218 Patent. By providing such instructions, Samsung has and continues to know and intend that others follow such instructions, and thereby directly infringe one or more claims of the '218 Patent. Thus, Samsung has and continues to know that its actions actively induce infringement by others.

125. For example, Samsung has and continues to instruct end users how to open and use Google Maps, for example, to find one's family and friends on a map. E.g.:[39,40]



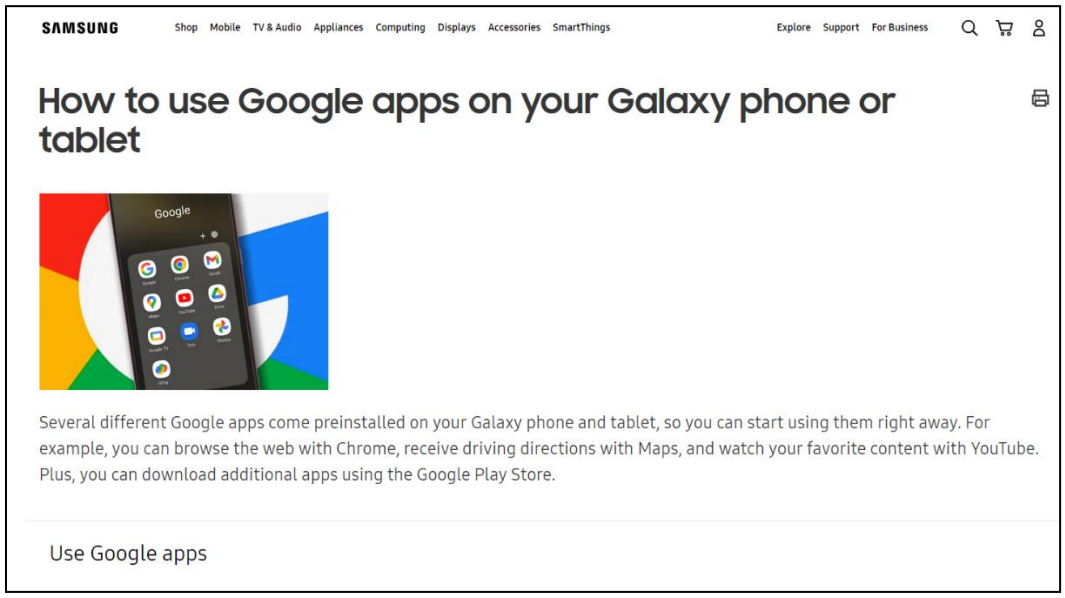
…

[39] https://www.youtube.com/watch?app=desktop&v=wjXDjjPdGb0.

[40] https://r2.community.samsung.com/t5/Tech-Talk/How-to-Find-Your-Family-and-Friends-Using-Google-Maps/td-p/7430575.

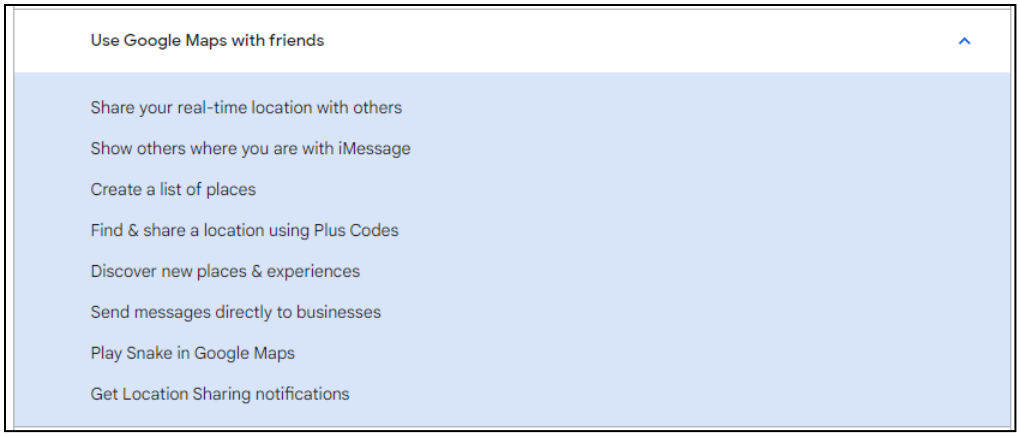


126. As another example, Samsung has and continues to directly hyperlink from Samsung's description of Google Maps on Samsung's website to Google's website pages that provide further instructions on how end users can utilize Google Maps, for example, for location sharing via a map and obtaining directions. E.g.:[41,42]



[41] https://www.samsung.com/us/support/answer/ANS00089082/.

[42] https://support.google.com/maps#topic=3092425; see also https://support.google.com/maps/answer/7326816?hl=en&ref_topic=7301134&sjid=16018432753100644351-NA ("Share your real-time location with others"); https://support.google.com/maps/answer/11966807?hl=en&ref_topic=7301134&sjid=16018432753100644351-NA ("Get Location Sharing notifications").



127. As another example, Samsung has and continues to induce end users to use Google Maps to obtain directions to other users by way of Samsung specifically programming into the Samsung SmartThings Find application an option to "Navigate" to another user, selection of which launches the Google Maps application to provide such directions. E.g.:[43]



...

- **Navigate:** Open Google Maps Navigation to generate the fastest route to your device. This option may not be available if the device cannot be located. You may need to tap **More**, and then tap **Navigate**.

128. Samsung also has and continues to contribute to the direct infringement of the '218 Patent by others because the location-based technologies of the '218 Accused Products have no

[43] E.g., https://www.samsung.com/us/support/answer/ANS00088182/.

substantial non-infringing use and are a material part of the invention. On information and belief, there is no substantial way to utilize the location-based technologies of the '218 Accused Products and not infringe the '218 Patent. Samsung contributes to the direct infringement of the '218 Patent when, for example, Samsung causes or instructs end users to download updates to the programming on the '218 Accused Products that, together with such products' hardware and/or other software, infringes the '218 Patent.

129. Plaintiff has and continues to suffer damages as a result of Samsung's infringement of the '218 Patent in an amount to be proved at trial.

130. On information and belief, Samsung's infringement of the '218 Patent has and continues to be willful.

131. Plaintiff should be awarded damages in accordance with 35 U.S.C. §§ 271, 281, and 284 in an amount adequate to compensate for Samsung's infringement of the '218 Patent but in no event less than a reasonable royalty for the use made of the inventions by Samsung, together with interest and costs as fixed by the Court.

COUNT V
INFRINGEMENT OF U.S. PATENT NO. 11,096,039

132. Plaintiff references and incorporates by reference the preceding paragraphs of this Complaint as if fully set forth herein.

133. Plaintiff has not licensed or otherwise authorized Samsung to make, use, offer for sale, sell, export, or import any products that embody the inventions of the '039 Patent.

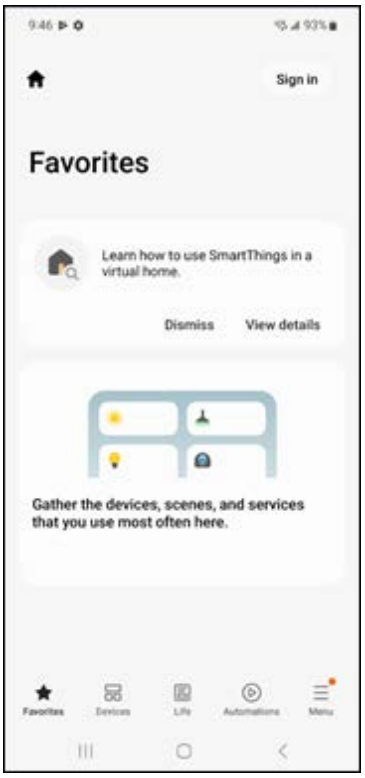
134. Samsung has and continues to directly infringe the '039 Patent, either literally or under the doctrine of equivalents, without authority and in violation of 35 U.S.C. § 271, by making, using (e.g., testing), offering to sell, selling, exporting from, and/or importing into the United States products, including server systems, that satisfy each and every limitation of one or more

claims of the '039 Patent (the "'039 Accused Products").

135. Samsung has and continues to directly infringe one or more claims of the '039 Patent including, for example, at least claims 1, 4, 7, 8, 9, and 13 of the '039 Patent. For example, on information and belief, Samsung has and continues to directly infringe claim 1 of the '039 Patent by making, using, offering to sell, selling, and/or importing into the United States the '039 Accused Products, each of which comprises a remote system that allows Samsung phones and tablets to access location-based services and features. As another example, on information and belief, Samsung demonstrates and/or tests at least Samsung phones and/or tablets in the United States, which, in turn, puts into use the '039 Accused Products that provide location-based services and features.[44]

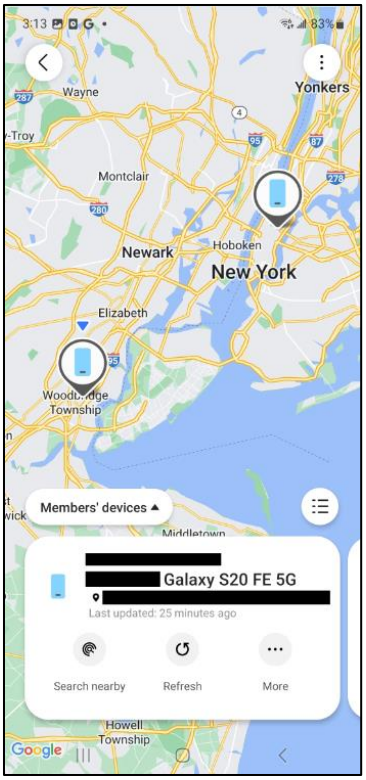
136. Each of the '039 Accused Products comprises a remote system, wherein user information is operable to be identified from a plurality of different user information by receiving at least a manually entered login from a first wireless device associated with said user information and a manually entered password associated with said login. For example, the '039 Accused Products are operable to receive from each Samsung phone and tablet programmed with Samsung SmartThings Find a user's manually input login as well as a manually input password in order to identify such device for location sharing. E.g.:

[44] E.g., https://www.zdnet.com/article/how-samsung-tests-its-smartphones-and-hopes-to-win-back-trust/ (noting that "Our [Samsung] phones are extensively tested, retested, and then tested again.").



Samsung A54 phone (Screen shot showing that a user must "Sign in" (using a login and password) to access location-based features of Samsung SmartThings Find).

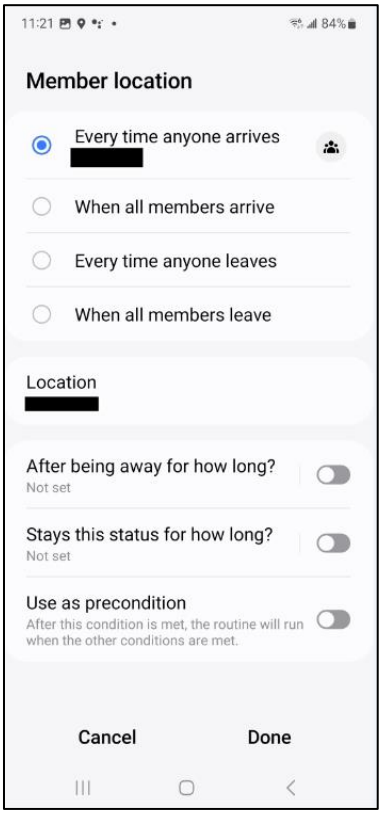
137. Each of the '039 Accused Products is operable to record a location of said first wireless device after said user information has been identified on said first wireless device and said location is associated with said user information and provided by said first wireless device to said remote system. For example, each of the '039 Accused Products is capable of obtaining and recording a location of a Samsung phone or tablet from the phone or tablet, and of providing to the Samsung phone or tablet the location of another wireless telephone. E.g.:



Samsung A54 phone (Redacted screen shot showing the display in Samsung SmartThings Find of a first user's location (redacted Galaxy S20 FE 5G identified on left side of image as an icon depicting a wireless telephone) obtained from a remote system).

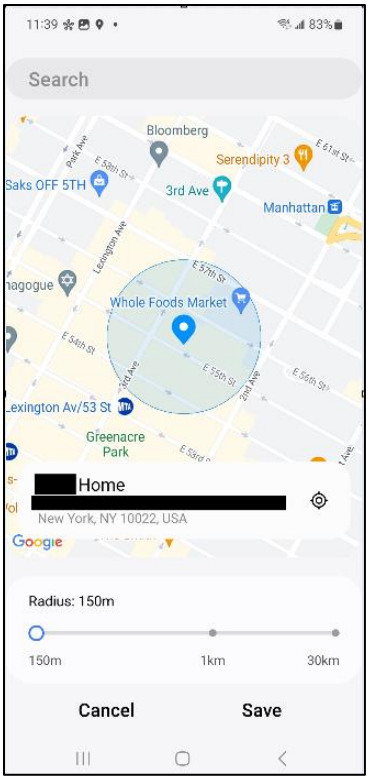
138. Each of the '039 Accused Products is operable to provide a location-based event based, at least in part, on said location of said first wireless device, wherein said location-based event is operable to be manually pre-selected from a list of at least three types of location-based events on a device, and a location-based event notification is operable to be provided on said device as a result of, at least in part, location access rights of said device from said first wireless device. For example, each Samsung phone and tablet programmed with SmartThings Find is capable of displaying selectable location-based events, including at least events corresponding to whether the first wireless device such as another Samsung phone or tablet (i) arrives at a location, (ii) leaves a location, (iii) is one of multiple member devices that all have arrived at a location, and (iv) is one of multiple member devices that all have left a location. The '039 Accused Products transmit

alerts to a Samsung phone or table in response to the user of such phone or tablet setting such events in Samsung SmartThings Find. E.g.:



Samsung A54 phone (Redacted screen shot showing the display in Samsung SmartThings Find of selectable location-based events that are based on the location of another member's wireless device).

139. Each of the '039 Accused Products is operable to provide at least three types of location-based events, wherein a first one of said at least three types of location-based events is, at least in part, region-based, and a second one of said at least three types of location-based events is, at least in part, distance-based. For example, the '039 Accused Products are operable to provide location-based events as a result of user selection of options displayed on Samsung phones and tablets via Samsung SmartThings Find, including with regard to events (i) – (iv) enumerated above. Each of the events (i) – (iv) enumerated above is, at least in part, region based including because each corresponding location can be defined as an area. E.g.:



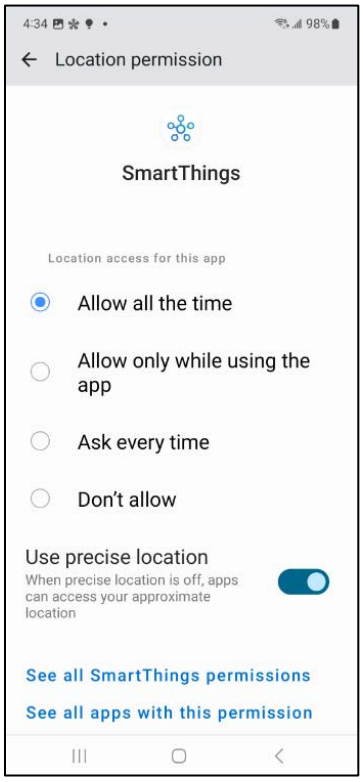
Samsung A54 phone (Redacted screen shot showing the display in Samsung SmartThings Find of a selectable location for region-based notification).

140. At least the Samsung SmartThings Find above-enumerated event (iii) corresponding to the device being one of multiple member devices that all have arrived at a location is, at least in part, distance based including because it relates to the distance between the member devices in Samsung SmartThings Find, including both the wireless device that set the notification and the first wireless device. Such a notification indicates that all member devices are at the same location, which means that there is no distance between the wireless device that set the notification and the first wireless device.

141. All of the above-enumerated events (i)-(iv) for Samsung SmartThings Find are also, at least in part, distance-based including because each corresponding location is defined as having a radius corresponding to a specific distance. As identified in the screen shot above, the user can

adjust the radius from "150m" (meters) to "30km" (kilometers) which means that the notification can be triggered when a device is within a specific distance (150m – 30km) of a center point.

142. In addition, all of the above-enumerated events (i)-(iv) for Samsung SmartThings Find are, at least in part, distance-based including because each corresponding location can be defined as having a customizable distance that it occupies, including either a precise location or an approximate location. E.g.:



Samsung A54 phone (Screen shot showing the display of location permissions for SmartThings Find, including whether to "[u]se precise location" or "approximate location").

143. Samsung also has and continues to indirectly infringe the '039 Patent, including at least claims 1, 4, 7, 8, 9, and 13 of the '039 Patent, by actively inducing and contributing to the infringement of at least such claims of the '039 Patent by others, including customers, resellers, and retailers. On information and belief, Samsung has possessed knowledge of the '039 Patent and of its infringement thereof both before and after the filing of the present Complaint for at least

the reasons described above in paragraphs 9-18.

144. On information and belief, Samsung has and continues to specifically induce and intend that others, such as customers, resellers, and retailers, infringe the '039 Patent by, for example, using or selling the '039 Accused Products, and has and continues to know that such others perform acts that constitute direct infringement. For example, Samsung has and continues to provide instructions to its customers regarding the infringing use and operation of the '039 Accused Products. When others have and continue to follow such instructions, they have and continue to directly infringe one or more claims of the '039 Patent. By providing such instructions, Samsung has and continues to know and intend that others follow such instructions, and thereby directly infringe one or more claims of the '039 Patent. Thus, Samsung has and continues to know that its actions actively induce infringement by others.

145. For example, Samsung has instructed end users how to open and use Samsung SmartThings Find, for example, for location sharing with other users.[45]

146. As another example, Samsung has and continues to instruct end users how to open and use Google Maps, for example, to find one's family and friends on a map.[46]

147. As another example, Samsung has and continues to directly hyperlink from Samsung's description of Google Maps on Samsung's website[47] to Google's website pages that provide further instructions on how end users can utilize Google Maps, for example, for location

[45] https://smartthingsfind.samsung.com/login?result=true.

[46] https://www.youtube.com/watch?app=desktop&v=wjXDjjPdGb0; see also https://r2.community.samsung.com/t5/Tech-Talk/How-to-Find-Your-Family-and-Friends-Using-Google-Maps/td-p/7430575.

[47] https://www.samsung.com/us/support/answer/ANS00089082/.

sharing via a map, directions, and notifications.[48]

148. Samsung also has and continues to contribute to the direct infringement of the '039 Patent by others because the location-based technologies of the '039 Accused Products have no substantial non-infringing use and are a material part of the invention. On information and belief, there is no substantial way to utilize the location-based technologies of the '039 Accused Products and not infringe the '039 Patent. Samsung contributes to the direct infringement of the '039 Patent when, for example, Samsung causes or instructs end users to download updates to the programming on at least Samsung phones and tablets, and to use such programming, in a manner that results in infringement of the '039 Patent. Samsung also contributes to the direct infringement of the '039 Patent when, for example, Samsung provides updates to the programming on the '039 Accused Products that, together with such products' hardware and/or other software, infringes the '039 Patent.

149. Plaintiff has and continues to suffer damages as a result of Samsung's infringement of the '039 Patent in an amount to be proved at trial.

150. On information and belief, Samsung's infringement of the '039 Patent has and continues to be willful.

151. Plaintiff should be awarded damages in accordance with 35 U.S.C. §§ 271, 281, and 284 in an amount adequate to compensate for Samsung's infringement of the '039 Patent but in no event less than a reasonable royalty for the use made of the inventions by Samsung, together with interest and costs as fixed by the Court.

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[48] https://support.google.com/maps#topic=3092425; see also https://support.google.com/maps/answer/7326816?hl=en&ref_topic=7301134&sjid=16018432753100644351-NA ("Share your real-time location with others"); https://support.google.com/maps/answer/11966807?hl=en&ref_topic=7301134&sjid=16018432753100644351-NA ("Get Location Sharing notifications").

COUNT VI
INFRINGEMENT OF U.S. PATENT NO. 9,635,540

152. Plaintiff references and incorporates by reference the preceding paragraphs of this Complaint as if fully set forth herein.

153. Plaintiff has not licensed or otherwise authorized Samsung to make, use, offer for sale, sell, export, or import any products, or to perform any processes or methods, that embody the inventions of the ’540 Patent.

154. Samsung has directly infringed the ’540 Patent, either literally or under the doctrine of equivalents, without authority and in violation of 35 U.S.C. § 271, by performing processes or methods that satisfy each and every limitation of one or more claims of the ’540 Patent.

155. On information and belief, Samsung’s infringement of the ’540 Patent includes Samsung’s performance of processes or methods in connection with providing location-based services and features to Samsung end-user devices including phones and tablets, and each of which includes a method of mobile-to-mobile locating (the “’540 Accused Processes”).

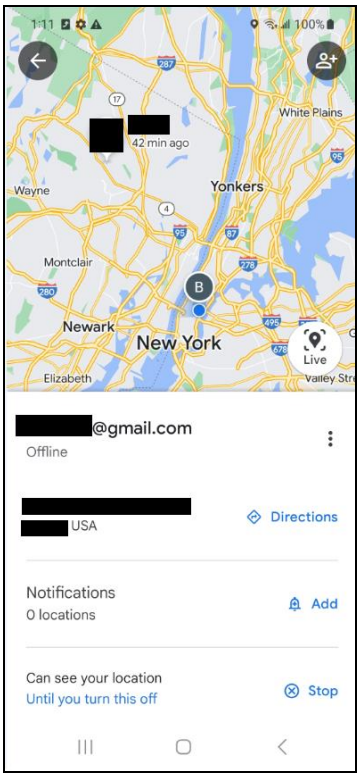
156. Samsung has directly infringed one or more claims of the ’540 Patent including, for example, at least claim 1 of the ’540 Patent. For example, on information and belief, Samsung has operated, demonstrated, and/or tested at least Samsung phones, tablets, and/or servers in the United States, which, in turn, has put into use the ’540 Accused Processes that provide location-based services in a manner that infringes the ’540 Patent.[49] On information and belief, all steps of the asserted claims have been performed by or have been attributable to Samsung.

157. Each of the ’540 Accused Processes comprises requesting a location of a first wireless device by a second wireless device from a server located remotely from said first and

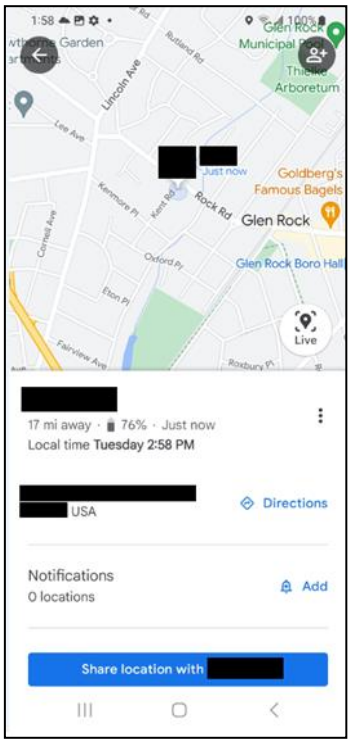
[49] E.g., https://www.zdnet.com/article/how-samsung-tests-its-smartphones-and-hopes-to-win-back-trust/.

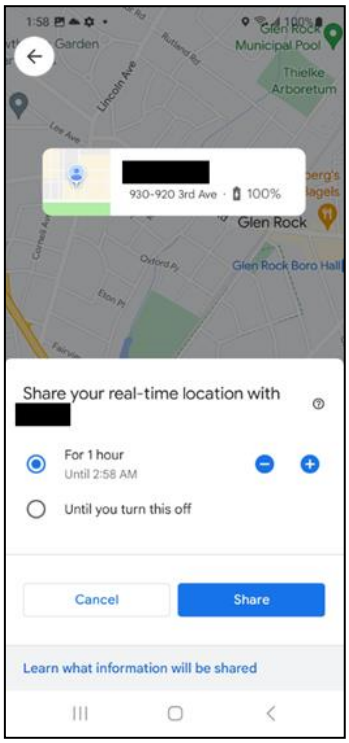
second wireless devices. For example, in connection with the use of Samsung phones and tablets, each of which is a wireless device, each such Samsung phone or tablet is capable of requesting a location of a first wireless device from a remote server system when, for example, a user of the Samsung phone or tablet accesses the Google Maps application. Each Samsung phone or tablet will request the location of another device when, for example, the user of the Samsung device had previously been granted access rights to receive the location for the other device. The remote server system, in turn, requests a location of a first wireless device (e.g., Samsung phone or tablet), for example, by retrieving such location from server system memory or storage, in order to provide such location to a second wireless device (e.g., another Samsung phone or tablet) that requests such location.

158. Each of the '540 Accused Processes comprises determining that said second wireless device does not have location access rights for said first wireless device, and asking said second wireless device if said location access rights are to be requested from said first wireless device after determining that said second wireless device does not have said location access rights for said first wireless device. For example, each Samsung phone and tablet programmed with Google Maps is capable of displaying an option to request location access rights from the first wireless device when, for example, a user of the phone or tablet has shared its location with the first wireless device and it is determined that either the first wireless device has not yet provided reciprocal location access rights or the first wireless device has revoked the second wireless device's location access rights (e.g., by selecting an option to "Stop" sharing or because prior sharing was only enabled for a specific period of time such as "For 1 hour" and that period of time had passed). E.g.:

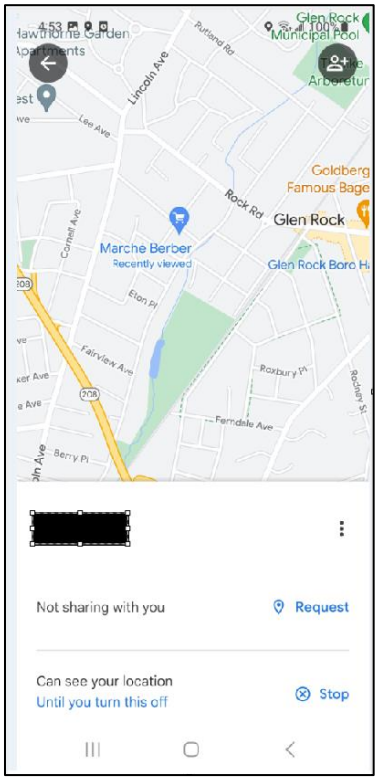


Samsung Galaxy S23 (Redacted screen shot showing the display in Google Maps of an option to "Stop" sharing a location with a second wireless device).





Samsung Galaxy S23 (Redacted screen shots showing the capability to assign in Google Maps location access rights – left: "Share location with [Redacted]"; right: "Share your real-time location" with the other user "For 1 hour" or "Until you turn this off").

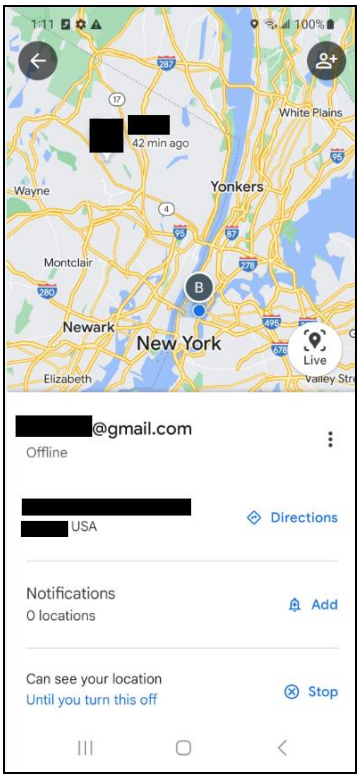


Samsung Galaxy S23 (Redacted screen shot showing the display in Google Maps of an option ("Request") to request location access rights from a wireless device for which the Samsung Galaxy S23 phone does not presently possess location access rights).

159. Each of the '540 Accused Processes comprises requesting that said location access rights be assigned for said second wireless device by said first wireless device, assigning said location access rights on said server to said second wireless device by said first wireless device, and storing said location access rights on said server. For example, as identified above, each Samsung phone and tablet programmed with Google Maps includes an option to request location access rights from a wireless device ("Request"). When a user of the first wireless device assigns location access rights to the second wireless device by sharing the first wireless device's location with the second wireless device, the remote server system also, in turn, assigns location access

rights for the first wireless device to the second wireless device and stores said location access rights on said server.

160. Each of the ’540 Accused Processes comprises determining said access rights assigned by said first wireless device to said second wireless device on said server, and providing said location from said server to said second wireless device dependent upon said access rights. Each Samsung phone and tablet communicates with the remote server system in order to determine whether said Samsung phone or tablet has location access rights for the first wireless device before a location of the first wireless device can be provided to the Samsung phone or tablet. The remote server system provides, and the Samsung phone or tablet receives, said location after a user of the first wireless device authorizes the Samsung phone or tablet to access the first wireless device’s location. E.g.:



Samsung Galaxy S23 (Redacted screen shot showing the display in Google Maps of the locations of two other devices, namely, one identified with a redacted black square and another identified as “B”).

161. Samsung has also indirectly infringed the ’540 Patent by actively inducing and contributing to the infringement of the ’540 Patent by others, including customers, resellers, and retailers. On information and belief, Samsung had knowledge of the ’540 Patent and of its infringement thereof before the filing of the present Complaint for at least the reasons described above in paragraphs 9-18.

162. On information and belief, Samsung has specifically induced and intended others, such as customers, resellers, and retailers, to infringe the ’540 Patent by, for example, using the ’540 Accused Processes, and knew that such others perform acts that constituted direct infringement. For example, Samsung has provided instructions to its customers regarding the infringing use and operation of the ’540 Accused Processes. When others have followed such instructions, they have directly infringed one or more claims of the ’540 Patent. By providing such instructions, Samsung knew and intended that others would follow such instructions, and thereby directly infringe one or more claims of the ’540 Patent. Thus, Samsung knew that its actions actively induced infringement by others.

163. For example, Samsung has instructed end users how to open and use Google Maps, for example, to find one’s family and friends.[50]

164. As another example, Samsung has directly hyperlinked from Samsung’s description of Google Maps on Samsung’s website[51] to Google’s website pages that provide further instructions on how end users can utilize Google Maps, for example, for location sharing,

[50] https://www.youtube.com/watch?app=desktop&v=wjXDjjPdGb0; see also https://r2.community.samsung.com/t5/Tech-Talk/How-to-Find-Your-Family-and-Friends-Using-Google-Maps/td-p/7430575.

[51] https://www.samsung.com/us/support/answer/ANS00089082/.

directions, and notifications.[52]

165. Samsung has also contributed to the direct infringement of the '540 Patent by others because the location-based technologies of the '540 Accused Processes have no substantial non-infringing use and are a material part of the invention. On information and belief, there is no substantial way to utilize the location-based technologies of the '540 Accused Processes and not infringe the '540 Patent. Samsung contributes to the direct infringement of the '540 Patent when, for example, Samsung causes or instructs others to download updates to the programming on at least Samsung phones, tablets, and/or servers, and to use such programming, in a manner that results in infringement of the '540 Patent by putting the '540 Accused Processes into use.

166. Plaintiff has suffered damages as a result of Samsung's infringement of the '540 Patent in an amount to be proved at trial.

167. On information and belief, Samsung's infringement of the '540 Patent has been willful.

168. Plaintiff should be awarded damages in accordance with 35 U.S.C. §§ 271, 281, and 284 in an amount adequate to compensate for Samsung's infringement of the '540 Patent but in no event less than a reasonable royalty for the use made of the inventions by Samsung, together with interest and costs as fixed by the Court.

COUNT VII
INFRINGEMENT OF U.S. PATENT NO. 9,204,283

169. Plaintiff references and incorporates by reference the preceding paragraphs of this Complaint as if fully set forth herein.

[52] https://support.google.com/maps#topic=3092425; see also https://support.google.com/maps/answer/7326816?hl=en&ref_topic=7301134&sjid=16018432753100644351-NA ("Share your real-time location with others"); https://support.google.com/maps/answer/11966807?hl=en&ref_topic=7301134&sjid=16018432753100644351-NA ("Get Location Sharing notifications").

170. Plaintiff has not licensed or otherwise authorized Samsung to make, use, offer for sale, sell, export, or import any products, or to perform any processes or methods, that embody the inventions of the '283 Patent.

171. Samsung has and continues to directly infringe the '283 Patent, either literally or under the doctrine of equivalents, without authority and in violation of 35 U.S.C. § 271, by performing processes or methods that satisfy each and every limitation of one or more claims of the '283 Patent.

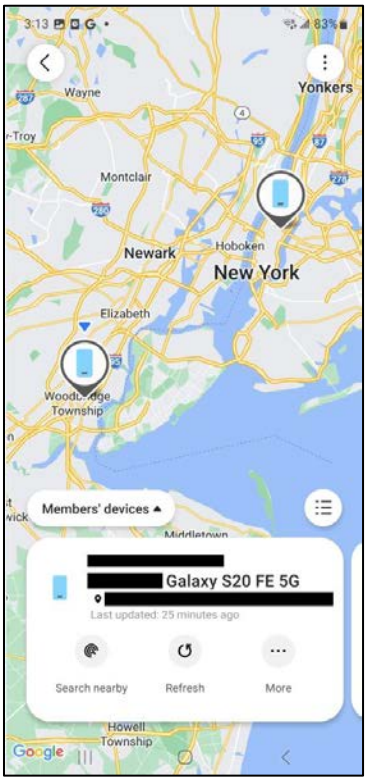
172. On information and belief, Samsung's infringement of the '283 Patent includes Samsung's performance of processes or methods in connection with providing location-based services and features to Samsung end-user devices including phones and tablets, and each of which includes a method of mobile-to-mobile locating (the "'283 Accused Processes").

173. Samsung has and continues to directly infringe one or more claims of the '283 Patent including, for example, at least claims 1, 2, 6, 8, 9, 13, 15, 16, and 17 of the '283 Patent. For example, on information and belief, Samsung demonstrates and/or tests at least Samsung phones and/or tablets in the United States, which, in turn, puts into use the '283 Accused Processes that provide location-based services and features in a manner that infringes the '283 Patent.[53] As another example, on information and belief, Samsung operates, demonstrates, and/or tests Samsung servers in the United States, which, in turn, puts into use the '283 Accused Processes in a manner that infringes the '283 Patent. On information and belief, all steps of the asserted claims are performed by or attributable to Samsung.

[53] E.g., https://www.zdnet.com/article/how-samsung-tests-its-smartphones-and-hopes-to-win-back-trust/.

174. Each of the ’283 Accused Processes comprises displaying on a first wireless telephonic device a plurality of users, wherein each one of said plurality of users is associated to a different one of a plurality of wireless telephonic devices.

175. For example, each Samsung phone and tablet is a first wireless telephonic device programmed with the location-based services and features of Samsung SmartThings Find including the capability to display the locations of other users. A remote server system provides such location information for display on the first wireless telephonic device in response to, for example, a user of the first wireless telephonic device accessing Samsung SmartThings Find. E.g.:



Samsung A54 phone (Redacted screen shot showing the display of a plurality of users, each of which is associated to a different one of a plurality of wireless telephonic devices).

176. Each of the ’283 Accused Processes comprises receiving on said first wireless telephonic device a first manual input in a form of a selection of one of said plurality of users. For example, each Samsung phone and tablet programmed with the location-based services and

features of Samsung SmartThings Find, including the capability to display the locations of other users, includes the capability to display the locations of such other users in a manner such that each of such other users can be manually selected by a user of the Samsung phone or tablet. See e.g., the Samsung SmartThings Find screen shot provided above, in which each other user displayed on the Samsung phone is capable of being selected by manual input.

177. Each of the '283 Accused Processes comprises receiving on said first wireless telephonic device an input in a form of a login and a second manual input in a form of a password. For example, each Samsung phone or tablet programmed with Samsung SmartThings Find requires a user of the device to manually input, and for the Samsung phone or tablet to receive, a login as well as a password, which are, in turn, received by a remote server system for use in identifying the Samsung phone or tablet.[54]

178. Each of the '283 Accused Processes comprises determining whether to allow access of location information for said one of said plurality of wireless telephonic devices associated to said selected one of said plurality of users, wherein said determination includes identifying said user of said first wireless telephonic device from said plurality of users using said login and determining said password is associated with said login and determining whether said selected one of said plurality of users has provided access rights for said location information to said user of said first wireless telephonic device, and said first wireless telephonic device is operable to assign location access rights to said one of said plurality of wireless telephonic devices associated with said selected one of said plurality of users for obtaining a location of said first wireless telephonic

[54] E.g., https://www.samsung.com/us/support/troubleshooting/TSG01110304/#:~:text=The%20SmartThings%20app%20uses%20your,the%20account%20from%20the%20app. ("The SmartThings app uses your Samsung account credentials. To create an account, you simply need to sign in with your Samsung account.").

device. For example, a remote server system receives the foregoing login and password and determines on the basis of such information whether the device that provided such information is authorized to access location information corresponding to other devices.[55] Each user device is operable to assign location access rights to other devices.[56] According to such defined location access rights, the remote server system only permits specific authenticated users associated with specific logins and passwords to access other devices' location information.[57]

179. Each of the '283 Accused Processes comprises transmitting said location information from a server to said first wireless telephonic device, and displaying said location information on said first wireless device. For example, after the remote server system determines that the selected one of the plurality of users has provided access rights for the location information that permit the first wireless telephonic device to access such location information, the remote server system transmits the location information to the first wireless telephonic device and continues to do so in order to provide location updates for display on said first wireless telephonic device (see e.g. *supra*, showing on a Samsung mobile device programmed with Samsung SmartThings Find the display on a map of a location of another user's device).

180. Samsung also has and continues to indirectly infringe the '283 Patent, including at least claims 1, 2, 6, 8, 9, 13, 15, 16, and 17 of the '283 Patent, by actively inducing and contributing to the infringement of at least such claims of the '283 Patent by others, including customers, resellers, and retailers. On information and belief, Samsung has possessed knowledge of the '283

[55] *Id*.

[56] E.g., https://support.smartthings.com/hc/en-us/articles/360051931312-Share-Control-of-your-Smart-Devices- (referring to the ability to grant, or remove, access rights of others in Samsung SmartThings Find).

[57] *Id*.

Patent and of its infringement thereof both before and after the filing of the present Complaint for at least the reasons described above in paragraphs 9-18.

181. On information and belief, Samsung has and continues to specifically induce and intended that others, such as customers, resellers, and retailers, infringe the '283 Patent by, for example, using the '283 Accused Processes, and has and continues to know that such others perform acts that constitute direct infringement. For example, Samsung has and continues to provide instructions to its customers regarding the infringing use and operation of the '283 Accused Processes. When others have and continue to follow such instructions, they have and continue to directly infringe one or more claims of the '283 Patent. By providing such instructions, Samsung has and continues to know and intend that others will follow such instructions, and thereby directly infringe one or more claims of the '283 Patent. Thus, Samsung has and continues to know that its actions actively induce infringement by others.

182. For example, Samsung has and continues to instruct end users how to open and use Samsung SmartThings Find, for example, for location sharing with others.[58]

183. As another example, Samsung has and continues to instruct end users how to open and use Google Maps, for example, to find one's family and friends.[59]

184. As another example, Samsung has and continues to directly hyperlink from Samsung's description of Google Maps on Samsung's website[60] to Google's website pages that provide further instructions on how end users can utilize Google Maps, for example, for location

[58] https://smartthingsfind.samsung.com/login?result=true.

[59] https://www.youtube.com/watch?app=desktop&v=wjXDjjPdGb0; see also https://r2.community.samsung.com/t5/Tech-Talk/How-to-Find-Your-Family-and-Friends-Using-Google-Maps/td-p/7430575.

[60] https://www.samsung.com/us/support/answer/ANS00089082/.

sharing, directions, and notifications.[61]

185. Samsung also has and continues to contribute to the direct infringement of the '283 Patent by others because the location-based technologies of the '283 Accused Processes have no substantial non-infringing use and are a material part of the invention. On information and belief, there is no substantial way to utilize the location-based technologies of the '283 Accused Processes and not infringe the '283 Patent. Samsung contributes to the direct infringement of the '283 Patent when, for example, Samsung causes or instructs others to download updates to the programming on at least Samsung phones, tablets, and/or servers, and to use such programming, in a manner that results in infringement of the '283 Patent by putting the '283 Accused Processes into use.

186. Plaintiff has and continues to suffer damages as a result of Samsung's infringement of the '283 Patent in an amount to be proved at trial.

187. On information and belief, Samsung's infringement of the '283 Patent has and continues to be willful.

188. Plaintiff should be awarded damages in accordance with 35 U.S.C. §§ 271, 281, and 284 in an amount adequate to compensate for Samsung's infringement of the '283 Patent but in no event less than a reasonable royalty for the use made of the inventions by Samsung, together with interest and costs as fixed by the Court.

COUNT VIII
INFRINGEMENT OF U.S. PATENT NO. 8,374,575

189. Plaintiff references and incorporates by reference the preceding paragraphs of this Complaint as if fully set forth herein.

[61] https://support.google.com/maps#topic=3092425; see also https://support.google.com/maps/answer/7326816?hl=en&ref_topic=7301134&sjid=16018432753100644351-NA (Share your real-time location with others); https://support.google.com/maps/answer/11966807?hl=en&ref_topic=7301134&sjid=16018432753100644351-NA (Get Location Sharing notifications).

190. Plaintiff has not licensed or otherwise authorized Samsung to make, use, offer for sale, sell, export, or import any products, or to perform any processes or methods, that embody the inventions of the '575 Patent.

191. Samsung has directly infringed the '575 Patent, either literally or under the doctrine of equivalents, without authority and in violation of 35 U.S.C. § 271, by performing processes or methods that satisfy each and every limitation of one or more claims of the '575 Patent.

192. On information and belief, Samsung's infringement the '575 Patent includes Samsung's performance of processes or methods in connection with providing location-based services and features to Samsung end-user devices including phones and tablets, and each of which includes a method of mobile-to-mobile locating (the "'575 Accused Processes").

193. Samsung has directly infringed one or more claims of the '575 Patent including, for example, at least claim 30 of the '575 Patent. For example, on information and belief, Samsung has operated, demonstrated and/or tested at least Samsung phones, tablets, and/or servers in the United States, which, in turn, has put into use the '575 Accused Processes that provide location-based services and features in a manner that infringes the '575 Patent.[62] On information and belief, all steps of the asserted claims have been performed by or have been attributable to Samsung.

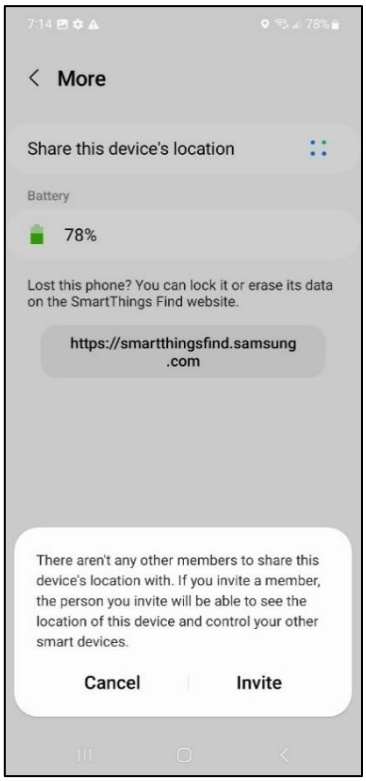
194. Each of the '575 Accused Processes comprises obtaining a location of a first wireless telephone. For example, each Samsung phones and tablets is a wireless telephone. Samsung phones and tablets are capable of obtaining a location of the phone or tablet using a global positioning system. As another example, Samsung phones and tablets are capable of determining a location of the phone or tablet on the basis of, for example, Wi-Fi signals in the

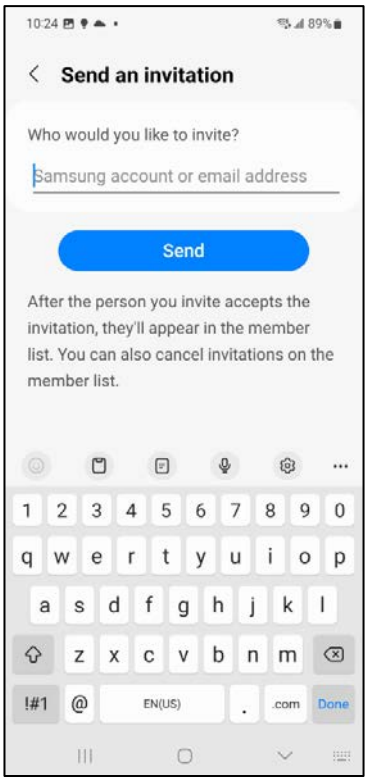
[62] E.g., https://www.zdnet.com/article/how-samsung-tests-its-smartphones-and-hopes-to-win-back-trust/.

vicinity of the phone or tablet. Each Samsung phone and tablet is capable of providing the location of the phone or tablet to a remote server system.

195. Each of the '575 Accused Processes comprises changing, at the direction of said first wireless telephone, a list of users on a remote server for a profile associated with said first wireless telephone that are allowed to access said location, wherein each user of said list of users is representative of one of a plurality of wireless telephones.

196. For example, each Samsung phone and tablet programmed with the location-based services and features of Samsung SmartThings Find includes options to add and/or remove individuals who can access the phone's or tablet's location from a remote server. Such options, when selected, instruct such server to change in a profile associated with the device a list of users authorized to view the device's location data, where each such authorized user is associated with a wireless telephone (e.g., phone or tablet). E.g.:





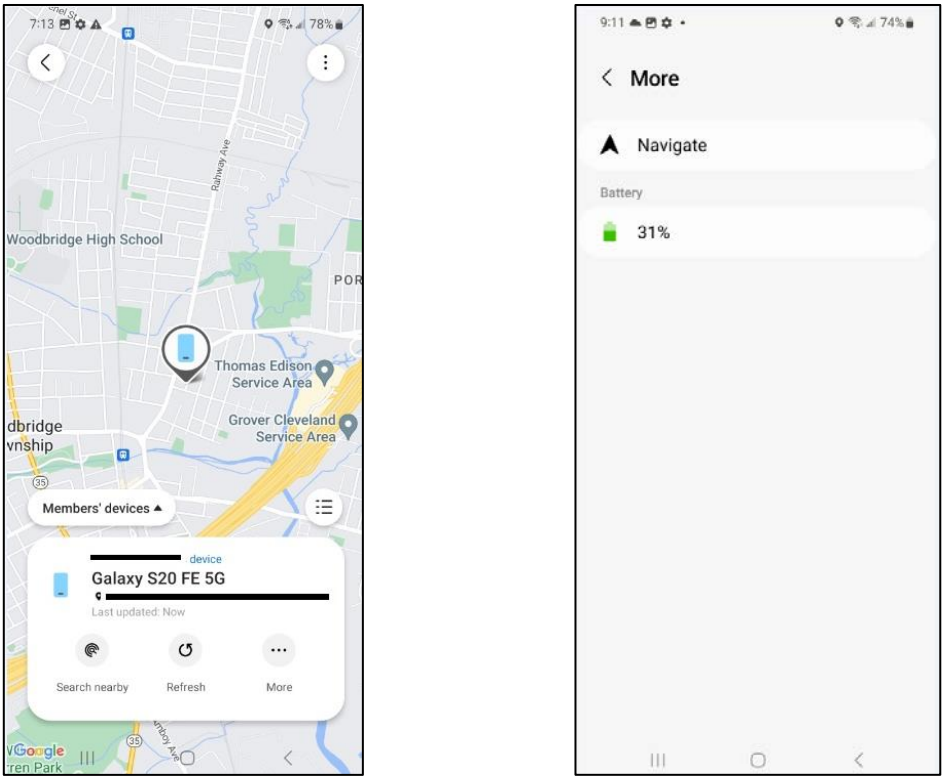
Samsung A54 phone (Screen shots showing the ability to assign to another user of a wireless telephone in Samsung SmartThings Find location access rights to see the A54 phone's location).

197. Each of the '575 Accused Processes comprises transmitting said location from said remote server to at least one of said users of said list of users. For example, the remote server system is capable of transmitting the location of a Samsung phone or tablet to at least one of the users of the list of users that are authorized to access the location of the phone or tablet.

198. Each of the '575 Accused Processes comprises determining a second location associated with one of said plurality of wireless telephones. For example, a remote server system determines the location of each Samsung phone or tablet for which location sharing is enabled in Samsung SmartThings Find.

199. Each of the '575 Accused Processes comprises providing directional information to said one of said plurality of wireless telephones, wherein said directional information is representative of directions between said location and said second location.

200. For example, each Samsung phone and tablet programmed with the location-based services and features of Samsung SmartThings Find is capable of displaying the locations of the wireless telephones associated with the device user's friends, and upon selection of one of such wireless telephones, displaying an option to receive and display directions from the location of the phone or tablet to the selected wireless telephone. E.g.:



Samsung A54 phone (Screen shots showing the ability to request in Samsung SmartThings Find that directions between the Samsung A54 phone and another user be received and displayed – left (redacted): selectable other user; right: "Navigate" option which, after being selected, launches a map that includes directions between the Samsung A54 phone and the other user's location).

201. Samsung has also indirectly infringed the '575 Patent by actively inducing and contributing to the infringement of the '575 Patent by others, including customers, resellers, and retailers. On information and belief, Samsung had knowledge of the '575 Patent and of its infringement thereof before the filing of the present Complaint for at least the reasons described above in paragraphs 9-18.

202. On information and belief, Samsung has specifically induced and intended others, such as customers, resellers, and retailers, to infringe the '575 Patent by, for example, using the '575 Accused Processes, and knew that such others perform acts that constituted direct infringement. For example, Samsung has provided instructions to its customers regarding the infringing use and operation of the '575 Accused Processes. When others have followed such

instructions, they have directly infringed one or more claims of the '575 Patent. By providing such instructions, Samsung knew and intended that others would follow such instructions, and thereby directly infringe one or more claims of the '575 Patent. Thus, Samsung knew that its actions actively induced infringement by others.

203. For example, Samsung has instructed end users how to open and use Samsung SmartThings Find, for example, for location sharing with others.[63]

204. Samsung has also contributed to the direct infringement of the '575 Patent by others because the location-based technologies of the '575 Accused Processes have no substantial non-infringing use and are a material part of the invention. On information and belief, there is no substantial way to utilize the location-based technologies of the '575 Accused Processes and not infringe the '575 Patent. Samsung contributes to the direct infringement of the '575 Patent when, for example, Samsung causes or instructs others to download updates to the programming on at least Samsung phones, tablets, and/or servers, and to use such programming, in a manner that results in infringement of the '575 Patent by putting the '575 Accused Processes into use.

205. Plaintiff has suffered damages as a result of Samsung's infringement of the '575 Patent in an amount to be proved at trial.

206. On information and belief, Samsung's infringement of the '575 Patent has been willful.

207. Plaintiff should be awarded damages in accordance with 35 U.S.C. §§ 271, 281, and 284 in an amount adequate to compensate for Samsung's infringement of the '575 Patent but in no event less than a reasonable royalty for the use made of the inventions by Samsung, together with interest and costs as fixed by the Court.

[63] E.g., https://smartthingsfind.samsung.com/login?result=true.

COUNT IX
INFRINGEMENT OF U.S. PATENT NO. 11,246,024

208. Plaintiff references and incorporates by reference the preceding paragraphs of this Complaint as if fully set forth herein.

209. Plaintiff has not licensed or otherwise authorized Samsung to make, use, offer for sale, sell, export, or import any products that embody the inventions of the '024 Patent.

210. Samsung has directly infringed the '024 Patent, either literally or under the doctrine of equivalents, without authority and in violation of 35 U.S.C. § 271, by making, using, offering to sell, selling, exporting from, and/or importing into the United States products, including server systems, that satisfy each and every limitation of one or more claims of the '024 Patent (the "'024 Accused Products").

211. Samsung has directly infringed one or more claims of the '024 Patent including, for example, at least claim 24 of the '039 Patent. For example, on information and belief, Samsung has directly infringed claim 24 of the '024 Patent by making, using, offering to sell, selling, and/or importing into the United States the '024 Accused Products, each of which comprises a remote system that allows Samsung phones and tablets to access location-based services and features. As another example, on information and belief, Samsung has operated, demonstrated, and/or tested at least Samsung phones and/or tablets in the United States, which, in turn, has put into use the '024 Accused Products that provide location-based services and features in a manner that has infringed the '024 Patent.[64]

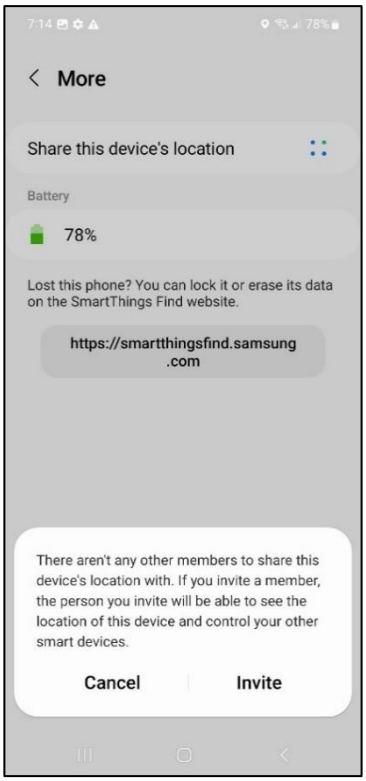
212. Each of the '024 Accused Products comprises a remote system comprising a server, the remote system capable of communicating with wireless telephones over a communications

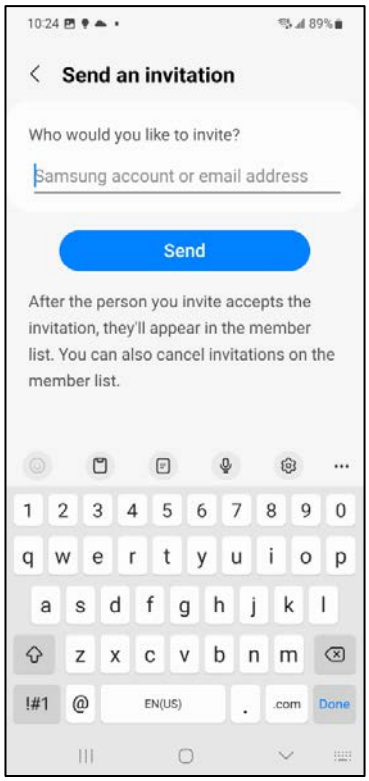
[64] E.g., https://www.zdnet.com/article/how-samsung-tests-its-smartphones-and-hopes-to-win-back-trust/.

network. For example, a remote server system is operable to receive over a communications network a location of each Samsung phone or tablet programmed with Samsung SmartThings Find.

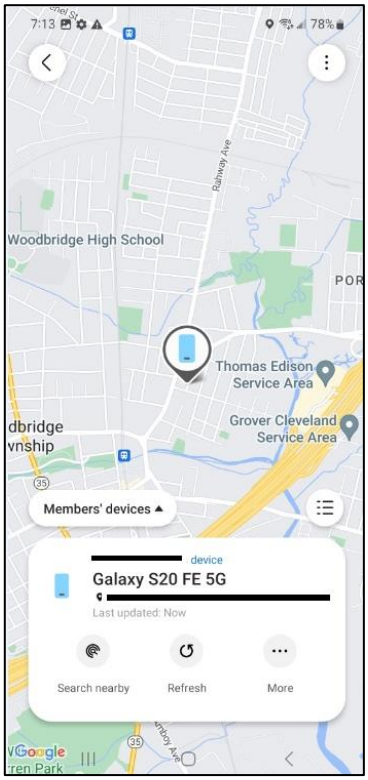
213. Each of the '024 Accused Products is capable of receiving from a first wireless telephone over said communications network a selection of one of a plurality of users, said selection corresponding to a user of said first wireless telephone manually selecting said one of said plurality of users from a display of said first wireless telephone, wherein each one of said plurality of users is associated to a different one of a plurality of wireless telephones.

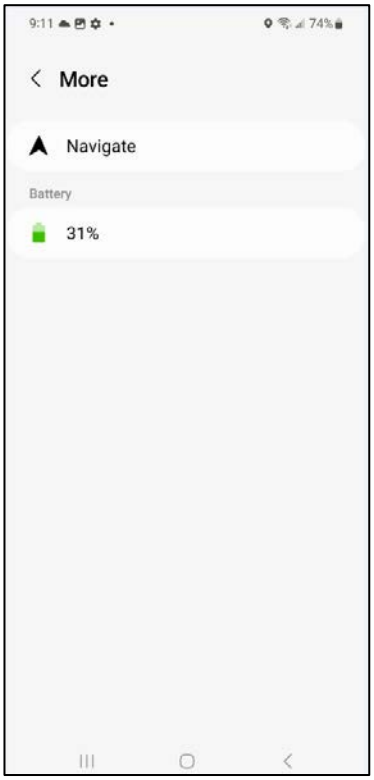
214. For example, each Samsung phone and tablet programmed with the location-based services and features of Samsung SmartThings Find includes the capability to display options to select individuals who can access the phone's or tablet's location from a remote server system, and/or individuals to which a user of the Samsung phone or tablet wishes to navigate. E.g.:





Samsung A54 phone (Screen shots showing the ability to assign to another user in Samsung SmartThings Find location access rights to allow the other user to see the A54 phone's location).

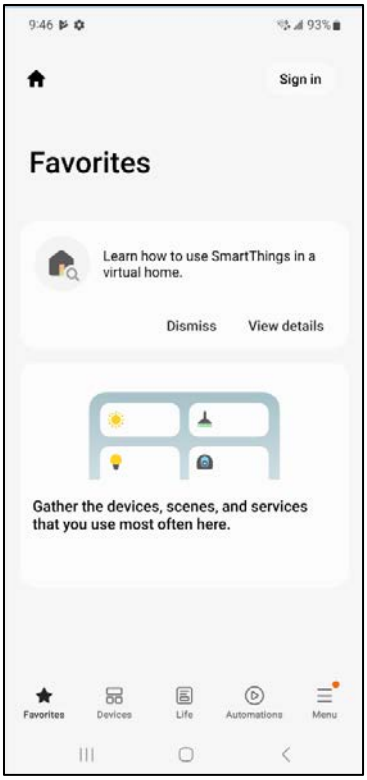




Samsung A54 phone (Screen shots showing the ability in Samsung SmartThings Find to select a another user from a display (left, redacted), after which a "Navigate" option is provided (right) to obtain directions between the Samsung A54 phone and the other user's location).

215. Each of the '024 Accused Products is capable of receiving from said first wireless telephone information indicative of a login and a password.

216. For example, each Samsung phone and tablet programmed with the location-based services and features of Samsung SmartThings Find is capable of receiving an input in a form of a login and a second manual input in a form of a password, and information regarding same is provided to and received by the remote server system. E.g.:



Samsung A54 phone (Screen shot showing that a user must "Sign in" (using a login and password) to access location-based features of Samsung SmartThings Find).

217. Each of the '024 Accused Products is capable of determining whether to allow access of location information for said one of said plurality of wireless telephones associated to said selected one of said plurality of users, wherein said determining includes identifying said user of said first wireless telephone using said information indicative of said login and password and determining whether said selected one of said plurality of users has provided access rights for said location information to said user of said first wireless telephone. For example, each Samsung phone and Samsung tablet programmed with the foregoing location-based services and features is capable of providing information regarding the device user's login and password to a remote server system, which determines on the basis of such information whether the selected one of said plurality of users has provided access rights for said location information to said Samsung phone

or tablet.[65] Only specific authenticated users associated with specific logins and passwords are permitted to access another user's location information.[66]

218. Each of the '024 Accused Products is capable of determining whether said user of said first wireless telephone has assigned location access rights to said one of said plurality of wireless telephones associated with said selected one of said plurality of users for obtaining a location of said first wireless telephone. For example, a user of a Samsung phone or tablet can revoke the location access rights of the one of the plurality of wireless telephones at any time, and/or can provide location access rights to the one of the plurality of wireless telephones for only a specific period of time.[67] Accordingly, before each time that a remote server system provides a location of the first wireless telephone to the one of the plurality of wireless telephones, the remote server system determines whether the user of the first wireless telephone has assigned location access rights to the one of the plurality of wireless telephones.[68]

219. Each of the '024 Accused Products is capable of transmitting over said communications network said location information to said first wireless telephone.

220. For example, when the remote server system determines that the selected one of the plurality of users has provided access rights for the location information, the server system transmits the location information to the first wireless telephone for display in Samsung

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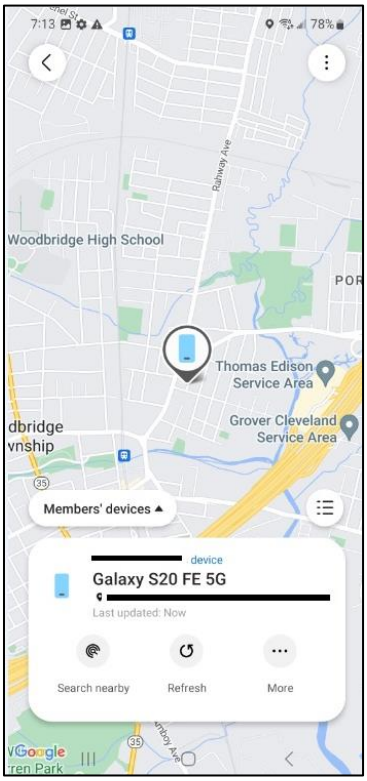
[65] E.g., https://www.samsung.com/us/support/troubleshooting/TSG01110304/#:~:text=The%20SmartThings%20app%20uses%20your,the%20account%20from%20the%20app. ("The SmartThings app uses your Samsung account credentials. To create an account, you simply need to sign in with your Samsung account. To log out, you will need to remove the account from the app.").

[66] *Id*.

[67] E.g., https://support.smartthings.com/hc/en-us/articles/360051931312-Share-Control-of-your-Smart-Devices- (referring to the ability to grant, or remove, access rights of others in Samsung SmartThings Find).

[68] *Id*.

SmartThings Find. E.g.:



Samsung A54 phone (Redacted screen shot showing the display in Samsung SmartThings Find of a location of another user).

221. Samsung has also indirectly infringed the '024 Patent by actively inducing and contributing to the infringement of the '024 Patent by others, including customers, resellers, and retailers. On information and belief, Samsung had knowledge of the '024 Patent and of its infringement thereof before the filing of the present Complaint for at least the reasons described above in paragraphs 9-18.

222. On information and belief, Samsung has specifically induced and intended others, such as customers, resellers, and retailers, to infringe the '024 Patent by, for example, using the '024 Accused Products, and knew that such others perform acts that constituted direct infringement. For example, Samsung has provided instructions to its customers regarding the infringing use and operation of the '024 Accused Products. When others have followed such

instructions, they have directly infringed one or more claims of the '024 Patent. By providing such instructions, Samsung knew and intended that others would follow such instructions, and thereby directly infringe one or more claims of the '024 Patent. Thus, Samsung knew that its actions actively induced infringement by others.

223. For example, Samsung has instructed end users how to open and use Samsung SmartThings Find, for example, for location sharing with others.[69]

224. Samsung has also contributed to the direct infringement of the '024 Patent by others because the location-based technologies of the '024 Accused Products have no substantial non-infringing use and are a material part of the invention. On information and belief, there is no substantial way to utilize the location-based technologies of the '024 Accused Products and not infringe the '024 Patent. Samsung contributes to the direct infringement of the '024 Patent when, for example, Samsung causes or instructs end users to download updates to the programming on at least Samsung phones and tablets, and to use such programming, in a manner that results in infringement of the '024 Patent. Samsung also contributes to the direct infringement of the '024 Patent when, for example, Samsung provides updates to the programming on the '024 Accused Products that, together with such products' hardware and/or other software, infringes the '024 Patent.

225. Plaintiff has suffered damages as a result of Samsung's infringement of the '024 Patent in an amount to be proved at trial.

226. On information and belief, Samsung's infringement of the '024 Patent has been willful.

[69] E.g., https://smartthingsfind.samsung.com/login?result=true.

227. Plaintiff should be awarded damages in accordance with 35 U.S.C. §§ 271, 281, and 284 in an amount adequate to compensate for Samsung's infringement of the '024 Patent but in no event less than a reasonable royalty for the use made of the inventions by Samsung, together with interest and costs as fixed by the Court.

PRAYER FOR RELIEF

WHEREFORE, Plaintiff respectfully requests that this Court enter:

A. A judgment in favor of Plaintiff that Samsung has infringed, either literally and/or under the doctrine of equivalents, one or more claims of each Patent-in-Suit;

B. A judgment in favor of Plaintiff that Samsung's infringement of each Patent-in-Suit has been willful;

C. An award of damages resulting from Samsung's acts of infringement in accordance with 35 U.S.C. § 284;

D. A judgment and order finding that this is an exceptional case within the meaning of 35 U.S.C. § 285, that Plaintiff is entitled to up to treble damages, and awarding to Plaintiff its reasonable attorneys' fees against Samsung; and

E. Any and all other relief as the Court may deem just and proper.

DEMAND FOR JURY TRIAL

Plaintiff requests a trial by jury of all issues so triable.

Dated: January 26, 2024

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[redacted]

IN THE UNITED STATES DISTRICT COURT
FOR THE EASTERN DISTRICT OF TEXAS
MARSHALL DIVISION

MULLEN INDUSTRIES LLC, *Plaintiff,* v. SAMSUNG ELECTRONICS CO., LTD. and SAMSUNG ELECTRONICS AMERICA, INC., *Defendants*.	§ § § § § § § § § § §	No. 2:24-cv-00049-JRG [redacted] **JURY TRIAL DEMANDED**

SAMSUNG'S MOTION TO TRANSFER VENUE TO THE NORTHERN DISTRICT OF CALIFORNIA UNDER 28 U.S.C. § 1404(a)

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Defendant Samsung[1] respectfully moves to transfer this action filed by Plaintiff Mullen to the Northern District of California ("NDCA") under § 1404(a).

The relevant events, individuals, and evidence in this case bear little, if any, connection to Texas. Mullen lacks any connection to Texas—it is a Delaware LLC, and its principal and the sole inventor of the patents resides in Pennsylvania. Mullen's infringement theories, meanwhile, are predicated on three software applications: (1) Google Maps; (2) notifications on Samsung watches running Wear OS; and (3) Samsung's SmartThings Find. Google Maps and Wear OS are developed by third-party Google, whose relevant, knowledgeable employees are primarily located in the NDCA, where Google is based, and not in Texas. This Court and the Federal Circuit have transferred past cases filed against Samsung that were predicated on third-party Google software developed in the NDCA, including Google Maps. Samsung requests the same outcome here.

SmartThings Find's development also supports transfer as it was developed by SEC in Korea, which is closer to the NDCA than to this District. Further, the feature is a downloadable add-on application in the SmartThings platform that originated from an NDCA-based company that Samsung acquired. Samsung has also identified eight prior art authors in California. Because the events that give rise to this lawsuit depend on evidence and witnesses located in the NDCA and Korea, this case should be transferred to the NDCA.

I. FACTUAL BACKGROUND

A. Mullen's Complaint Accuses Samsung and Google Functionality

Mullen filed this case on January 26, 2024, asserting nine patents against Samsung: U.S. 11,246,024 (the "'024 Patent"), 11,234,117 (the "'117 Patent"), 11,190,633 (the "'633 Patent"), 11,122,418 (the "'418 Patent"), 11,109,218 (the "'218 Patent"), 11,096,039 (the "'039 Patent"),

[1] "Samsung" refers collectively to Defendants Samsung Electronics Co., Ltd. ("SEC") and Samsung Electronics America, Inc. ("SEA"). "Mullen" refers to Plaintiff Mullen Industries LLC.

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[redacted]

9,635,540 (the "'540 Patent"), 9,204,283 (the "'283 Patent"), and 8,374,575 (the "'575 Patent"). Compl., Dkt. 1 at 1. As summarized in the table below, Mullen's infringement contentions are predicated on three categories of software applications or features: (1) Google Maps running on Samsung devices; (2) notifications of calls and other events on Samsung watches running Google's Wear OS software; and (3) Samsung's SmartThings Find application, which is a downloadable add-on application in the SmartThings platform. Exs. A-C, Infringement Contentions for the '039, '540, and '633 Patents, respectively.[2] Mullen's allegations against Google Maps are based on the application itself, and not on any particular modification by Samsung. Ex. B at 31-35.

Asserted Patent(s)	Accused Software and Products
'039, '283, '218, '575, '418, '117, '024	Google Maps, SmartThings Find on mobile devices
'540	Google Maps on mobile devices
'633	Notifications on watches running Wear OS

Mullen is a Delaware LLC, and the sole inventor of the asserted patents, Jeffrey Mullen, resides in the Pittsburgh, Pennsylvania area. Dkt. 1 ¶ 19; Ex. D, Jeffrey Mullen LinkedIn profile.

B. Samsung's Relevant Witnesses and Documents are Primarily in Korea

SEC is a Korean corporation with its principal place of business in Suwon, Republic of Korea. Declaration of [redacted] (hereinafter, "SEC Decl.") ¶ 6. SEA is a wholly-owned subsidiary of SEC and a New York corporation with its principal place of business in Ridgefield Park, New Jersey. Declaration of [redacted] (hereinafter, "SEA Decl.") ¶¶ 6-7. SEA maintains corporate offices throughout the United States, including in Plano, Texas. SEA's activities are focused on commercialization, sales, and marketing for Samsung devices. *Id.* ¶ 8. SEA also maintains an office in Mountain View, California (in the NDCA), where it has over [redacted] regular full-time employees. *Id.* ¶ 12.

[2] All exhibit citations are to the declaration of Cason Cole, filed herewith.

Neither SEC nor SEA has any employees who research, design, or develop Google Maps. SEC Decl. ¶ 11; SEA Decl. ¶ 11. Nor do they have access to any proprietary documentation or source code for Google Maps. *Id.* SEC employees who manage the supply and commercial relationship with Google regarding Google Maps are in Korea and include [redacted] SEC Decl. ¶ 10.

SmartThings Find: The SmartThings platform was developed by SmartThings, Inc. ("STI"), which is based in Mountain View, California, and which Samsung acquired in 2014. SEC Decl. ¶¶ 8-9. The accused application, SmartThings Find, was previously called "Find My Mobile" and was developed by SEC engineers in Korea. While its core functionality, including the accused functionality, has remained essentially the same, it is now integrated as a downloadable add-on application in the SmartThings platform. *Id.* ¶ 9. STI has [redacted] employees in the NDCA and does not have a place of business in the EDTX. *Id.* ¶ 8. Design documents and source code for the SmartThings Find application are located in Korea. *Id.* ¶ 17. Samsung employees knowledgeable about [redacted] are located in Korea and include [redacted] *Id.* ¶ 9.

Samsung Watches: For Samsung watches, Mullen accuses notifications of calls and other events generated on the watches running the Wear OS software. SEC Decl. ¶ 13; Ex. C. Wear OS is designed and developed by Google, and [redacted] SEC Decl. ¶ 14; Declaration of [redacted] (hereinafter, "Google Wear OS Decl.") ¶ 2. SEC employees responsible for [redacted] are also in Korea and include [redacted] *Id.* ¶¶ 14-15. SEC maintains design documents and source code for its [redacted] in Korea. *Id.* ¶¶ 16-17.

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C. Third-Party Google's Witnesses and Documents are Primarily in the NDCA

Google Maps: Mullen accuses two features within Google Maps running on Samsung devices of infringement: (1) the Google Maps Location Sharing feature, and (2) the user interface for Google Maps directions. Ex. B at 28, 31. The Google employees with relevant knowledge about these features are summarized in the table below. Declaration of [redacted] (hereinafter, "Google Maps Decl.") ¶¶ 3, 6-7.

Google Employee	Location	Title / Role	Accused Feature
[redacted]	San Francisco, CA	Software Engineer	Location Sharing
[redacted]	Mountain View, CA	Software Engineer	Location Sharing
[redacted]	Mountain View, CA	Software Engineer	Location Sharing
[redacted]	Mountain View, CA	Software Engineer	Location Sharing
[redacted]	San Francisco, CA	Software Engineer	Location Sharing
[redacted]	Mountain View, CA	Software Engineer	Location Sharing
[redacted]	Mountain View, CA	Software Engineer	Location Sharing
[redacted]	Seattle, WA	Software Engineer	Location Sharing
[redacted]	Bellevue, WA	Product Manager	Location Sharing
[redacted]	New York, NY	Software Engineer	Location Sharing
[redacted]	New York, NY	Software Engineer	Location Sharing
[redacted]	Mountain View, CA	Group Product Manager	Interface for Directions
[redacted]	Mountain View, CA	Director, Product Management	Interface for Directions and Location Sharing

Other engineers who work on the user interface for Google Maps directions are located in Seattle, Washington; Tokyo, Japan; and Sydney, Australia. *Id.* ¶ 4. There are no Google employees in Texas who have worked on the Location Sharing feature of Google Maps or who are on the Directions XP team that is responsible for the user interface for Google Maps directions. *Id.* ¶¶ 2-7. Relevant technical documents and source code for Google Maps are maintained by the employees who work on the product; thus, most of the relevant documents and source code would be maintained primarily in the NDCA as well as Bellevue, Seattle, New York, Tokyo, and Sydney. *Id.* ¶ 7.

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Google Wear OS: As discussed, [redacted] which Mullen accuses of infringement. SEC Decl. ¶¶ 13-14; Ex. B at 4. The Google employees responsible for Wear OS's accused features—including [redacted]—are mostly located in the NDCA or London, UK, with some members located in Seattle or abroad in Canada. Google Wear OS Decl. ¶¶ 4-7. No Google employees in Texas work on the teams led or managed by [redacted] which are collectively responsible for the accused Wear OS features. *Id.* ¶ 8. Google's technical documents and source code for the accused Wear OS features are maintained by the employees who work on that feature and so, such documents and source code would be primarily maintained in the NDCA and London. *Id.* ¶ 9.

D. Third Party Prior Artists are Located in the NDCA and California

In preparing its forthcoming invalidity contentions, Samsung has identified the following prior art references, each of which has authors or inventors located in the NDCA and California. Ex. E, Samsung's Prior Art References; [redacted] Each of these references discloses the same general subject matter as eight of the asserted patents, relating to controlling access to location information among mobile device users. This includes CellPoint "Finder!," a prior art product developed by CellPoint Systems AB and its subsidiary, NDCA-based CellPoint, Inc. CellPoint "Finder!," was on sale or in public use no later than February 2000, before the priority date of the asserted patents. The CellPoint "Finder!" system allows users to create a friends list and request the location of friends as determined by cell tower information.

Reference	Author / Inventor	Location
CellPoint "Finder!"	[redacted]	Placerville, CA La Quinta, CA
U.S. Patent No. 7,366,522	[redacted]	San Jose, CA

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[redacted]

U.S. Patent No. 6,133,853	[redacted]	San Clemente, CA
U.S. Patent No. 6,415,224	[redacted]	Torrance, CA
U.S. Patent No. 7,177,651	[redacted]	San Diego, CA
U.S. Patent Pub. No. 2002/0137523	[redacted]	San Jose, CA

E. Apple's Prior Transfer to the NDCA

In February 2022, Mullen asserted the same nine patents against Apple in the Western District of Texas ("WDTX"). *Mullen Indus. v. Apple Inc.*, No. 6:22-CV-00145-ADA, Dkt. 1 (W.D. Tex. 2022) ("*Mullen v. Apple*"). There, Apple was successful in its motion to transfer to the NDCA based on its arguments that the relevant Apple engineers and evidence were in the NDCA, while plaintiff had no connection to Texas. *Id*., Dkt. 39; Ex. G, *Mullen v. Apple* Transfer Order (transferring case based on finding that the "willing witnesses" and "sources of proof" factors favored transfer because the accused products were developed in the NDCA and, accordingly, most of the relevant Apple employees were located there, despite the presence of two Apple engineers and some relevant technical documents in the WDTX). [redacted]

II. LEGAL STANDARD

Section 1404(a) requires the moving party to first show that the claims "might have been brought" in the proposed transferee district. *In re Volkswagen of Am., Inc*., 545 F.3d 304, 312-13 (5th Cir. 2008). Second, the movant must demonstrate that the "transferee venue is clearly more convenient" under private and public factors, which are: 1) the relative ease of access to sources of proof; 2) the availability of compulsory process to secure the attendance of witnesses; 3) the

[redacted]

cost of attendance for willing witnesses; 4) all other practical problems that make trial of a case easy, expeditious, and inexpensive; 5) the administrative difficulties flowing from court congestion; 6) the local interest in having localized interests decided at home; 7) the familiarity of the forum with the law that will govern the case; and 8) the avoidance of unnecessary problems of conflict of laws. *In re Volkswagen AG*, 371 F.3d 201, 203 (5th Cir. 2004).

III. ARGUMENT

A. This Case Could Have Been Brought in the NDCA

A patent infringement case may be brought in "the judicial district where the defendant resides, or where the defendant has committed acts of infringement and has a regular and established place of business." 28 U.S.C. § 1400(b). SEA has offices with over [redacted] regular full-time employees in the NDCA. SEA Decl. ¶ 12. SEC is a foreign corporation, so venue is proper in any district. *See* 28 U.S.C. § 1391(c)(3). Thus, this case could have been brought in the NDCA.

B. All Private Factors Favor Transfer

1. The Availability of Compulsory Processes Strongly Favors Transfer

Compulsory process strongly favors transfer because numerous relevant third-party witnesses reside in the NDCA or California. The subpoena power of a federal court extends to either within 100 miles from the court or "within the state where the person resides" if the person "would not incur substantial expense" to attend trial. Fed. R. Civ. P. 45(c)(1). "Transfer is favored when a transferee district has absolute subpoena power over a greater number of non-party witnesses." *Adaptix, Inc. v. HTC Corp.*, 937 F. Supp. 2d 867, 874 (E.D. Tex. 2013).

Here, at least fourteen relevant third-party witnesses are in the NDCA, with ***none*** in the EDTX. Central to this litigation are Google's engineers in the NDCA who are most knowledgeable about the design of the accused features of Google Maps and of Wear OS as provided to Samsung.

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[redacted]

Eleven of those engineers and their teams are located in the NDCA—each of whom has information relevant to resolving Mullen's infringement allegations. *See supra*, § I.C. In addition, seven prior art witnesses with knowledge of relevant prior art reside in California. *Id*. § I.D. On the other hand, there are no relevant third-party Google witnesses located in Texas. Google Maps Decl. ¶ 4; Google Wear OS Decl. ¶ 8.

Additionally, the NDCA is also where [redacted], are both located. *Id*. § I.E. [redacted]

Thus, the merits of non-infringement, invalidity, and damages will be affected by testimony and information from these third parties in California. This case is therefore analogous to *AGIS Software Development LLC v. Samsung Electronics Co.*, No. 2:19-cv-362-JRG (E.D. Tex.), which was transferred to the NDCA in part because third-party Google engineers for the accused software applications (including Google Maps) running on Samsung devices were located there. *In re Google LLC*, No. 2022-140, 2022 WL 1613192, at *1 (Fed. Cir. May 23, 2022).[3] Similarly, in *In re Samsung Electronics Co.*, the Federal Circuit ordered transfer to the NDCA because—like here—the accusations against Samsung were predicated on third-party Google applications running on Samsung devices, and the NDCA was where "over a dozen third-party individuals" reside, while "not a single witness[, including third parties,] has been identified as residing in or near the [transferor forum]." 2 F.4th 1371, 1379 (Fed. Cir. 2021). Likewise, this Court transferred

[3] Indeed, the Federal Circuit ordered transfer in *AGIS* even though other aspects of that case were less favorable to transfer than here, including that AGIS had maintained an office in Texas and the transferor district court had prior experience with the same patents, including during *Markman* proceedings. *In re Google*, 2022 WL 1613192, at *4-5.

[redacted]

a case against Samsung to the NDCA when the infringement allegations were premised on Google Maps, just as here. *See Porto Tech. Co. v. Samsung Elecs. Am., Inc.*, No. 2:15-cv-458-JRG-RSP, 2016 WL 937388, at *2 (E.D. Tex. Mar. 11, 2016). Here, there are at least nineteen relevant third-party witnesses subject to the NDCA's subpoena power, while not even a single relevant third party is located in Texas. This factor weighs heavily in favor of transfer.

2. Access to Sources of Proof Favors Transfer

The sources of proof favors transfer because a substantial portion of relevant documentary evidence is with third-party Google in the NDCA. "In patent infringement cases, the bulk of the relevant evidence usually comes from the accused infringer," so "the place where the defendant's documents are kept weighs in favor of transfer to that location." *In re Genentech Inc.*, 566 F.3d 1338, 1345 (Fed. Cir. 2009). Where, as here, "third-party companies [] provide certain accused functionality for the accused products," then sources of proof from those third parties also matter. *In re Google LLC*, 58 F.4th 1379, 1385 (Fed. Cir. 2023). The electronic nature of documents does not render this factor irrelevant. *In re Google*, 2022 WL 1613192, at *3 (citing *In re Juniper Networks, Inc.*, 14 F.4th 1313, 1321 (Fed. Cir. 2021)). This is particularly true where the personnel who created the relevant documents, electronic or otherwise, are located in one jurisdiction but not the other. *See, e.g., In re Apple Inc.*, No. 2022-128, 2022 WL 1196768, at *4 (Fed. Cir. Apr. 22, 2022).

In this case, the bulk of relevant evidence for deciding infringement will come from (1) third-party Google in the NDCA, which developed Google Maps and Wear OS; and (2) SEC in Korea, which developed the accused SmartThings Find application and [redacted].

Technical documents and source code relating to Google Maps' accused Location Sharing feature are in Google's possession and were created and maintained by the Google employees who

[redacted]

are mostly located in the NDCA, in addition to the Seattle area and New York City. *See supra* § I.C. Google's technical documents and source code related to its development of Wear OS's notification and related infrastructure features were created and maintained by Google employees mostly located in the NDCA. *Id*.

As to Samsung's evidence in Korea, because Korea is outside of either this District or the NDCA, the location of that evidence is neutral to the analysis. *See In re Juniper*, 14 F.4th at 1321 ("[The fact that some evidence is stored in places other than either the transferor or the transferee forum does not weigh against transfer."). Although defendant SEA has offices in Plano and likely maintains certain financial and marketing documents there, that same fact has not prevented transfer from this District to the NDCA in several past cases filed against SEA where, as here, a substantial portion of relevant technical evidence is from Google and its employees in the NDCA. *See, e.g.*, *In re Google*, 2022 WL 1613192, at *1; *In re Samsung*, 2 F.4th at 1379. Further, the seven prior artists discussed in Section I.D above are likely also to have evidence in California relating to their prior work, including documents, source code, prototypes, or samples. The likely presence of such physical evidence in California favors transfer. *See, e.g., In re Google*, 58 F.4th at 1385 (determining this factor favors the NDCA when physical prototypes are located only there).

By contrast, Mullen's documents are likely in Pennsylvania, not in Texas. *See supra* § I.A. Because most of the evidence relating to the events giving rise to this lawsuit are in the NDCA, this factor favors transfer.

3. Cost of Attendance for Willing Witnesses Favors Transfer

"The convenience of the witnesses[,] is probably the single most important factor in transfer analysis." *In re Genentech*, 566 F.3d at 1343. "[T]he inquiry should focus on the cost and inconvenience imposed on the witnesses by requiring them to travel to a distant forum and to

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be away from their homes and work for an extended period of time." *In re Google LLC*, No. 2021-170, 2021 WL 4427899, at *4 (Fed. Cir. Sept. 27, 2021).

The NDCA is more convenient for Samsung's Korea-based witnesses with knowledge relevant to infringement. This includes Samsung engineers in Korea who developed the accused SmartThings Find application and [redacted] *See supra* § I.B. The Fifth Circuit has held that California is "clearly more convenient" than Texas for employee-witnesses located in East Asia. *In re TikTok, Inc.*, 85 F.4th 352, 361 (5th Cir. 2023). The Federal Circuit has since applied *TikTok*, directing transfer in a case where it found that Samsung's employees in Korea weighed in favor of transfer to the NDCA, given the greater ease of travel there versus Texas. *In re Samsung Elecs. Co., Ltd.*, No. 2023-146, 2023 WL 8642711, at *2 (Fed. Cir. Dec. 14, 2023). The Federal Circuit's reasoning is supported here by a comparison of travel times, which shows it would take 11 hours, on one direct flight, to travel from Seoul, Korea to San Francisco in the NDCA versus 15 hours of flights and driving to travel from Seoul to Marshall, Texas. Ex. J, Flights from Seoul to San Francisco; Ex. K, Flights from Seoul to Dallas; Ex. L, drive time from Dallas to Marshall.

Further supporting transfer are the NDCA-based employees of STI which is a wholly-owned subsidiary of SEA located in Mountain View, CA. *Supra* § I.B. Allowing these California-based witnesses to "remain in their home state … significantly minimiz[es] the cost, time, and expense of travel to attend trial, which is the very purpose of § 1404(a)." *Realtime Data LLC v. Teradata Operations, Inc.*, No. 6:15-CV-463-RWS-JDL, 2016 WL 235183, at *5 (E.D. Tex. Jan. 20, 2016) (internal quotation marks omitted).

Although named defendant SEA has offices and employees in Texas, SEA's activities are focused on sales, marketing, and commercialization for Samsung devices; it has no employees in

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[redacted]

the EDTX who work on the design and/or manufacturing of Google Maps (developed by Google), Wear OS (developed by Google [redacted] or the SmartThings Find application (developed by SEC). SEA Decl. ¶ 9. Any witnesses from SEA's Texas offices do not outweigh the far greater number of technical witnesses traveling from the NDCA and Korea. As such, the Federal Circuit and this District have repeatedly directed transfer of other cases filed against SEA where, as here, much of the technical information will come from third-party Google and its witnesses in the NDCA. *See, e.g.*, *In re Google*, 2022 WL 1613192, at *1; *In re Samsung*, 2 F.4th at 1379; *Porto*, 2016 WL 937388, at *2; *Fujinomaki v. Google Inc.*, No. 2:15-cv-1381-JRG-RSP, 2016 WL 2807798, at *2 (E.D. Tex. May 13, 2016). Similarly, in *Mullen v. Apple*, the WDTX court found this factor favored transfer even though Apple had two engineers in WDTX, because Apple had a far greater number of potentially relevant employee witnesses in the NDCA. Ex. G at 5-14.

For Mullen, transfer to the NDCA will either be more convenient or cause no additional hardship. Its likely main witness and the sole inventor, Jeffrey Mullen, is in Pennsylvania. *Supra* § I.A. Travel time from Pittsburgh to the NDCA is 5.5 hours, versus 6 hours traveling to the EDTX. Ex. M, Flights from Pittsburgh to San Francisco; Ex. N, Flights from Pittsburgh to Dallas; Ex. L. This factor therefore favors transfer.

4. Other Practical Problems is Neutral

This case is in its early stages, so transfer would not prejudice Mullen. The *Markman* hearing on May 15, 2025 is still 10 months away, and fact discovery closes two weeks after that. Dkt. 30 at 3. Trial is scheduled for November 3, 2025, 16 months from now. *Id*. at 1. This District has granted transfer under similar facts where the case remained "in its early stages" in discovery and there was "no improper delay" by either party. *See, e.g.*, *Auto. Body Parts Ass'n v. Ford Glob. Techs., LLC*, No. 4:13-CV-705, 2015 WL 123852, at *6 (E.D. Tex. Jan. 7, 2015).

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C. The Public Interest Factors Favor Transfer to the NDCA

1. The NDCA Has a Strong Local Interest

The locus of events giving rise to Mullen's suit occurred in the NDCA, where Google designed, developed, and maintains the accused features of Google Maps and Wear OS. Google Maps Decl. ¶¶ 2-8. In addition, SEA's subsidiary, STI, which develops the SmartThings platform, is based in the NDCA, where it currently has [redacted] employees. SEC Decl. ¶ 8. Indeed, in transferring Mullen's case against Apple from the WDTX to the NDCA, the WDTX court cited Apple's development activities in the NDCA as weighing this factor towards transfer. Ex. G at 24-25.

Conversely, the EDTX has little, if any local interest in this case. Mullen does not employ personnel in the EDTX and its business activities occur in Pennsylvania, where the sole inventor is located.

Finally, while SEA has an office in this District, SEA did not develop the accused technologies and does not have access to relevant design documents or relevant source code. SEA Decl. ¶¶ 8-11. Thus, SEA's "general presence in [this] district does not give that district a special interest in the case." *In re Google LLC*, No. 2021-171, 2021 WL 4592280, at *5 (Fed. Cir. Oct. 6, 2021) (directing transfer to the NDCA). This factor weighs in favor of transfer.

2. The Remaining Public Interest Factors are Neutral

The court congestion factor is entitled to little weight here. There is no urgent need for disposition of this matter because Mullen does not allege that it manufactures or sells products that practice the asserted patents. Ex. O, Mullen's Infringement Contentions Cover Pleading (omitting any disclosure under P.R. 3-1(f) that Mullen practices the alleged invention); *see In re Google*, 58 F.4th at 1383 (holding that "it was a clear abuse of discretion to accord this factor any weight," where plaintiff "is not engaged in product competition in the marketplace and is not threatened in the market"). Further, the Federal Circuit has long regarded the court congestion factor as "the

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most speculative." *In re Genentech*, 566 F.3d at 1347. Thus, while this District may have a shorter median time to trial than the NDCA, this should not weigh against transfer. *See In re Clarke*, 94 F.4th 502, 510 (5th Cir. 2024) (recognizing such statistics are not "particularly relevant" in assessing court congestion). This factor is neutral.

The last two factors also are neutral, as both the NDCA and this District are well versed in patent law and there is no prospect for any conflict of laws.

IV. CONCLUSION

For the foregoing reasons, this action should be transferred to the NDCA.

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DATED: July 19, 2024

Respectfully submitted,

/s/ Melissa R. Smith

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CERTIFICATE OF CONFERENCE

Pursuant to Local Rule CV-7(h), counsel for Defendants met and conferred with counsel for Plaintiff by email on July 10, 2024 and telephonically on July 18, 2024, and counsel for Plaintiff indicated that Plaintiff is opposed to the motion.

/s/ Melissa R. Smith
Melissa R. Smith

CERTIFICATE OF SERVICE

The undersigned hereby certifies that, on July 19, 2024, the foregoing document was filed electronically with the Clerk of Court using the CM/ECF system which will send notification of such filing to all counsel registered as Filing Users.

/s/ Melissa R. Smith
Melissa R. Smith

[redacted]

/s/ Melissa R. Smith
Melissa R. Smith

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IN THE UNITED STATES DISTRICT COURT
FOR THE EASTERN DISTRICT OF TEXAS
MARSHALL DIVISION

MULLEN INDUSTRIES LLC, *Plaintiff*, v. SAMSUNG ELECTRONICS CO., LTD. AND SAMSUNG ELECTRONICS AMERICA, INC., *Defendants*.	CIVIL ACTION NO. 2:24-cv-00049-JRG JURY TRIAL DEMANDED

DECLARATION OF [redacted] IN SUPPORT OF SAMSUNG'S MOTION TO TRANSFER VENUE

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[redacted]

I, [redacted] hereby declare as follows:

1. I am employed as a Principal Engineer at Samsung Electronics Co., Ltd. ("SEC"). I have worked for SEC since 2005. I am over 18 years of age and competent to make this declaration. If called as a witness in this matter, I could and would testify truthfully to each of the statements in this declaration. Unless otherwise indicated below, the statements in this declaration are based on my personal knowledge, my review of corporate records maintained by Samsung in the ordinary course of business, and/or my discussions with Samsung employees.

2. I have been informed that on January 26, 2024, Mullen Industries LLC ("Mullen") filed the above-captioned patent infringement lawsuit against Samsung Electronics Co., Ltd. ("SEC") and Samsung Electronics America, Inc. ("SEA") (collectively, "Samsung") in the United States District Court for the Eastern District of Texas ("EDTX").

3. I have also been informed that Mullen alleges various Samsung phones, tablets, and watches infringe certain of Mullen's patents based on their alleged inclusion of the Google Maps mobile application, including based on the Google Maps location sharing feature and user interface for showing directions.

4. I have also been informed that Mullen alleges various Samsung phones, tablets, and watches infringe certain of Mullen's patents based on their inclusion of Samsung's SmartThings Find mobile application.

5. I have also been informed that Mullen alleges various Samsung Galaxy Watches infringe certain of Mullen's patents based on functionality for receiving notifications, such as of an incoming call.

6. SEC is a Korean corporation with a principal place of business in Suwon, Republic of Korea. SEC manufactures a wide range of consumer and enterprise electronic equipment and

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[redacted]

products such as semiconductors, personal computers, peripherals, monitors, televisions, home appliances, smartphones, tablets, and smart watches.

7. SEC researches, designs, develops, and manufactures Samsung phones, tablets, and watches.

8. In August 2014, Samsung entered into an agreement to acquire SmartThings, Inc., which was described as the "creator of the leading open platform for the smart home and the consumer Internet of Things." *See* https://news.samsung.com/global/samsung-to-acquire-smartthings-leading-open-platform-for-the-internet-of-things. Since this acquisition, SmartThings, Inc. has operated and continues to operate as a wholly-owned subsidiary of SEA with its headquarters in Mountain View, California. SmartThings, Inc. now has [redacted] employees located in Mountain View, California. SmartThings, Inc. does not have an established place of business in the EDTX.

9. SEC researches, designs, develops, and distributes the SmartThings Find mobile application. This application was previously called "Find My Mobile" and has now been integrated as a downloadable add-on application in the SmartThings platform, though its core functionality, including the accused functionality, has remained essentially the same. *See, e.g.*, https://www.samsung.com/us/support/answer/ANS00080182/ ("SmartThings Find replaced Find My Mobile."); https://www.samsung.com/levant/apps/smartthings-find/ ("Find My Mobile is now part of SmartThings Find"). SEC employees responsible for the research, design, and development of the SmartThings Find mobile application (previously called "Find My Mobile") are located in the Republic of Korea, and include [redacted]

10. SEC employees responsible for managing the supply and commercial relationship with Google with respect to the Google Maps mobile application are located in the Republic of

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[redacted]

Korea, and include [redacted]

11. SEC does not research, design, or develop the Google Maps mobile application. The Google Maps mobile application was designed and developed by Google. As a result, SEC does not have any non-public proprietary technical documents or any source code for Google Maps.

12. SEC does not have any employees (either in the EDTX or anywhere else) who research, design, develop, or have access to any of Google's proprietary documentation or source code for the Google Maps mobile application.

13. Since the Samsung Galaxy Watch 4 released in August 2021, all Samsung Galaxy Watches use the Wear OS Operating System developed by Google. *See, e.g.*, https://www.samsung.com/ie/support/mobile-devices/wear-os/. The accused Samsung Galaxy Watches 4-6 use the Wear OS operating system, which includes application programming interfaces (APIs) for event notifications. Prior to the Samsung Galaxy Watch 4 release in August 2021, Samsung Galaxy Watches used the Tizen OS Operating System developed by Samsung.

14. For the Galaxy Watch models that use Wear OS, [redacted]

15. SEC does not have any employees in the EDTX who are involved in the design and/or manufacturing of the Samsung Galaxy Watches, the Wear OS operating system, the Tizen OS operating system, or the SmartThings Find mobile application.

16. The Samsung Galaxy Watches, the Tizen OS operating system, and the SmartThings Find mobile application were designed and engineered by SEC engineers primarily

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located in the Republic of Korea. SEC employees responsible [redacted] for the Galaxy Watches are also located primarily in the Republic of Korea.

17. SEC does not maintain any non-public design documents and source code concerning the accused Samsung functionalities (i.e., the SmartThings Find mobile application or the notification features of the Samsung Galaxy Watches) in the EDTX. Design documents and source code concerning Samsung Galaxy Watches, the Wear OS operating system, the Tizen OS operating system, and the SmartThings Find mobile application are maintained in the Republic of Korea.

I declare under penalty of perjury under the laws of the United States that the foregoing is true and correct to the best of my knowledge. Executed in Suwon, Republic of Korea on July 19th, 2024.

[redacted]

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IN THE UNITED STATES DISTRICT COURT
FOR THE EASTERN DISTRICT OF TEXAS
MARSHALL DIVISION

MULLEN INDUSTRIES LLC, *Plaintiff*, v. SAMSUNG ELECTRONICS CO., LTD. AND SAMSUNG ELECTRONICS AMERICA, INC., *Defendants*.	CIVIL ACTION NO. 2:24-cv-00049-JRG JURY TRIAL DEMANDED

DECLARATION OF [redacted] IN SUPPORT OF SAMSUNG'S MOTION TO TRANSFER VENUE

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[redacted]

I, [redacted] hereby declare as follows:

1. I am employed as [redacted] at Samsung Electronics America, Inc. ("SEA"). I have worked for SEA since January 2015 when Samsung Telecommunications America, LLC ("STA") merged into SEA, and before that for STA from February 2012 through 2014. I am over 18 years of age and competent to make this declaration. If called as a witness in this matter, I could and would testify truthfully to each of the statements in this declaration. Unless otherwise indicated below, the statements in this declaration are based on my personal knowledge, my review of corporate records maintained by Samsung in the ordinary course of business, and/or my discussions with Samsung employees.

2. I have been informed that on January 26, 2024, Mullen Industries LLC ("Mullen") filed the above-captioned patent infringement lawsuit against Samsung Electronics Co., Ltd. ("SEC") and Samsung Electronics America, Inc. ("SEA") (collectively, "Samsung") in the United States District Court for the Eastern District of Texas ("EDTX").

3. I have been informed that Mullen alleges various Samsung phones, tablets, and watches infringe certain of Mullen's patents based on their alleged inclusion of the Google Maps mobile application, including based on the Google Maps location sharing feature and user interface for showing directions.

4. I have also been informed that Mullen alleges various Samsung phones, tablets, and watches infringe certain of Mullen's patents based on their alleged inclusion of Samsung's SmartThings Find mobile application.

5. I have also been informed that Mullen alleges various Samsung Galaxy Watches infringe certain of Mullen's patents based on functionality for receiving notifications, such as of an incoming call.

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6. SEA is a wholly-owned subsidiary of SEC.

7. SEA is a New York corporation with a principal place of business in Ridgefield Park, New Jersey, and a number of office locations throughout the United States, including in California.

8. SEA commercializes, markets, and sells Samsung phones, tablets, and watches in the United States, including in the NDCA.

9. SEA does not have any employees in the EDTX who are involved in the design and/or manufacturing of Samsung's Galaxy Watches, the SmartThings Find mobile application, or the Google Maps mobile application.

10. SEA does not have any non-public design documents or source code concerning the accused Samsung functionality (i.e., the SmartThings Find mobile application and the notification features of the Samsung Galaxy Watches) in the EDTX. Design documents and source code concerning Samsung's Galaxy Watches and the SmartThings Find mobile application are located in the Republic of Korea.

11. SEA does not research, design, or develop the Google Maps mobile application. SEA does not have any employees (either in the EDTX or anywhere else) who research, design, develop, or have access to any of Google's proprietary documentation or source code for Google Maps. As a result, SEA does not have any non-public proprietary documentation or any source code for Google Maps.

12. SEA has several facilities throughout California, including the NDCA, and employs over [redacted] regular full-time employees in California as of June 30, 2024. This includes over [redacted] employees in Mountain View, California, as of June 30, 2024.

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I declare under penalty of perjury under the laws of the United States that the foregoing is true and correct to the best of my knowledge. Executed in Berkeley Heights, New Jersey on July 19, 2024.

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IN THE UNITED STATES DISTRICT COURT
FOR THE EASTERN DISTRICT OF TEXAS
MARSHALL DIVISION

MULLEN INDUSTRIES LLC, Plaintiff, v. SAMSUNG ELECTRONICS CO., LTD. AND SAMSUNG ELECTRONICS AMERICA, INC., Defendants.	CIVIL ACTION NO. 2:24-cv-00049-JRG JURY TRIAL DEMANDED

DECLARATION OF [redacted]

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[redacted]

I, [redacted] hereby declare as follows:

1. I am a Software Engineer at Google LLC ("Google"), and one of the engineering managers for the Google Maps Search & Explore team. I have been a Google employee since 2012. I live in San Francisco, California and work from Google's offices in San Francisco. I am over 18 years of age and have personal knowledge of the facts set forth in this Declaration. If called as a witness, I could and would testify competently to the information contained herein.

2. The Google Maps Search & Explore team that I help manage is responsible for developing and maintaining Google Maps Search & Explore features, including the location sharing feature, which is handled by the Location Sharing team. At this time, there is no active development of new features or changes to location sharing in Google Maps, though the location sharing feature continues to be maintained. The members of the Location Sharing team who have worked on the location sharing feature in Google Maps or are involved in its maintenance work from Google's offices in or remotely from: Mountain View and San Francisco, California; Bellevue and Seattle, Washington; and New York City, New York. Based on my investigation and experience, I am not aware of any Google employees who live or work in Texas who have worked on the location sharing feature of Google Maps or are involved in its maintenance.

3. I am familiar with and also investigated the Google employees who are on the Location Sharing team who are most knowledgeable about the Google Maps location sharing feature.

a. [redacted] is a Software Engineer and manager at Google who works on the Google Maps location sharing feature. [redacted] works from Google's offices in Mountain View, California.

b. [redacted] is a Software Engineer at Google who works on the Google Maps

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location sharing feature. [redacted] works from Google's offices in Mountain View, California.

c. [redacted] is a Software Engineer at Google who works on the Google Maps location sharing feature. [redacted] works from Google's offices in Mountain View, California.

d. [redacted] is a Software Engineer at Google who works on the Google Maps location sharing feature. [redacted] works from Google's offices in San Francisco, California.

e. [redacted] is a Software Engineer at Google who works on the Google Maps location sharing feature. [redacted] works from Google's offices in Mountain View, California.

f. [redacted] is a Software Engineer at Google who works on the Google Maps location sharing feature. [redacted] works from Google's offices in Mountain View, California.

g. [redacted] is a Software Engineer at Google who works on the Google Maps location sharing feature. [redacted] works remotely in Seattle, Washington.

h. [redacted] is a Product Manager at Google who works on the Google Maps location sharing feature. [redacted] works from Google's offices in Bellevue, Washington.

i. [redacted] is a Software Engineer at Google who works on the Google Maps location sharing feature. [redacted] works from Google's offices in New York, New York.

j. [redacted] is a Software Engineer at Google who works on the Google Maps location sharing feature. [redacted] works from Google's offices in New York,

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New York.

4. The engineers, designers, and product managers who work on the Directions XP team that is responsible for the user interface for Google Maps directions work from Google's offices or remotely in Mountain View and San Francisco, California; Seattle, Washington; Tokyo, Japan; and Sydney, Australia. Based on my investigation and experience, I am not aware of any Google employees who live or work in Texas who are on the Directions XP team.

5. I am also familiar with and also investigated the Google employees who are on the Directions XP team and are most knowledgeable about the user interface for Google Maps directions.

6. [redacted] is a Product Manager on the Directions XP team at Google who works on the user interface for Google Maps directions. [redacted] works from Google's offices in Mountain View, California.

7. In addition, [redacted] is the Director of Product Management for Google Maps. She also worked on the location sharing feature as a Product Manager and currently oversees the Directions XP team's development of the user interface for Google Maps directions. [redacted] works from Google's offices in Mountain View, California.

8. As a matter of Google practice, documents in Google's possession about its products and services are normally created and maintained by the employees working on those products and services. Documents regarding the research, design, and development of the Google Maps location sharing feature would be primarily created and maintained in San Francisco, Mountain View, Bellevue, Seattle, and New York. Documents regarding the research, design, and development of the user interface for Google Maps directions and the Directions XP team's work would be primarily created and maintained in San Francisco, Mountain View,

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[redacted]

Seattle, Tokyo, and Sydney.

I declare under the laws of the United States of America that the foregoing is true and correct. Executed in Amman, Jordan on 7/16/2024.

[redacted]

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IN THE UNITED STATES DISTRICT COURT FOR THE EASTERN DISTRICT OF TEXAS MARSHALL DIVISION

MULLEN INDUSTRIES LLC, Plaintiff, v. SAMSUNG ELECTRONICS CO., LTD. AND SAMSUNG ELECTRONICS AMERICA, INC., Defendants.	CIVIL ACTION NO. 2:24-cv-00049-JRG JURY TRIAL DEMANDED

DECLARATION OF [redacted]

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[redacted]

I, [redacted] hereby declare as follows:

1. I am a Software Engineer at Google LLC ("Google"), and I am an engineering lead on the Wear Connectivity team for Wear OS. I have been a Google employee since 2007. I live in Mountain View and work from Google's offices in San Jose, California. I am over 18 years of age and have personal knowledge of the facts set forth in this Declaration. If called as a witness, I could and would testify competently to the information contained herein.

2. The development of Wear OS's notification features and related infrastructure is handled by different engineering teams at Google, specifically the Wear Connectivity, Wear Core Services (WCS) Notification, and Wear SysUI Notifications teams, in addition to two engineers from the Wear Android Companion SDK team. [redacted]

3. The Wear Connectivity team that I manage is responsible for, among other things, enabling communications between Android phones and paired devices like smartwatches running Wear OS, including features related to exchanging notification data between a phone and a Wear OS smartwatch. The Wear Connectivity team has 13 software engineers with 11 working from Google's offices in San Jose and San Francisco, California, 1 software engineer working remotely in Seattle, Washington and 1 software engineer working from Google's offices in Kitchener, Canada.

4. The Wear WCS Notification team develops, among other things, a software development kit and other features for delivering and handling notifications. The WCS Notification team has 8 software engineers, all of whom work from Google's offices in London, United Kingdom.

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[redacted]

5. The Wear SysUI Notifications team is responsible for, among other things, the user interface for Wear OS notifications. The Wear SysUI Notifications team has 7 software engineers, with 6 engineers working from Google's offices in San Jose, California and 1 engineer working remotely in British Columbia, Canada.

6. The Wear Android Companion SDK team is responsible for, among other things, the Companion SDK, which is intended to be used by partner OEMs to develop companion apps, which among other things, is responsible for collecting notifications on the phone and forwarding them to smartwatch products that run Wear OS. There are two engineers on the Wear Android Companion SDK team who work on this notification functionality, both of whom work from Google's offices in San Francisco, California.

7. I am familiar with and also investigated the Google employees who are most knowledgeable about notifications and related infrastructure from the above-listed teams. They include:

a. [redacted] (myself), a software engineer and engineering lead who manages the Wear Connectivity Team and works on enabling communications between Android phones and paired devices running Wear OS, including communication of notification data from a user's mobile Android device to a smartwatch running Wear OS. As stated above, I work from Google's offices in San Jose, California.

b. [redacted], a software engineer and engineering lead who manages the WCS Notifications team and work on features relating to the delivery of notifications in Wear OS. [redacted] works from Google's offices in London, United Kingdom.

c. [redacted], a software engineer and engineering lead for the Wear Sys UI Notifications team and works on the user interface for Wear OS notifications. [redacted]

MATERIAL SUBJECT TO A PROTECTIVE ORDER HAS BEEN DELETED

[redacted]

[redacted] works from Google's offices in San Jose, California.

8. Based on my investigation and experience, I am not aware of any Google employees on the Wear Connectivity, Wear WCS Notification, Wear SysUI Notifications, or Wear Android Companion SDK teams that live or work in Texas.

9. As a matter of Google practice, documents in Google's possession about its products and services are normally created and maintained by the employees working on those products and services. Documents regarding Google's research, design, and development of Wear OS notifications and related infrastructure by the Wear Connectivity, WCS Notification, Wear SysUI Notifications, and Wear Android Companion SDK teams would be primarily created and maintained in San Jose, San Francisco, and London, with some documents also created and maintained in Seattle and Kitchener.

I declare under the laws of the United States of America that the foregoing is true and correct. Executed in San Jose, California on July 16, 2024.

[redacted]

Case: 25-129 Document: 2-2 Page: 190 Filed: 05/08/2025 (242 of 641)

EXHIBIT D

Contact

www.linkedin.com/in/jeffreymullen (LinkedIn)
www.poweredcards.com (Company)

Top Skills

Engineering
Intellectual Property
Entrepreneurship

Jeffrey Mullen

Chief Executive Officer at Dynamics Inc.
Pittsburgh, Pennsylvania, United States

Summary

JD, MBA Candidate, B.S. in Electrical & Computer Engineering.

Specialties: patent law, business, electrical and computer engineering

Experience

Dynamics Inc.
Founder and CEO
May 2005 - Present (19 years 3 months)

Dynamics Inc. produces a next-generation payment credit card that changes, both visually and magnetically, a portion of your credit card information.

Pittsburgh Equity Partners
Associate
July 2007 - November 2007 (5 months)

Assisted PEP with a number of VC issues as an associate while working on Dynamics Inc.

Ropes and Gray
6 years 6 months

Patent Attorney
January 2005 - July 2007 (2 years 7 months)

Fish & Neave merged with Ropes & Gray in January 2005. Over the years, began as a technical specialist, matured as a patent agent, and then excelled as a patent attorney.

Patent Agent
February 2001 - January 2005 (4 years)

Fish & Neave merged with Ropes & Gray in January 2005. Over the years, began as a technical specialist, matured as a patent agent, and then excelled as a patent attorney.

Education

Carnegie Mellon University - Tepper School of Business

MBA, Entrepreneurship · (2007 - 2009)

New York Law School

JD · (2001 - 2004)

Carnegie Mellon University

B.S., Electrical & Computer Engineering · (1997 - 2000)

EXHIBIT E

loggany.gif (3237 bytes)

round.gi (1264

Monday 25 June-
Stock Quote - CLPT-

CellPoint Location Services
CellPoint MLS
CellPoint ExPos
CellPoint iMate
CellPoint Finder!
CellPoint Resource Manager
The Personal Security Service
Vehicle Tracking
Future Products and Services
Demo Services
References

™

CellPoint Finder!

Finder! enables the new mobile Internet generation to locate friends easily and communicate in a brand new way. The CellPoint Finder! is not only useful for people, but also provides a level of entertainment – an increasingly important ingredient for successful mobile applications.

Finder is fun!

Finder! gives you a Friends List – just chose a friend and you will soon know their location. Maybe you want to send them a message or give them a call. The CellPoint Finder! is fun and useful in many situations, from your mobile phone or computer Internet browser, to:

- Help friends meet up in the city
- Look for someone when they are late, be it a child, colleague or buddy
- Find where your friends are gathering from the home or office computer

Download demo

- Download demo of Finder!™

The user starts by defining a list of friends (the “Friends List”) that they want to be able to locate, be seen by, or communicate with. When a user wants to know the location of a friend, colleague or family member, the user initiates the request via a chosen interface, be it their mobile phone or computer, and selects a name or names. CellPoint’s Finder! application then locates the user and the friend, and calculates the distance and direction to the friend. The result is communicated back to the user as a text message, such as *“John is close to Piccadilly Circus, about 3.2 km west of you.”*

Privacy and multiple interfaces

Finder! offers multiple interfaces to the end-user, while providing a uniform look and feel for the service. The user always has full control over their privacy. The service supports standard GSM phones and WAP-enabled phones, and can also be accessed via the Internet. The major end-user advantages with Finder! are:

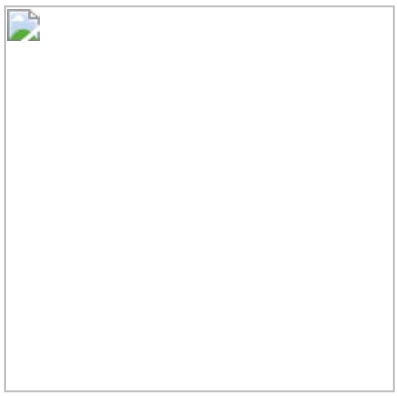
- Provides value as well as entertainment
- Very easy to use
- Delivers location and other information via SMS, WAP, and WWW
- Works with standard GSM phones and/or Internet browser

End-user features

Finding the location of one or several friends and your own location relative to them

- Display of friend´s location as an area name, e.g. “at Piccadilly Circus in London”

- Privacy and Friend List management – fully controlled by the end-user
- Support for roaming
- Messaging/chatting – e-mail and SMS



The market

Finder! is designed for and targeted to the mass consumer market with focus on new generation users 10-25 years. There is also practical application for family and business users that will vary by culture and country. The service can be bundled with pre-paid as a means to both keep existing customers and capture new subscribers by offering a differentiated pre-paid service plan that includes location services.

Major operator advantages

- Differentiate the service portfolio with an advanced consumer application with broad appeal
- Address entire customer base through multiple interfaces (SMS, WAP etc.)
- Launch an application designed for everyday use
- Develop communities
- Increase airtime
- Explore advertisement possibilities
- Benefit from a turn-key solution using CellPoint's Mobile Location System
- Be fast, short time-to-market
- Leverage on roaming – serve your users when they are really mobile
- Expand with a scalable solution

CellPoint´s Location Services

Mobile Internet users want services with a common interface for communicating with friends, searching for location-based information etc. That's why we created Finder! It integrates seamlessly with features and services for Community or Location Information applications, letting users benefit from all the new possibilities in a GSM network.

CellPoint Mobile Location System

CellPoint's 3rd Generation location platform – the CellPoint Mobile Location System – supports both handset-based (SIM Toolkit, WAP and GPS) as well as network-based location. In contrast to other network-based solutions on the market, CellPoint's network location technology solution utilizes standard GSM functionality that is already supported by all major GSM infrastructure suppliers today. Furthermore, the CellPoint platform supports inter-network roaming and has a strong roadmap including future solutions such as E-OTD and A-GPS.

The CellPoint Mobile Location System provides open interfaces aligned with UMTS standards, which makes the CellPoint solution the right choice for both GSM Operators and application developers for future-proof delivery of location services.

Please contact our Sales Department to discuss how your business could benefit from our location technology and location-based value-added services.

Copyright © CellPoint Inc. 2000

US007366522B2

(12) United States Patent
Thomas

(10) **Patent No.: US 7,366,522 B2**
(45) **Date of Patent: Apr. 29, 2008**

(54) **METHOD AND SYSTEM FOR LOCATION TRACKING**

(76) Inventor: **C. Douglass Thomas**, 1193 Capri Dr., Campbell, CA (US) 95008

(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 272 days.

(21) Appl. No.: **09/797,517**

(22) Filed: **Feb. 28, 2001**

(65) **Prior Publication Data**

US 2003/0060212 A1 Mar. 27, 2003

Related U.S. Application Data

(60) Provisional application No. 60/185,480, filed on Feb. 28, 2000.

(51) **Int. Cl.**
H04Q 7/20 (2006.01)

(52) **U.S. Cl.** **455/456.1**; 455/404.2; 455/414.2; 455/440; 340/539.13; 340/825.49; 340/988; 342/357.01; 342/457; 701/213

(58) **Field of Classification Search** 455/440, 455/456.1, 456.2, 456.3, 404.2, 414.2, 457; 340/539.13, 825.49, 988; 701/213, 214, 701/215; 342/357.06, 357.07, 357.01, 357.13, 342/457

See application file for complete search history.

(56) **References Cited**

U.S. PATENT DOCUMENTS

5,389,934	A	2/1995	Kass	
5,400,020	A	3/1995	Jones et al.	
5,461,365	A	10/1995	Schlager et al.	
5,491,486	A	2/1996	Welles, II et al.	
5,512,902	A	4/1996	Guthrie et al.	
5,515,858	A	5/1996	Myllymaki	
5,528,247	A *	6/1996	Nonami	342/357.1
5,528,518	A	6/1996	Bradshaw et al.	
5,539,748	A	7/1996	Raith	
5,541,845	A	7/1996	Klein	
5,550,551	A *	8/1996	Alesio	342/457
5,568,119	A	10/1996	Schipper et al.	
5,570,412	A	10/1996	LeBlanc	
5,576,716	A	11/1996	Sadler	
5,592,173	A	1/1997	Lau et al.	
5,623,260	A	4/1997	Jones	
5,629,678	A	5/1997	Gargano et al.	
5,652,570	A	7/1997	Lepkofker	
5,673,692	A	10/1997	Schulze et al.	

(Continued)

FOREIGN PATENT DOCUMENTS

EP 0 874 529 A2 10/1998

(Continued)

OTHER PUBLICATIONS

J.Wrolstad, "Chrysler Claims First With Bluetooth Mobile Phone System," Wireless Newsfactor, Oct. 26, 2001.

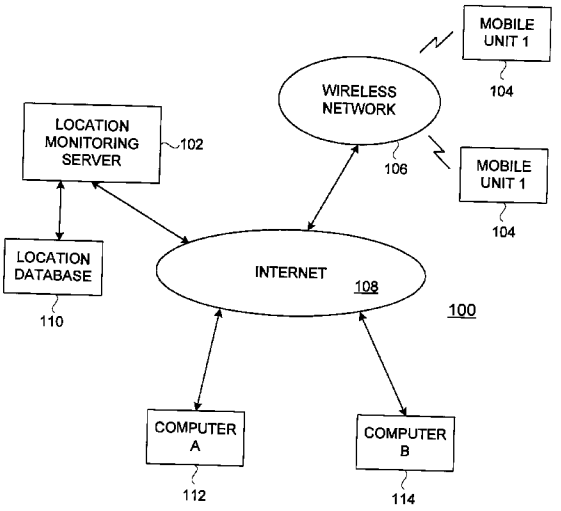
(Continued)

Primary Examiner—Nghi H. Ly

(57) **ABSTRACT**

Techniques for location tracking, location utilization, and dissemination and management of location information are disclosed. As a location monitoring system, one embodiment includes at least a plurality of mobile computing devices supported by a wireless network, and a web server coupled to a wired network (e.g., the Internet) that couples to the wireless network. Each of the mobile computing devices are associated with and proximate to an object whose location is being monitored. The web server stores the locations of each of the mobile computing devices or the objects proximate thereto, and enables only authorized users to obtain access the locations via the wired network.

20 Claims, 8 Drawing Sheets



US006133853A

United States Patent [19]

Obradovich et al.

[11] Patent Number: 6,133,853

[45] Date of Patent: Oct. 17, 2000

[54] **PERSONAL COMMUNICATION AND POSITIONING SYSTEM**

[75] Inventors: **Michael L. Obradovich**, San Clemente; **John Pirtle**, Silverado; **Corena Dusek**, Corona Del Mar, all of Calif.

[73] Assignee: **American Calcar, Inc.**, Wilmington, Del.

[21] Appl. No.: **09/126,936**

[22] Filed: **Jul. 30, 1998**

[51] **Int. Cl.**[7] **G08G 1/09**

[52] **U.S. Cl.** **340/905**; 340/488; 340/491; 340/995; 701/117

[58] **Field of Search** 340/905, 995, 340/988, 991, 990; 701/204, 209, 208, 117

[56] **References Cited**

U.S. PATENT DOCUMENTS

4,521,857	6/1985	Reynolds, III	379/88.17
4,792,803	12/1988	Madnick et al.	340/905
4,812,843	3/1989	Champion, III et al.	340/905
4,977,509	12/1990	Pitchford et al.	701/207
5,023,934	6/1991	Wheeless	455/45
5,117,359	5/1992	Eccles	702/3
5,124,915	6/1992	Krenzel	702/5
5,164,904	11/1992	Sumner	340/905
5,225,843	7/1993	Thompson	342/367
5,265,024	11/1993	Crabill et al.	701/200
5,272,638	12/1993	Martin et al.	455/456
5,335,276	8/1994	Thompson et al.	380/266
5,420,592	5/1995	Johnson	342/357.12
5,504,482	4/1996	Schreder	340/995
5,517,193	5/1996	Allison et al.	342/26
5,523,950	6/1996	Peterson	455/456
5,528,248	6/1996	Steiner et al.	342/357.06
5,528,493	6/1996	Potter	702/3
5,539,645	7/1996	Mandhyan et al.	340/905
5,543,789	8/1996	Behr et al.	340/995
5,596,317	1/1997	Brinkmeyer et al.	340/825.31
5,600,796	2/1997	Okamura et al.	714/15
5,602,425	2/1997	Wilhelmi et al.	307/10.1
5,604,407	2/1997	Andres et al.	315/77
5,604,676	2/1997	Penzias	705/417
5,608,300	3/1997	Kawabata et al.	318/721
5,612,699	3/1997	Yamada	342/70
5,625,668	4/1997	Loomis et al.	455/456
5,625,884	4/1997	Gitlin et al.	455/406
5,627,547	5/1997	Ramaswamy et al.	342/357.08
5,636,269	6/1997	Eisdorfer	379/215
5,638,274	6/1997	Konishi et al.	701/45
5,638,279	6/1997	Kishi et al.	701/200
5,640,156	6/1997	Okuda et al.	340/928
5,641,209	6/1997	Kushi et al.	303/9.71

(List continued on next page.)

OTHER PUBLICATIONS

Martin Wolk, "Microsoft unveils plans for car dashboard computer", Reuters Article,Copyright date 1998.

Edward W. Desmond, "Malone Again," Fortune Cover Stories, Publication Date Feb. 16, 1998, pp. 66, 68 & 69.

Andrew Kupfer, "How Hot is Cable, Really?", Fortune Cover Stores, Publication Date Feb. 16, 1998, pp. 70,71,74 & 76.

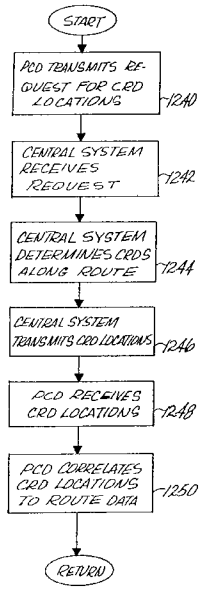
Primary Examiner—Benjamin C. Lee

Attorney, Agent, or Firm—Christie, Parker & Hale, LLP

[57] **ABSTRACT**

A location tagged data provision and display system. A personal communication device (PCD) with electromagnetic communication capability has a GPS receiver and a display. The PCD requests maps and location tagged data from data providers and other for display on the PCD. The data providers respond to requests by using searching and sorting schemes to interrogate data bases and then automatically transmitting data responsive to the requests to the requesting PCD.

5 Claims, 44 Drawing Sheets



US006415224B1

(12) **United States Patent**
Wako et al.

(10) **Patent No.: US 6,415,224 B1**
(45) **Date of Patent: Jul. 2, 2002**

(54) **DISPLAY METHOD AND APPARATUS FOR NAVIGATION SYSTEM**

(75) Inventors: **Hikaru Wako**, Redondo Beach; **Tatsuo Yokota**, Torrance, both of CA (US)

(73) Assignee: **Alpine Electronics, Inc.**, Tokyo (JP)

(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 0 days.

(21) Appl. No.: **09/777,990**

(22) Filed: **Feb. 6, 2001**

(51) **Int. Cl.**[7] **G01C 21/00**; G06F 7/00; G06F 9/00; G06F 17/00; G06F 165/00; G01S 5/02

(52) **U.S. Cl.** **701/208**; 701/200-207; 701/209-216; 701/23-26; 701/36; 342/357.13; 342/357.09; 342/357.17; 342/458; 340/988; 340/990; 340/995; 340/903; 345/970; 345/1.3; 345/856; 345/555; 345/205; 345/206; 455/556; 455/557; 348/169; 348/142; 348/213

(58) **Field of Search** 701/200–216, 701/23, 24, 25, 27, 14, 36; 342/357.13, 357.09, 357.17, 357.08, 357.06, 458; 240/988, 990, 995, 903, 660, 692, 460; 345/970, 1.3, 856, 555, 205, 206; 455/556, 557; 348/169, 142, 213

(56) **References Cited**

U.S. PATENT DOCUMENTS

5,648,904	A	*	7/1997	Scott	116/62.3
5,757,359	A		5/1998	Morimoto et al.	
5,764,139	A		6/1998	Nojima et al.	
5,821,880	A	*	10/1998	Morimoto et al.	340/988
5,944,768	A	*	8/1999	Ito et al.	340/990
6,029,072	A	*	2/2000	Barber	455/556
6,064,322	A	*	5/2000	Ohira	340/988
6,121,900	A	*	9/2000	Takishita	340/990
6,240,361	B1	*	5/2001	Ise et al.	340/995
6,275,231	B1	*	8/2001	Obradovich	345/970
6,034,212	A1	*	10/2001	Aoki et al.	342/357.13
2001/0001846	A1	*	5/2001	Uchigaki	
2001/0029429	A1	*	10/2001	Katayama et al.	
2001/0047241	A1	*	11/2001	Khavakh et al.	

OTHER PUBLICATIONS

Phillips Car System "Carin Navigation System". Apr. 17, 1997.*

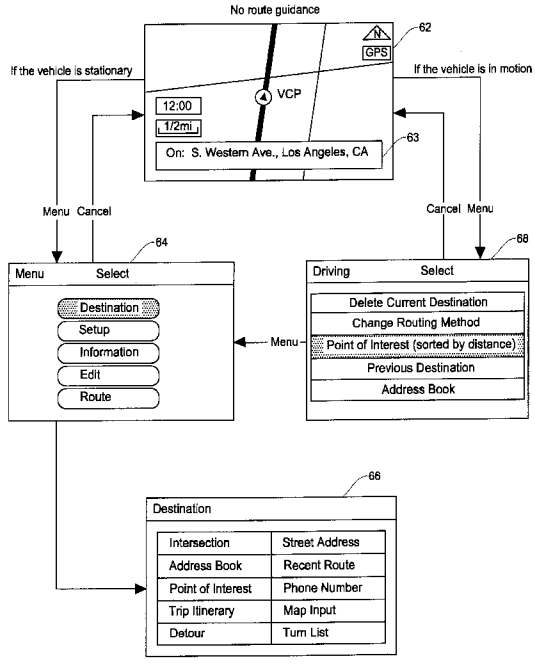
* cited by examiner

Primary Examiner—William A. Cuchlinski, Jr.
Assistant Examiner—Ronnie Mancho
(74) *Attorney, Agent, or Firm*—Muramatsu & Associates

(57) **ABSTRACT**

A display method and apparatus for navigation system for displaying information necessary for guiding a driver of a vehicle. The navigation system is designed to promote safe driving by producing different display forms and contents depending on whether the vehicle is in motion or stationary. When the vehicle is stationary, the navigation system can perform all of the functions. However, when the vehicle is in motion, the navigation system provides simplified and limited functions to ease the operations. The number of key strokes required for operating the navigation system is reduced when the vehicle is in motion.

36 Claims, 14 Drawing Sheets



US007177651B1

(12) **United States Patent**
Almassy

(10) **Patent No.: US 7,177,651 B1**
(45) **Date of Patent: Feb. 13, 2007**

(54) **SYSTEM AND METHOD FOR THE EXCHANGE OF LOCATION INFORMATION IN A TELEPHONE NETWORK**

(75) Inventor: **Nikolaus P. W. Almassy**, San Diego, CA (US)

(73) Assignee: **Texas Instruments Incorporated**, Dallas, TX (US)

(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 1048 days.

(21) Appl. No.: **09/668,502**

(22) Filed: **Sep. 22, 2000**

(51) **Int. Cl.**
H04Q 7/20 (2006.01)

(52) **U.S. Cl.** **455/456**; 455/68; 455/457; 455/461; 455/435; 343/760; 340/994; 701/208

(58) **Field of Classification Search** 455/68, 455/457, 461, 435, 446, 566, 456; 343/760; 340/994, 995, 991, 988, 905; 701/208, 213
See application file for complete search history.

(56) **References Cited**

U.S. PATENT DOCUMENTS

5,389,934	A	2/1995	Kass	342/357.07
5,519,403	A *	5/1996	Bickley et al.	342/352
5,548,822	A *	8/1996	Yogo	455/68
5,625,668	A	4/1997	Loomis et al.	485/456.5
5,917,434	A *	6/1999	Murphy	340/991
5,918,180	A	6/1999	Dimino	455/456.3
5,952,959	A	9/1999	Norris	342/357.08
6,087,965	A *	7/2000	Murphy	340/991
6,091,957	A	7/2000	Larkins et al.	455/456.2
6,246,376	B1	6/2001	Bork et al.	
6,317,605	B1 *	11/2001	Sakuma	455/457
6,360,102	B1 *	3/2002	Havinis et al.	455/457
6,466,788	B1 *	10/2002	Carlsson	455/435
6,515,595	B1 *	2/2003	Obradovich et al.	340/905

FOREIGN PATENT DOCUMENTS

GB	2 322 248	8/1998
WO	WO 01/63315	8/2001

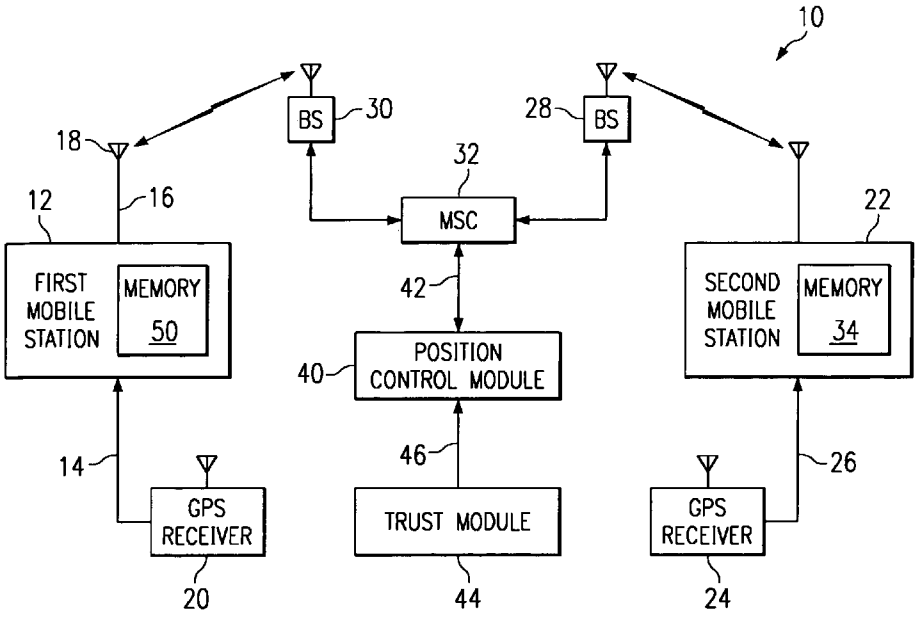
* cited by examiner

Primary Examiner—Jean Gelin
Assistant Examiner—Pierre-Louis Desir
(74) *Attorney, Agent, or Firm*—Ronald O. Neerings; Wade James Brady, III; Frederick J. Telecky, Jr.

(57) **ABSTRACT**

A wireless communications system is presented where a mobile station is able to automatically determine its proximity to a second mobile station or landline telephone. Once the proximity determination command has been given, no further actions are required by the users of either telephone. A GPS receiver connected to the first mobile station is able to provide that mobile with its position and direction. The first mobile station makes a request to the other telephone for its position, through SMS messaging for example. A GPS receiver connected to the second mobile station is able to provide the second mobile station with data to enable the position request. Trust determinations can be enabled so that position data is sent to a restricted list of requesting telephone numbers. Likewise, the second mobile station can request position data from the first mobile station. When position information is requested from a landline telephone, the request can be fulfilled by the landline telephone service provider. A method for automatically exchanging position information is also provided.

34 Claims, 3 Drawing Sheets



US 20020137523A1

(19) **United States**

(12) **Patent Application Publication** (10) **Pub. No.: US 2002/0137523 A1**

Diggelen (43) **Pub. Date: Sep. 26, 2002**

(54) **METHOD AND APPARATUS FOR PROVIDING LOCATION BASED INFORMATION**

(75) Inventor: **Frank van Diggelen**, San Jose, CA (US)

Correspondence Address:
THOMASON, MOSER & PATTERSON, LLP
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595 SHERWSBURY AVENUE
SHREWSBURY, NJ 07702 (US)

(73) Assignee: **Global Locate, Inc.**

(21) Appl. No.: **09/813,639**

(22) Filed: **Mar. 21, 2001**

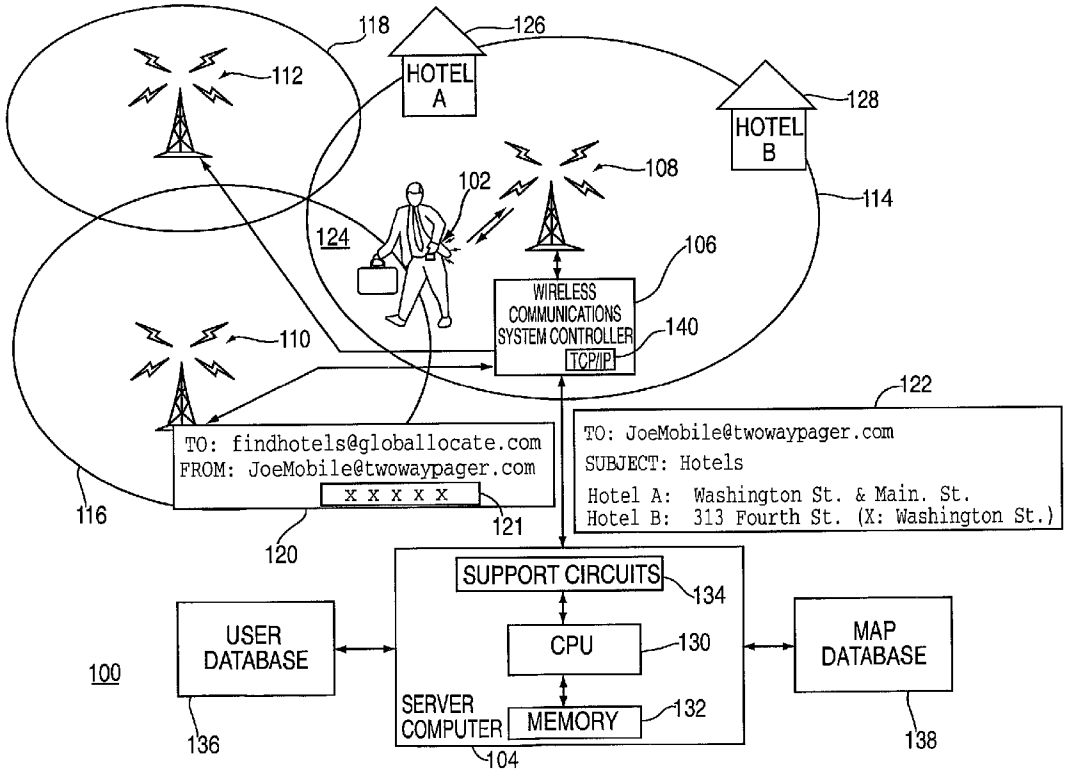
Publication Classification

(51) **Int. Cl.**[7] **H04Q 7/20**

(52) **U.S. Cl.** **455/456**; 455/457

(57) **ABSTRACT**

A method and apparatus for providing location-based information using a wireless communications system is disclosed. In one embodiment, a message is received from a wireless device containing a request for location-based information. Upon receipt of the message, the location of the wireless device is determined, location-based information is retrieved for the determined location and the location-based information is transmitted to the wireless device.



No public version of Appx0163-0178 was filed below. Accordingly, Appx0163-0178 are omitted in their entirety from the non-confidential appendix.

MATERIAL SUBJECT TO A PROTECTIVE ORDER HAS BEEN DELETED

[redacted]

IN THE UNITED STATES DISTRICT COURT
FOR THE EASTERN DISTRICT OF TEXAS
MARSHALL DIVISION

MULLEN INDUSTRIES LLC, *Plaintiff,* v. SAMSUNG ELECTRONICS CO., LTD., AND SAMSUNG ELECTRONICS AMERICA, INC., *Defendants.*	Case No. 2:24-cv-00049-JRG **JURY TRIAL DEMANDED**

PLAINTIFF MULLEN INDUSTRIES LLC'S BRIEF IN OPPOSITION TO SAMSUNG'S MOTION TO TRANSFER VENUE TO THE NORTHERN DISTRICT OF CALIFORNIA

MATERIAL SUBJECT TO A PROTECTIVE ORDER HAS BEEN DELETED

[redacted]

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MATERIAL SUBJECT TO A PROTECTIVE ORDER HAS BEEN DELETED

[redacted]

TABLE OF AUTHORITIES

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Plaintiff Mullen Industries LLC opposes Samsung's Motion to Transfer this case to the Northern District of California ("NDCA") pursuant to 28 U.S.C. § 1404. Dkt. 37 ("Mot.").

I. INTRODUCTION

This is not a close case for transfer. In a word, Samsung's request to transfer to NDCA is unprecedented—one need look no further than this Court's decisions in *Cardware* and *Jawbone*,[1] cases glaringly absent from Samsung's motion, to understand that Samsung is not entitled to transfer because: (i) Samsung has failed to establish that NDCA is a proper venue; and (ii) this case possesses at least the same deep and meaningful ties to EDTX that this Court identified in *Cardware* and *Jawbone*. Conversely, Samsung's cited cases are easily distinguished. They involve rare instances of transfer in coordinated actions where Google itself was a party, or where suit against Samsung was filed in WDTX—facts not present here.

First, Samsung glosses over the threshold question of whether venue would have been proper in NDCA. As in *Jawbone*, Samsung's vague statements do not establish that defendant Samsung Electronics America, Inc. has a regular and established place of business in NDCA.

Second, even considering the convenience factors, Samsung ignores its strong connection to EDTX, which is anchored by Samsung's substantial evidence in Plano, TX and its more than [redacted] employees working there across at least [redacted] business units in Samsung's sprawling [redacted][2] Samsung's witnesses and evidence in Plano, TX focus on marketing, valuation, sale, and testing of the accused products, which activities are highly relevant to Samsung's acts of direct infringement, including Samsung's use of the patented technology, and damages. By way

[1] *Cardware Inc. v. Samsung Elecs. Co., Ltd.,* No. 2:22-cv-0141-JRG-RSP, 2023 U.S. Dist. LEXIS 62442 (E.D. Tex. Apr. 8, 2023); *Jawbone Innovations, LLC v. Samsung Elecs. Co., Ltd.*, No. 2:21-cv-186-JRG-RSP, 2022 U.S. Dist. LEXIS 157916 (E.D. Tex. Aug. 31, 2022).

[2] [redacted] Ex. 2 (Samsung website, "Samsung Electronics America to Open Flagship North Texas Campus"). All exhibit citations are to the declaration of Peter F. Snell, filed herewith.

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[redacted]

of example only, Samsung itself identified in its initial [redacted]—but Samsung's motion failed to acknowledge—two relevant Samsung employees in EDTX.[3] This alone is powerful evidence that weighs strongly against transfer because both such witnesses will likely testify at trial.

Further still, even Samsung's 30(b)(6) venue witness could not explain away additional evidence of this case's deep ties to EDTX that Samsung was forced to provide in discovery. [redacted]

As additional examples, [redacted]

For its part, Samsung's motion overstates the significance of purported Samsung witnesses in Korea, non-party Google LLC witnesses, and speculative prior art witnesses, none of which establish that NDCA is a "clearly more convenient" forum than EDTX.

[redacted]

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[redacted]

II. ARGUMENT

A. Samsung Failed to Show This Case Could Have Been Brought in NDCA

As a threshold matter, as in *Jawbone*, the Court should deny Samsung's motion because Samsung's vague statement that "SEA has offices with over [redacted] regular full-time employees in the NDCA" (Mot., 7) "fail[s] to provide a sufficient basis for the Court to determine that the NDCA is a district where the suit might have been brought." *Jawbone*, 2022 U.S. Dist. LEXIS 157916, at *11. Samsung does not identify the address of such "offices," nor whether they are home offices of employees or offices that belong to a different entity, neither of which would be sufficient to establish that venue would have been proper as to SEA in NDCA. Indeed, Samsung's venue interrogatory response [redacted] Further, a public web search indicates that while a different entity, Samsung Research America ("SRA"), may have an office in Mountain View, CA, Samsung has represented during venue discovery in this case that SRA is a different entity that is not a party to this action. *See* Ex. 5 (SRA website); [redacted]

B. The Private Interest Factors Weigh Against Transfer

Even considering the convenience factors, the Court should deny Samsung's motion.

1. Relative Ease of Access to Sources of Proof Weighs Against Transfer

The first private factor, which assesses the relative ease of access to sources of proof, weighs against transfer. *See In re Volkswagen of Am., Inc.*, 545 F.3d 304, 315 (5th Cir. 2008).

Samsung concedes that Plaintiff's infringement allegations in this case can be summarized as follows: (i) Samsung mobile devices with Samsung's STF technology infringe seven of the nine asserted patents; (ii) Samsung mobile devices with Google Maps technology infringe eight of the nine asserted patents; and (iii) Samsung watches infringe one asserted patent. Mot., 2.

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[redacted]

As in *Cardware*, this factor weighs against transfer because "evidence related to damages and testing is in Plano, Texas within this district." *Cardware*, 2023 U.S. Dist. LEXIS 62442, at *4-6. Indeed, even Samsung's motion concedes that "SEA has offices in Plano and likely maintains certain financial and marketing documents there." Mot., 10. Even more specifically, uncontroverted evidence establishes that the following relevant evidence resides in EDTX:

- Samsung's damages-related documents relating to marketing and valuation of the accused products. Samsung's initial disclosures concede that Samsung employee [redacted] possesses information in EDTX related to "Samsung's marketing or business information related to Samsung's accused products." Ex. 3 at 8. [redacted] was Samsung's 30(b)(6) venue deponent and confirmed the same. [redacted]

- Samsung's damages-related documents relating to financials regarding the accused products. Samsung's initial disclosures also concede that Samsung employee [redacted] ([redacted] possesses information in EDTX related to [redacted] Such documents invariably include relevant financials including sales, costs, and margins.

- Samsung's damages-related documents relating to consumer insights and value drivers of the accused products. Samsung employee, [redacted], possesses evidence in EDTX regarding consumer insights, including [redacted]. *See* [redacted] Ex. 7 [redacted]

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[redacted]

- Documents related to testing of the accused technology including Samsung mobile devices with STF. [redacted] Samsung has yet to produce the documents related to such testing but cannot credibly deny that such documents exist.

In addition, further demonstrating that relevant documents exist in EDTX (and possibly *only* in EDTX), Samsung's venue witness was unable to confirm nor deny [redacted]

Samsung's arguments do not tip this factor in its favor. Samsung argues that relevant evidence will come from "SEC in Korea, which developed the accused SmartThings Find application and [redacted]." Mot., 9. However, even Samsung concedes that "Samsung's evidence in Korea … is neutral to the analysis." Mot., 10; *see also Cardware*, 2023 U.S. Dist. LEXIS 62442, at *5-6 (finding "proof outside the United States … equally inconvenient for both [EDTX] and NDCA"); *Jawbone*, 2022 U.S. Dist. LEXIS 157916, at *13-14 ("[t]he presence of relevant technical documents in South Korea is neutral").

Samsung next argues that relevant evidence will come from "third-party Google in the NDCA, which developed Google Maps." Mot., 9.[4] However, because Google Maps is only one of multiple relevant technologies in the Samsung accused products (in addition to Samsung's STF and watch notification technologies), source code regarding Google Maps should be afforded less weight. *Jawbone*, 2022 U.S. Dist. LEXIS 157916, at *13 ("proof relevant to an accused feature … located in the NDCA … is due only slight weight" where it is one of multiple accused features). Samsung's vague reference to "technical documents … relating to Google Maps' accused Location Sharing feature" should also be afforded no weight because a movant must make "an actual showing of the existence of relevant sources of proof, not merely an expression that some sources likely exist in the prospective forum." *Def. Distrib. v. Bruck*, 30 F.4th 414, 434 (5th Cir. 2022).

Samsung's speculative arguments regarding potential prior art evidence should also be given little, if any, weight. Mot., 5-6, 10. Samsung's five identified patents and printed publications are entitled little weight because they are not prior art products—only one identified item arguably is (*i.e.*, "CellPoint 'Finder!'"). *Id.*; *Cardware*, 2023 U.S. Dist. LEXIS 62442 at *5-6 (finding alleged prior art evidence "speculative" and of little weight where it only implicated "one prior art product"). And, that Samsung has not served subpoenas on any of these purported prior art sources confirms that Samsung's arguments are speculative and entitled to no weight. The faces of these publications also suggest that relevant evidence, if any, exists outside of California. *See* Snell Decl. at ¶ 16 (evidence, if any, likely located in Dallas, TX, Delaware, New Jersey, and Japan).

Samsung's reliance on *In re Google* and *In re Samsung* is misplaced. Mot., 10. Neither case supports Samsung's argument that cases against Samsung are transferred from EDTX to

[4] Because Samsung admits it loads its Korea-based [redacted] onto the accused products, [redacted] allegedly possessed by Google is not relevant. Mot., 9.

NDCA "where … relevant technical evidence is from Google and its employees in NDCA." *Id.*

In re Google is easily distinguished because there (unlike here) plaintiff had also filed suit against Google and Waze; thus, because the Google and Waze cases were transferred to NDCA, judicial economy was served by transferring the suit against Samsung to NDCA too. *In re Google,* No. 2022-140, 2022 U.S. App. LEXIS 13799, at *4 (Fed. Cir. May 23, 2022). In addition, "Google's accused functionality [was] at the center of the allegations" (*id*. at *9) whereas here Samsung's own (i) STF technology and (ii) [redacted] are also accused. Further, the evidence there only reflected Samsung's "general" connection to EDTX (*id*. at 12 n.3), whereas here Samsung's evidence and witnesses in Plano, TX facility have deep evidentiary ties to this case, including as admitted in Samsung's initial disclosures. Ex. 3 at 8.

In re Samsung is also easily distinguished. It involved a suit against Samsung in WDTX, not EDTX where Samsung maintains its massive Plano, TX facility and where Samsung has admitted in this case witnesses and sources of proof exist. *Cf. In re Samsung,* 2 F.4th 1371, 1379 (Fed. Cir. 2021) ("not a single witness has been identified as residing in or near the Western District of Texas"). In addition, it is not the case here that the "infringement contentions are directed at functionality in third-party applications" (*id*. at *1374) because here Samsung's own STF technology and [redacted] are also accused of infringement.

Accordingly, the Court should find that this factor weighs against transfer.

2. Availability of Compulsory Process Does Not Favor Transfer

The second factor, which considers unwilling, nonparty witnesses whose attendance would need to be secured by court order, does not favor transfer.

At least three unwilling witnesses in this District possess relevant knowledge regarding the development of Samsung's IoT platform for its SmartThings application, which includes Samsung's STF technology. Ex. 4, Samsung Tr. at 25:21-26:9, 96:14-15; Ex. 15. Samsung's

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witness could not deny their relevance. *Id.* at 141:22-146:11, 162:14-165:8. In particular:

- Feng Qi of Richardson, TX is a SRA Software Systems Engineer, Mobile Innovation with knowledge relevant to "IoT edge and cloud … BLE, SmartThings." Ex. 16 at 1 (LinkedIn); Ex. 17 at 1 (confirming STF uses BLE location sharing technology); Ex. 18 (Richardson, TX). Samsung Tr. at 94:16-95:4. Samsung also concedes that SRA is a third party. *Id*. at 142:15-144:8.

- Jay Shah of Wylie, TX is a former SEA Software QA Engineer Team Lead with relevant knowledge regarding "designing and building performance and IOT test infrastructure." Ex. 19 at 2 (LinkedIn); Ex. 20 (Wylie, TX).

- Onaiza Mir of Plano, TX is a former SEA Senior Network Engineer with knowledge relevant to "Pre-IOT testing and test management, mobile applications." Ex. 21 at 3 (LinkedIn); Ex. 22 (Plano, TX).

Turning to Samsung's arguments, as an initial matter Samsung has not alleged nor shown that any witnesses it identifies are unwilling witnesses. Thus, Samsung's arguments under this factor should be afforded little, if any, weight. *In re Planned Parenthood Fed'n of Am., Inc.*, 52 F.4th 625, 630−31 (5th Cir. 2022). The alleged Google witnesses should not be considered "unwilling" because (i) they "voluntarily provided a declaration in support of Samsung's Motion to Transfer", (ii) "Samsung does not deny that [the third party] has indemnity obligations to Samsung" and (iii) Google has "been coordinating with Samsung … on … *inter parte* review … petitions." *Demaray LLC v. Samsung Elecs. Co., Ltd.*, No. 6:20-cv-00636 (ADA), 2021 U.S. Dist. LEXIS 222472, *12 (W.D. Tex., July 29, 2021). Indeed, Google's declarants voluntarily submitted declarations without subpoena and expressly stated that "If called as a witness, I could and would testify competently to the information contained herein." Dkt. 37-03 at ¶ 1; Dkt. 37-04 at ¶ 1. Samsung's initial disclosures

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[redacted]

Even considering the Google witnesses under this factor, it is inconceivable that all [redacted] Google witnesses will testify; Samsung in fact offers nothing to suggest that more than one or two of them are relevant (*i.e.*, [redacted] and [redacted] who were the Google declarants to Samsung's motion). [redacted]

In addition, once source code is obtained from Google in discovery,[5] there will be no need for any Google witness to testify at trial. Indeed, even Samsung has acknowledged that once source code is produced, it provides "all the information needed," which can be "just as readily determined by [the expert witnesses] by reviewing the code produced." Ex. 24 at 3 (Samsung Counsel's letter to Plaintiff's Counsel). This, too, belies Samsung's present argument that Google's witnesses are needed for trial.

Samsung's purported prior art witnesses (Mot., 8) should also be afforded no weight for the same reasons identified above for the first private factor. As this Court has held, their relevance is purely speculative including because Samsung has not issued subpoenas to any of them. *Cardware*, 2023 U.S. Dist. LEXIS 62442, at *7 (finding Samsung's "intent to subpoena" speculative and lacking "evidence … that [nonparties] have information regarding … prior art").

Samsung's identification of [redacted] as a potential witness is also unpersuasive. Mot., 8. Plaintiff's [redacted] speaks for itself and will not require live testimony [redacted]. Nor has Samsung even attempted to explain why such

[5] Plaintiff has already issued subpoenas to Google to produce a narrow set of documents and information relevant to this case. Ex. 23 at Ex. A, p. 1 (three targeted requests for production).

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testimony is relevant. *See, e.g., Demaray*, 2021 U.S. Dist. LEXIS 222472, at *13 (finding unpersuasive Samsung's identification of "witnesses to Samsung's license defense"). Moreover, if evidence regarding licenses were relevant, Plaintiff and its sole member [redacted] which weighs against transfer or renders this factor neutral. Ex. 25 at 10 (Plaintiff's Resp. to Venue ROG); *Jawbone*, 2022 U.S. Dist. LEXIS 157916, at *14-16 (finding this factor neutral where both "parties have pointed to a series of witnesses located in both forums that may have relevant knowledge").

For the same reasons identified above (*supra* II.B.1.), Samsung's reliance on *In re Google* and *In re Samsung* is misplaced and does not support Samsung under this factor. *Porto Tech.* is also easily distinguished because there Samsung's motion to transfer was effectively unrebutted. *Porto Tech., Co. v. Samsung Elecs. Am., Inc.*, 2:15-cv-00456-JRG-RSP, 2016 U.S. Dist. LEXIS 31287, *6 (E.D. Tex. Mar. 11, 2016) ("Porto failed to adequately challenge [Samsung's] evidence in its briefing and at the hearing"). In stark contrast, Plaintiff here has provided ample evidence demonstrating that the Court should deny Samsung's motion.

Accordingly, the compulsory process factor does not favor transfer.

3. Cost of Attendance and Convenience for Willing Witnesses Weighs Strongly Against Transfer

"[W]eighing against transfer" under this factor is "the fact that SEA has identified witnesses on its initial disclosures that are … located in this District." *Jawbone*, 2022 U.S. Dist. LEXIS 157916, at *18. In addition, that "witnesses with knowledge related to damages reside in and around EDTX" weighs against transfer. *Cardware*, 2023 U.S. Dist. LEXIS 62442, at *7-8.

Here, this factor strongly weighs against transfer because Samsung identified in its initial disclosures both [redacted] in EDTX as possessing information relevant to marketing, financials, and damages.

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[redacted]

Supra at § II.B.1. In addition, (i) like [redacted] Samsung employee [redacted] (*see* Ex. 26 (LinkedIn)) used the accused STF technology in EDTX, (ii) SEA employee [redacted] and others in Samsung's EDTX-based consumer insights group possess relevant information regarding value drivers for consumers and damages, and (iii) [redacted]

Still further, Samsung employs at least the following 9 witnesses in EDTX with relevant knowledge regarding Samsung's development of its IoT platform for the STF technology and its location sharing. Ex. 4, Samsung Tr. at 25:21-26:9. Tellingly, Samsung's deponent could not deny their relevance. Ex. 4 at 147:10-161:25; Ex. 14 at 8 (Topics 1-2).

Samsung Employee	**Location**	**Title**	**Description**
[redacted]	Plano, TX	Digital Content Manager – SmartThings, IoT & Connected Devices	Managing all Samsung Mobile, IoT, and Tablet Technical Training and Learning Development for Samsung Contact Centers (Ex. 27 (LinkedIn))
[redacted]	Plano, TX	Head of Samsung IoT Strategy	"Managed the IoT Platform business … while driving comprehensive product strategy, ecosystem integration, and user experience enhancements" (Ex. 28 (LinkedIn))
[redacted]	Plano, TX	Director, National Retail Mobile Category Management	Formerly employed as "Director, IoT Product Management" in the relevant period of Nov. 2017-Feb. 2020 (Ex. 29 (LinkedIn))
[redacted]	Plano, TX	Sr. Software Quality Assurance Engineer	"[V]arious major applications of multiple Samsung devices … watch, wearables, IOT products" (Ex. 30 (LinkedIn))
[redacted]	Plano, TX	Staff – Engineering and Architecture	"IOT" and "Responsible for Systems Engineering, Customer Solution management" (Ex. 31 (LinkedIn))
[redacted]	Plano, TX	Engineer III-System Structure Design	"Cloud (RCS platform) native client IoT testing (interoperability testing with carriers and devices)" (Ex. 32 (LinkedIn))
[redacted]	Plano, TX	Director of Strategic Accounts	"[R]esponsible for … IoT … sales operations, sales revenue, marketing and business development" (Ex. 33 (LinkedIn))

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[redacted]	Plano, TX	Director, Systems and Performance Engineering	"Engineer with extensive international experience in … IoT" (Ex. 34 (LinkedIn))
[redacted]	Plano, TX	Hardware Engineer	Knowledgeable in NB-IoT (Ex. 35 (LinkedIn))

Samsung's heavy reliance on "Samsung's Korea-based witnesses" is misplaced. Mot., 11. This Court has correctly held that "[a]s it relates to witnesses from Korea, the difference of inconvenience is negligible." *Cardware*, 2023 U.S. Dist. LEXIS 62442, at *7-8. Moreover, *In re TikTok*, cited by Samsung, is not inconsistent, and is distinguishable. Mot., 11 (citing *In re TikTok, Inc.*, 85 F.4th 352, 361 (5th Cir. 2023)). There, unlike here, the parties agreed the case could have been brought in NDCA (*id*. at n.5), it involved travel from China to WDTX (not Korea to EDTX), and no "record evidence show[ed] that any employee in the Western District of Texas possesses proof relevant to this case" (*id*. at *360). In contrast, this case involves multiple witnesses in EDTX who possess relevant evidence. And, any increase in inconvenience to Korea-based witnesses is nominal in comparison to the inconvenience that will be borne by the EDTX-based witnesses if they are forced to travel to NDCA. *See Demaray*, 2021 U.S. Dist. LEXIS 222472, at *11 ("The inconvenience of foreign witnesses, who will have to travel a substantial distance to be present in any U.S. court, is weighted less heavily than that of domestic witnesses.") (citations omitted).

Samsung's reliance on STI employees is also unpersuasive. Mot., 11. As Samsung admits, they do not work on the accused STF technology; Samsung's witnesses in Korea do. *Id*. at 3.

Samsung's argument that Plaintiff and its sole member Jeff Mullen would find NDCA more convenient also fails. *Id*. at 12. Plaintiff and Mr. Mullen chose to file suit in EDTX and "[a]bsent ... a showing [by Samsung that transfer to NDCA is clearly more convenient], the plaintiff's choice of forum is to be respected." *Rembrandt Wireless Techs., LP v. Apple Inc.*, No. 2:19-cv-00025-JRG, 2019 U.S. Dist. LEXIS 205694, at *4 (E.D. Tex. Nov. 27, 2019).

Samsung's reliance on *In re Google* and *In re Samsung* is misplaced for the same reasons

identified above for the first private factor. Mot., 12. *Fujinomaki* cited by Samsung is also easily distinguished. Unlike the situation here, it considered a motion to transfer filed by party "Google Inc.," which is not a party here, and judicial economy favored transferring the Google action and the actions against non-Google defendants. *Fujinomaki v. Google, Inc.*, No. 2:15-cv-1381-JRG-RSP, 2016 U.S. Dist. LEXIS 63783, *5-6 (E.D. Tex. May 13, 2016). In addition, unlike here, the actions were transferred because "Plaintiff did not present meaningful countervailing or rebuttal evidence" and "no party identified any specific witness or evidence located in [EDTX]." *Id*.

Accordingly, this factor weighs heavily against transfer.

4. The Practical Problems Factor Weighs Against Transfer

This case has been pending for nearly 10 months and trial is set to begin in less than one year. Dkt. 30. The parties have served infringement and invalidity contentions, conducted source code review, and engaged in extensive written discovery and document production, with Plaintiff substantially completing its production and Samsung producing approximately 250,000 pages. The parties have also fully briefed Samsung's partial motion to dismiss. Dkt. 13, 23, 26.

Accordingly, this factor weighs against transfer because, to Plaintiff's prejudice, there will be no obligation for a NDCA court to adopt the current schedule nor to prevent Samsung from attempting to redo its contentions or to re-brief its partial motion to dismiss.

C. The Public Factors Weigh Against Transfer

1. EDTX's Local Interest Weighs Strongly Against Transfer

This Court has correctly held that this factor weighs against transfer where, as here, "Samsung has a significant presence in Plano, Texas which carries out testing on and marketing efforts over the accused products." *Cardware*, 2023 U.S. Dist. LEXIS 62442, at *9. EDTX's strong local interest is undeniable here because even Samsung's initial disclosures identify Samsung's EDTX employees, and Samsung's witness also could not deny the relevance of even more EDTX

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witnesses and evidence that Plaintiff has identified *supra* at § II.B.3. *See Jawbone*, 2022 U.S. Dist. LEXIS 157916, at *21 ("Samsung has failed to refute [plaintiff's] assertion that Samsung's presence in the district has a relation to the accused products.").

Contrary to Samsung's argument (Mot. 13), Samsung's EDTX-based evidence and employees who work on aspects of the accused products identified above demonstrate without serious question that Samsung has much more than a "general presence" in this District for purposes of this case. Samsung's reliance on non-party Google is also overstated and cannot override EDTX's local interest in this case resulting from Samsung's ties to this District. Finally, for the reasons discussed for the third private factor (willing witnesses), Samsung's reliance on STI is unpersuasive because Samsung admits STI does not work on the accused STF technology.

Accordingly, the local interest factor weighs against transfer.

2. Administrative Difficulties and Congestion Weigh Against Transfer

Courts view this factor as "the most speculative," albeit still relevant. *In re Genentech, Inc.*, 566 F.3d 1338, 1347 (Fed. Cir. 2009). This factor weighs against transfer because the median time to trial is shorter in EDTX than in NDCA (21 v. 26 months), and EDTX is far less congested (2,602 v. 11,495 cases). Ex. 36 at 1 and 6; *see also Cardware*, 2023 U.S. Dist. LEXIS 62442, at *8.

3. Familiarity With the Law and Conflict of Law Factors are Neutral

Plaintiff agrees that these factors are neutral.

D. Samsung was Unprepared for the 30(b)(6) Deposition and Its Motion Should Be Denied for This Independent Reason

Also undermining Samsung's motion is that Samsung's sole 30(b)(6) venue witness was woefully unprepared on numerous topics. Ex. 14 at 8-10 (Topics 1-2, 4-5, 7-10).

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[redacted]

Mr. Uptegrove was equally unprepared to discuss the evidence Plaintiff requested in venue discovery. Almost inconceivably, he admitted Samsung had not investigated what types of documents the [redacted] employees in Samsung's Plano, TX facility possess. *Id*. at 44:23-45:3, 54:7-12, 61:7-64:21, 127:12-25, 129:19-130:3, 132:19-133:10, 144:22-146:11. He also admitted that Samsung's interrogatory responses did not identify [redacted]

Furthermore, notwithstanding the relevance of Samsung's STF technology, [redacted]

Samsung and Mr. Uptegrove also did not investigate: (i) who at Samsung [redacted]

Samsung's failure to prepare its witness weighs against transfer. *E.g., Monterey Research, LLC v. Broadcom Corp.*, No. W-21-CV-00541-ADA, 2022 U.S. Dist. LEXIS 30364, at *9-10 (W.D. Tex. Feb. 21, 2022) (deposition revealed "little was done" to support venue allegations).

III. CONCLUSION

For the foregoing reasons, the Court should deny Samsung's motion to transfer to NDCA.

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Dated: November 15, 2024

Respectfully submitted,

/s/ Peter F. Snell

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CERTIFICATE OF SERVICE

I certify that, on November 15, 2024, I electronically filed the foregoing with the Clerk of Court using the CM/ECF system, which will send notification of such filing via electronic mail to all counsel of record.

/s/ Peter F. Snell
Peter F. Snell

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[redacted]

CERTIFICATE OF AUTHORIZATION TO FILE UNDER SEAL

I certify that this document is filed under seal pursuant to the Protective Order approved and entered into this case.

/s/ Peter F. Snell
Peter F. Snell

EXHIBIT 3

IN THE UNITED STATES DISTRICT COURT
FOR THE EASTERN DISTRICT OF TEXAS
MARSHALL DIVISION

MULLEN INDUSTRIES LLC, *Plaintiff*, v. SAMSUNG ELECTRONICS CO., LTD., and SAMSUNG ELECTRONICS AMERICA, INC., *Defendants*.	§ § § § § § § § § §	No. 2:24-cv-00049-JRG JURY TRIAL DEMANDED

DEFENDANTS SAMSUNG ELECTRONICS CO., LTD. AND SAMSUNG ELECTRONICS AMERICA, INC.'S SUPPLEMENTAL INITIAL DISCLOSURES



Pursuant to Rule 26(a)(1) of the Federal Rules of Civil Procedure, the Local Rules of this Court, the Discovery Order (D.I. 29), and the Docket Control Order (D.I 30), Defendants Samsung Electronics Co., Ltd, and Samsung Electronics America, Inc. (collectively "Samsung" or "Defendants") make the following supplementations to Paragraph 1 Initial Disclosures and Paragraph 3 Additional Disclosures to Plaintiff Mullen Industries LLC ("Mullen" or "Plaintiff"). Samsung submits these Initial Disclosures based upon information that Samsung has acquired to date based on its ongoing investigation. At this time, discovery is in its earliest stages. Samsung reserves the right to modify, amend, and/or supplement these disclosures as appropriate based upon further evaluation of facts and evidence in its possession and as additional evidence and information becomes available in accordance with Rule 26(e) of the Federal Rules of Civil Procedure. Samsung expressly does not waive attorney-client privilege, work product protection, or any other applicable privilege through these disclosures, nor does it waive its right to object on proper grounds to any discovery request relating to the subject matter of these disclosures.

I. INFORMATION REQUIRED UNDER PARAGRAPH 1 OF THE COURT'S DISCOVERY ORDER

1-(a) The Correct Names of the Parties to the Lawsuit

The correct names of the Defendants are: Samsung Electronics Co. Ltd. and Samsung Electronics America, Inc. Samsung refers to Mullen's disclosures regarding the correct names of other parties to the lawsuit.

1-(b) The Name, Address, and Telephone Number of Any Potential Parties

Samsung is not currently aware of any potential parties to this lawsuit. Because the identities of potential parties may be revealed through discovery in this matter, Samsung specifically reserves the right to identify potential parties as discovery proceeds and to join such potential parties, upon satisfying the requisite good cause standard, if necessary.

and equitable estoppel), waiver (including implied waiver), fraud, breach of contract, acquiescence, patent misuse, and/or unclean hands.

License, Implied License, Exhaustion, First Sale. Mullen's claims of infringement by Samsung are barred or limited to the extent that any supplier(s) of components within the accused Samsung products are licensed under the Asserted Patent.

Lack of Entitlement to Injunctive Relief. To the extent Mullen is entitled to any relief, Mullen is not entitled to injunctive relief because it has not and will not suffer any irreparable injury, remedies available at law are adequate to compensate any alleged injury, the balance of hardships does not favor an injunction, and the public interest would be disserved by a permanent injunction.

Exceptional Case. Samsung should receive its fees and costs pursuant to 35 U.S.C. § 285, as this is an exceptional case. Samsung is presently unable to compute these costs, as the majority of them have not yet accrued, but Samsung will provide computations of such costs at an appropriate time.

1-(d) Persons Having Knowledge of Relevant Facts

Based on the information currently available to Samsung, the following persons having knowledge of relevant facts. Samsung reserves the right to supplement this disclosure, particularly the identification of knowledgeable Samsung employees as discovery progresses in this action. Any employees of Samsung (and its affiliates) identified below should be contacted through the undersigned counsel. In addition, Samsung reserves the right to have any former employees represented by the undersigned counsel. The following list should not be interpreted to be an exhaustive list of the possible information known, as an admission that any of the identified

MATERIAL SUBJECT TO A PROTECTIVE ORDER HAS BEEN DELETED

Name	Contact Information	Subject(s)
[redacted] Samsung Electronics Co., Ltd.	Contact through counsel for Samsung	May have information regarding technical aspects and development of Samsung's accused products, including design, structure, operation, function, and deployment.
[redacted] Samsung Electronics America, Inc.	Contact through counsel for Samsung	May have information regarding Samsung's marketing or business information relating to Samsung's accused products.
[redacted] Samsung Electronics America, Inc.	Contact through counsel for Samsung	May have information regarding Samsung's financial data or business information relating to Samsung's accused products.
One or more employees of SmartThings Inc.	Contact through counsel for Samsung	May have information regarding technical aspects and development of Samsung's accused products, including design, structure, operation, function, and deployment.
Google LLC	On information and belief, Google LLC's contact information is: 1600 Amphitheatre Parkway Mountain View, CA 94043	May have general information regarding technical aspects and development of accused Google features, software, and technologies, including with respect to Google Maps.

by Rule 26(a)(2).

1-(e) Indemnity and Insuring Agreements

Manufacturers, suppliers, vendors, and/or designers of components within the accused Samsung products may have indemnity obligations to Samsung.

1-(f) Settlement Agreements Relevant to This Action

Samsung submits that settlement agreements relevant to this action are better known to Mullen than to Samsung. Samsung is unaware of any settlement agreements relevant to this action.

1-(g) Statements of Any Parties to the Litigation

Samsung identifies the parties' pleadings, disclosures, and contentions. Samsung is currently unaware of further statements of any party to the litigation, and expressly reserves its right to supplement these disclosures as discovery progresses.

II. ADDITIONAL INFORMATION REQUIRED UNDER PARAGRAPH 3 OF THE COURT'S DISCOVERY ORDER

3-(a) Patent Rules Disclosures

Samsung intends to serve its P.R. 3-3 disclosures on Mullen by the date specified in the Docket Control Order and any amendments thereto.

3-(b) Document Production

Concurrently with these disclosures, Samsung has made a document production and will continue to produce relevant non-privileged documents expeditiously and on a rolling basis as discovery progresses.

3-(c) Statements of Any Parties to the Litigation

Samsung expects that it will seek fees and costs, including attorneys' fees, and such other and further relief as the Court deems proper.

Dated: July 19, 2024

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Attorneys for Defendants Samsung Electronics Co., Ltd., and Samsung Electronics America, Inc.

CERTIFICATE OF SERVICE

I certify that a true and correct copy of the above and foregoing document was served on counsel for Mullen Industries LLC via electronic delivery on July 19, 2024.

/s/ Brian Treggs
Brian Treggs

IN THE UNITED STATES DISTRICT COURT
FOR THE EASTERN DISTRICT OF TEXAS
MARSHALL DIVISION

MULLEN INDUSTRIES LLC, *Plaintiff,* v. SAMSUNG ELECTRONICS CO., LTD., and SAMSUNG ELECTRONICS AMERICA, INC., *Defendants.*	Case No. 2:24-cv-00049-JRG **JURY TRIAL DEMANDED**

MULLEN INDUSTRIES LLC'S
SECOND AMENDED COMPLAINT FOR PATENT INFRINGEMENT

Plaintiff Mullen Industries LLC ("Mullen Industries" or "Plaintiff") for its Second Amended Complaint against Defendant Samsung Electronics Co., Ltd. ("SEC") and Defendant Samsung Electronics America, Inc. ("SEA", and collectively with SEC, "Samsung" or "Defendants") for patent infringement under 35 U.S.C. § 271 relating to U.S. Patent Nos. 11,246,024 (the "'024 Patent"), 11,234,117 (the "'117 Patent"), 11,190,633 (the "'633 Patent"), 11,122,418 (the "'418 Patent"), 11,109,218 (the "'218 Patent"), 11,096,039 (the "'039 Patent"), 9,204,283 (the "'283 Patent"), and 8,374,575 (the "'575 Patent" and collectively, the "Patents-in-Suit") alleges as follows:

INTRODUCTION

1. The Patents-in-Suit are directed to technological advancements and security improvements in regards to mobile phones, tablets, smart watches, wireless computers, and server systems. The Patents-in-Suit and additional patented and patent pending technology arose from the research and development of Jeff Mullen and his company Mullen Industries LLC.

2. Jeff Mullen is an inventor, technologist, electrical and computer engineer, MBA graduate, and founder of Mullen Industries LLC.

3. Jeff Mullen has innovated prolifically across a wide array of technologies since the early 2000s, including, for example, with regard to wireless and cellular communications systems and devices, security improvements regarding the same, augmented reality and virtual reality devices, and autonomous defense systems.

4. By way of example, the Patents-in-Suit identify problems that existed in the art of mobile devices and global positioning system technology. *ee, e.* ., '418 Patent at 1:28-33. To address these problems, the Patents-in-Suit disclose technological advancements and security improvements in regards to, for example, "systems and methods … for locating cellular phones … [and] for allowing a user of a cellular phone … to locate the position of a different user's cellular phone … based upon requestor-assigned access rights." *ee, e.* ., '418 Patent at 1:37-43.

5. The Patents-in-Suit teach, for example, that "[i]n order for users to be identified by other users' cell phones or locating devices a user profile may need to be stored remotely from such devices. In such instances user profiles would be used as the locating identifier and the devices into which these profiles are logged into (recognized by) would allow for the user to be located." *d*. at 9:53-65; *see als* 2:59-3:13, 11:3-24, 12:42-13:3.

6. The Patents-in-Suit disclose, for example, wireless devices that communicate with a backend server system to provide location-based services and features. For example, the Patents-in-Suit teach a mobile device that can receive and display location information regarding another mobile device by "contact[ing] the remote database, hav[ing] his/her identity recognized, hav[ing] his/her access rights for the requested user location determined, and, if the requesting user has the correct access rights, be[ing] provided with the requested user's location." *d*. at 5:11-44.

7. The Patents-in-Suit describe additional technological advancements and security improvements in regards to wireless devices and server systems. For example, the Patents-in-Suit describe that "different types of access levels may be provided that allow a user to filter location information to a different user." *ee id*. at 1:49-54. Such access rights can vary, for example, by time (e.g., location is only accessible for a certain amount of time) or place (e.g., only an approximate location, but not an exact location, may be accessed). *d*. at 1:55-2:2.

8. As additional examples, the Patents-in-Suit solve technical challenges related to receiving and providing event notifications and location-based information, such as location markers on a map, navigable directions, and distance information, on mobile devices with small display screens. . ., *id*. at 2:22-34, 8:6-21; '633 Patent at 1:47-2:11.

SAMSUNG'S WILLFUL INFRINGEMENT

9. Jeff Mullen's patented innovations have been widely cited by others. By way of example, the Patents-in-Suit have been cited well over 100 times by others in U.S. Patent Office proceedings.

10. On information and belief, Samsung has possessed knowledge of the Patents-in-Suit and Samsung's infringement thereof since before the filing of the Complaint (Dkt. 1).

11. For example, before the filing of the original Complaint, Samsung and/or its subsidiaries and/or representatives conducted one or more meetings with Jeff Mullen.

12. On information and belief, as a result of such one or more meetings, Samsung as a large technology company has possessed knowledge of and monitored the patents and patent applications invented by Jeff Mullen, including the patent applications that ultimately issued as the Patents-in-Suit. On information and belief, as a result of such monitoring, Samsung became aware of each Patent-in-Suit before the filing of the original Complaint. In addition, on

information and belief, Samsung knew that at least Samsung phones, tablets, and servers, which include location-based technologies including at least the ones referenced in this Complaint (e.g., Samsung SmartThings Find), and Samsung watches, which include motion-sensing and notification technologies including at least the ones referenced in this Complaint, infringed the Patents-in-Suit on each date that Samsung incorporated such infringing technologies into Samsung phones, tablets, watches, and servers.

13. On information and belief, Samsung also possessed knowledge of the Patents-in-Suit and of Samsung's infringement thereof before the filing of the original Complaint as a result of Samsung's industry monitoring efforts and corresponding knowledge of Mullen Industries LLC's prior patent infringement suit against Apple Inc., which is Samsung's primary competitor with regard to at least Samsung phones, tablets, watches, and servers. On information and belief, Samsung possessed knowledge of the Patents-in-Suit and of Samsung's infringement thereof upon learning of Mullen Industries LLC's prior suit against Apple Inc. because the prior suit was directed to the same Patents-in-Suit that are the subject of the original Complaint, as well as location-based technologies in Apple phones, tablets, watches, and servers, and motion-sensing and notification technologies in Apple watches, that are similar to the corresponding technologies that Samsung provides in the Samsung phones, tablets, watches, and servers that are the subject of the original Complaint. *ee M llen nd stries . le n .*, 6:22-cv-00145 (W.D. Tex.), Dkt. 1 (Complaint dated February 9, 2022); *see als M llen nd stries . le n .*, 6:22-cv-00145 (W.D. Tex.), Dkt. 25 (Amended Complaint dated May 6, 2022).

14. On information and belief, as a large technology company, Samsung analyzed each of the Patents-in-Suit when it became aware of each such patent and determined how its products

infringed at that time and in each instance thereafter in which Samsung incorporated the infringing technologies into Samsung's phones, tablets, watches, and servers.

15. Notwithstanding Samsung's knowledge of the Patents-in-Suit and Samsung's infringement thereof, Samsung has and continues to willfully infringe the Patents-in-Suit.

16. On information and belief, as a large technology company, to the extent Samsung failed to investigate its infringement upon learning of the Patents-in-Suit, Samsung has been willfully blind.

17. On information and belief, Samsung has and continues to willfully infringe each of the Patents-in-Suit notwithstanding that Samsung knew or should have known, both before and after the filing of the original Complaint, that its actions constituted an unjustifiably high risk of infringement, and notwithstanding that the risk of Samsung's infringement of the Patents-in-Suit was either known to Samsung or so obvious that it should have been known to Samsung both before and after the filing of the original Complaint.

18. On information and belief, Samsung's infringement of the Patents-in-Suit has and continues to be willful, wanton, malicious, bad-faith, deliberate, consciously wrongful, and flagrant.

THE PARTIES

MULLEN INDUSTRIES LLC

19. Plaintiff Mullen Industries LLC is a limited liability company organized and existing under the laws of the State of Delaware.

SAMSUNG

20. On information and belief, Defendant Samsung Electronics Co., Ltd. ("SEC") is a company organized and existing under the laws of the Republic of Korea, with its principal place of business located at 129 Samsung-Ro, Yeongtong-Gu, Suwon-Shi, Gyeonggi-Do, 16677,

Republic of Korea. On information and belief, SEC's Information Technology & Mobile Communications division is responsible for the design, manufacture, testing, and sale of Samsung mobile devices, such as phones, tablets, and watches, and related servers, software and applications, around the world including in the United States.

21. On information and belief, Defendant Samsung Electronics America, Inc. ("SEA") is a corporation organized and existing under the laws of the State of New York with its principal place of business at 85 Challenger Road, Ridgefield Park, New Jersey 07660. On information and belief, SEA is a wholly owned subsidiary of SEC. SEA has business locations in this District, including at 6625 Excellence Way, Plano, Texas 75023 and 2601 Preston Road, Frisco, Texas 75034. On information and belief, Defendant SEA is responsible for the design, manufacture, testing, and sale of Samsung mobile devices, such as phones, tablets, and watches, and related servers, software and applications, in the United States, including in this District. Defendant SEA may be served at least via its registered agent for service of process in Texas, CT Corporation System, 1999 Bryan Street, Suite 900, Dallas, Texas 75201.

JURISDICTION AND VENUE

22. This is an action for patent infringement arising under the patent laws of the United States, 35 U.S.C. §§ 1, *et se* . This Court has exclusive subject matter jurisdiction over this action under 28 U.S.C. §§ 1331 and 1338(a).

23. This Court has personal jurisdiction over Samsung. Samsung regularly conducts business and has committed acts of patent infringement within this judicial District and the State of Texas that give rise to this action and has established minimum contacts with this forum such that exercise of jurisdiction over Samsung would not offend traditional notions of fair play and substantial justice. Samsung has committed and continues to commit acts of infringement in this

District and State by, among other things, offering to sell, selling, using (e.g., testing), importing, having made, and making products and services that infringe the Patents-in-Suit.

24. Venue is proper in this District under 28 U.S.C. §§ 1391 and 1400. Samsung is registered to do business in Texas and, upon information and belief, Samsung has transacted business in this District, has committed acts of direct infringement in this District, and has regular and established places of business in this District as set forth above.

25. For example, on information and belief, SEA maintains regular and established places of business in this District, including at 6625 Excellence Way, Plano, Texas 75023 and 2601 Preston Road, Frisco, Texas 75034 and has committed acts of infringement in this District. Further, on information and belief, SEC directs and controls the actions of SEA such that it too maintains regular and established places of business in this District, including at 6625 Excellence Way, Plano, Texas 75023 and 2601 Preston Road, Frisco, Texas 75034 and has committed acts of infringement in this District.

26. Additionally, venue is proper as to SEC, a foreign corporation, because suits against foreign entities are proper in any judicial district under 28 U.S.C. § 1391(c)(3).

27. Samsung is subject to this Court's jurisdiction pursuant to due process and the Texas Long Arm Statute due at least to its substantial business in this State and District, including (a) at least part of its past infringing activities, (b) regularly doing or soliciting business in Texas, and/or (c) engaging in persistent conduct and/or deriving substantial revenue from goods and services provided to customers in Texas.

28. Defendants have not contested proper venue and exercise of personal jurisdiction in this District for patent infringement actions in the past. See, e.g., Answer, ¶¶ 13, 18, *al. nst. e . . a s n le s. ., td. et al.*, No. 2:21-cv-00446, Dkt. 19 (E.D. Tex. Apr. 5, 2022);

Answer to Amended Complaint, ¶¶ 6, 7, *Applications, Inc. v. Apple Inc., et al.*, No. 2:21-cv-00186, Dkt. 27 (E.D. Tex. Dec. 9, 2021).

THE PATENTS-IN-SUIT

29. On January 25, 2022, the United States Patent and Trademark Office duly and legally issued U.S. Patent No. 11,234,117 (the "'117 Patent") entitled "Systems and Methods for Locating Cellular Phones and Security Measures for the Same." A true and correct copy of the '117 Patent is attached hereto as Exhibit 1.

30. On November 30, 2021, the United States Patent and Trademark Office duly and legally issued U.S. Patent No. 11,190,633 (the "'633 Patent") entitled "Systems and Methods for Providing Remote Incoming Call Notification for Cellular Phones." A true and correct copy of the '633 Patent is attached hereto as Exhibit 2.

31. On September 14, 2021, the United States Patent and Trademark Office duly and legally issued U.S. Patent No. 11,122,418 (the "'418 Patent") entitled "Systems and Methods for Locating Cellular Phones and Security Measures for the Same." A true and correct copy of the '418 Patent is attached hereto as Exhibit 3.

32. On August 31, 2021, the United States Patent and Trademark Office duly and legally issued U.S. Patent No. 11,109,218 (the "'218 Patent") entitled "Systems and Methods for Locating Cellular Phones and Security Measures for the Same." A true and correct copy of the '218 Patent is attached hereto as Exhibit 4.

33. On August 17, 2021, the United States Patent and Trademark Office duly and legally issued U.S. Patent No. 11,096,039 (the "'039 Patent") entitled "Systems and Methods for Locating Cellular Phones and Security Measures for the Same." A true and correct copy of the '039 Patent is attached hereto as Exhibit 5.

34. On December 1, 2015, the United States Patent and Trademark Office duly and legally issued U.S. Patent No. 9,204,283 (the "'283 Patent") entitled "Systems and Methods for Locating Cellular Phones and Security Measures for the Same." A true and correct copy of the '283 Patent is attached hereto as Exhibit 7.

35. On February 12, 2013, the United States Patent and Trademark Office duly and legally issued U.S. Patent No. 8,374,575 (the "'575 Patent") entitled "Systems and Methods for Locating Cellular Phones and Security Measures for the Same." A true and correct copy of the '575 Patent is attached hereto as Exhibit 8.

36. On February 8, 2022, the United States Patent and Trademark Office duly and legally issued U.S. Patent No. 11,246,024 (the "'024 Patent") entitled "Systems and Methods for Locating Cellular Phones and Security Measures for the Same." A true and correct copy of the '024 Patent is attached hereto as Exhibit 9.

37. Mullen Industries LLC is the sole and exclusive owner of all right, title, and interest in and to the Patents-in-Suit, and holds the exclusive right to take all actions necessary to enforce its rights to the Patents-in-Suit, including the filing of this action. Mullen Industries LLC also has the right to recover all damages for past, present, and future infringement of the Patents-in-Suit.

38. Pursuant to and because Plaintiff, the present owner of the Patents-in-Suit, and Jeff Mullen, the prior owner of the Patents-in-Suit, have complied with 35 U.S.C. §§ 286 and 287(a), Plaintiff is entitled to past damages for Samsung's infringement beginning six years prior to the filing date of the original Complaint. Plaintiff is also entitled to damages for Samsung's continuing infringement until the expiration of the last to expire of the Patents-in-Suit.

COUNT I
INFRINGEMENT OF U.S. PATENT NO. 11,234,117

39. All of the preceding paragraphs of this Complaint are incorporated by reference as

if fully set forth herein.

40. Plaintiff has not licensed or otherwise authorized Samsung to make, have made, use, offer for sale, sell, export, or import any products that embody the inventions of the '117 Patent.

41. Samsung has directly infringed the '117 Patent, either literally or under the doctrine of equivalents, without authority and in violation of 35 U.S.C. § 271, by making, using, offering to sell, selling, exporting from, and/or importing into the United States products that satisfy each and every limitation of one or more claims of the '117 Patent.

42. On information and belief, Samsung's products that infringe the '117 Patent include at least Samsung's mobile phones and tablet computers. E.g., https://www.samsung.com/us/smartphones/; https://www.samsung.com/us/tablets/. Collectively, the Samsung products that infringe the '117 Patent are referred to as the "'117 Accused Products."

43. Samsung has directly infringed one or more claims of the '117 Patent, including at least claims 1-92 of the '117 Patent, by making, using (e.g., testing), offering to sell, selling, and/or importing into the United States the accused Samsung phones and tablets.

44. For example, Samsung has directly infringed claim 15 of the '117 Patent. Each of the '117 Accused Products comprises a wireless telephone. Each Samsung phone is capable of, for example, supporting telephonic communications over cellular networks including 5G. E.g.:[1,2,3]

[1] https://www.samsung.com/us/smartphones/galaxy-s23/buy/galaxy-s23-128gb-unlocked-sm-s911uliaxaa/.

[2] https://www.samsung.com/us/smartphones/galaxy-s22/buy/galaxy-s22-128gb-verizon-sm-s901ulvavzw/?modelCode=SM-S901ULVAVZW.

[3] https://www.samsung.com/us/mobile/phones/galaxy-a54/buy/?modelCode=SM-A546UZKAATT.

Galaxy S23 Unlocked | Lavender

SM-S911U1 / SM-S911ULIAXAA | ★★★★★ 4.6 (3258)



Cellular & Wireless

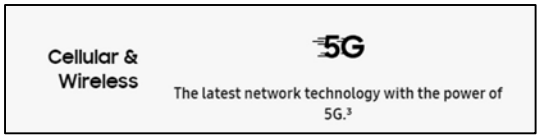
5G

The latest network technology with the power of 5G.[3]

Galaxy S22 Verizon | 128GB | Bora Purple | Learn more

SM-S901ULVAVZW / SM-S901ULVAVZW | ★★★★★ 3.8 (36)





Galaxy A54 5G Unlocked | 128GB | Awesome Graphite

SM-A546U1 / SM-A546UZKBXAA | ★★★★★ 4.5 (1032) Write a Review



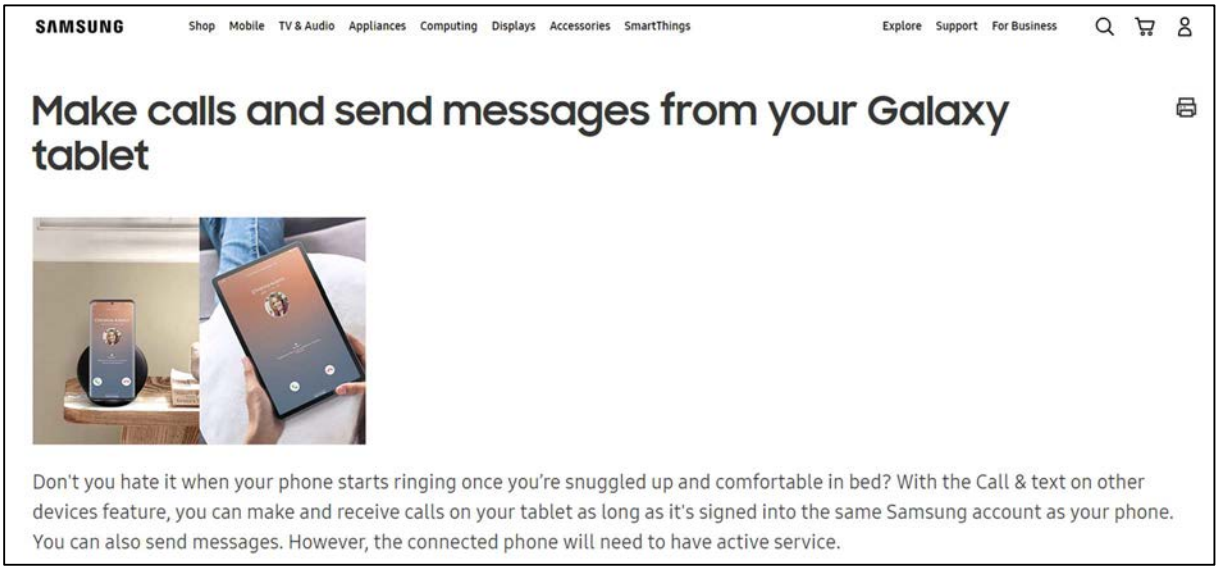
Powerful 5G* performance

Do what you love most — playing games, watching movies or posting photos — at the speed of life with Galaxy A54 5G. Our best of Galaxy A Series powers your day with an impressive processor and virtually lag-free 5G.*

45. As another example, each Samsung tablet is likewise capable of supporting wireless

telephonic communications over, for example, Wi-Fi or cellular networks such as 5G. E.g.:[4,5]

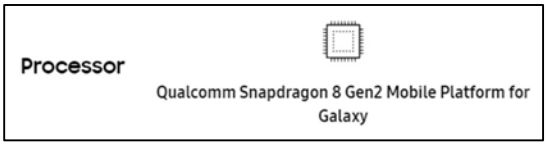




[4] https://www.samsung.com/us/tablets/galaxy-tab-s9/.

[5] https://www.samsung.com/us/support/answer/ANS00083152/.

46. Each of the ’117 Accused Products comprises a processor. For example, Samsung Galaxy S23 phones include a Snapdragon 8 Gen 2 Mobile Platform system-on-chip processor. E.g.:[6]



47. As another example, Samsung Galaxy S22 phones include a Snapdragon 8 Gen 1 system-on-chip processor. E.g.:[7]



48. As another example, Samsung A54 phones include an Exynos 1380 system-on-chip processor. E.g.:[8]



[6] https://www.samsung.com/us/smartphones/galaxy-s23/buy/galaxy-s23-128gb-unlocked-sm-s911uliaxaa/.

[7] https://www.samsung.com/us/smartphones/galaxy-s22/buy/galaxy-s22-128gb-verizon-sm-s901ulvavzw/?modelCode=SM-S901ULVAVZW.

[8] https://semiconductor.samsung.com/us/processor/showcase/smartphone/.

49. As another example, Samsung Galaxy Tab S9 Ultra tablet computers include a Snapdragon 8 Gen 2 processor. E.g.:[9]



50. Each of the '117 Accused Products comprises a positioning system for determining a location of the device. For example, Samsung phones and tablets include a global positioning system ("GPS"). E.g.:[10,11]

> **Your Galaxy phone includes a GPS antenna to track real-time location data. You can easily turn on and off location service on your phone. You can also improve location accuracy to get more accurate location services. See how easy it is to enable and set up your location settings below.**



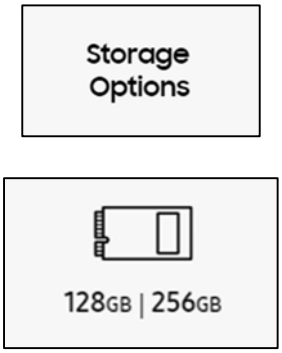
[9] https://www.samsung.com/us/tablets/galaxy-tab-s9/.

[10] https://www.samsung.com/latin_en/support/mobile-devices/how-to-activate-my-location-and-change-settings-for-location-permissions/.

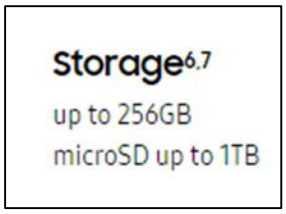
[11] https://downloadcenter.samsung.com/content/PM/202308/20230808065803698/EB/SAM_X710_X810_X818_X910_EN_FINAL_230624/location_d1e8811.html.

51. As another example, the '117 Accused Products are operable to determine a location of the device on the basis of, for example, Wi-Fi signals in the vicinity of the device.[12]

52. Each of the '117 Accused Products comprises memory storing programming. For example, each Samsung phone and tablet includes memory for storing programming capable of executing on the phone or tablet, respectively. Each Samsung Galaxy S23 and Galaxy S22 phone includes the following storage capacity, including for the Android operating system ("OS") and applications. E.g.:[13]



53. As another example, the Samsung Galaxy Tab S9 includes the following storage capacity, including for an OS and applications. E.g.:[14]



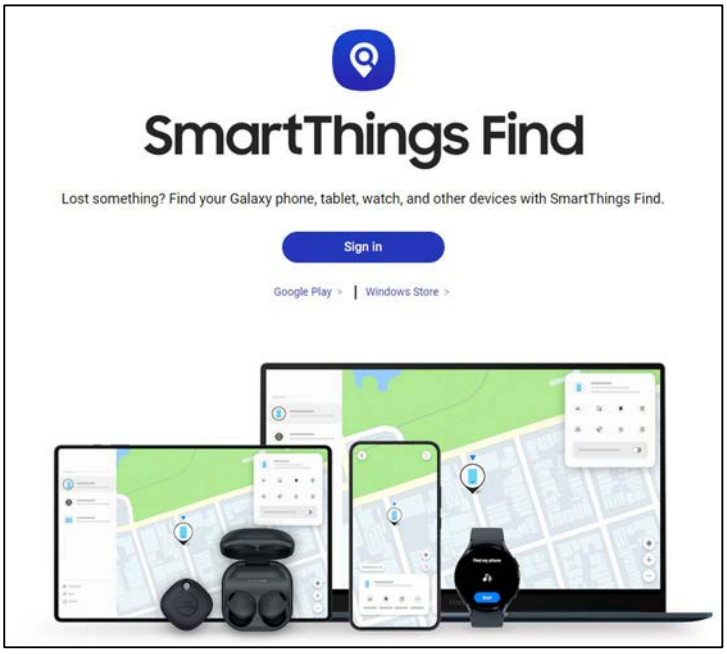
54. Each of the '117 Accused Products stores programming in its memory capable of

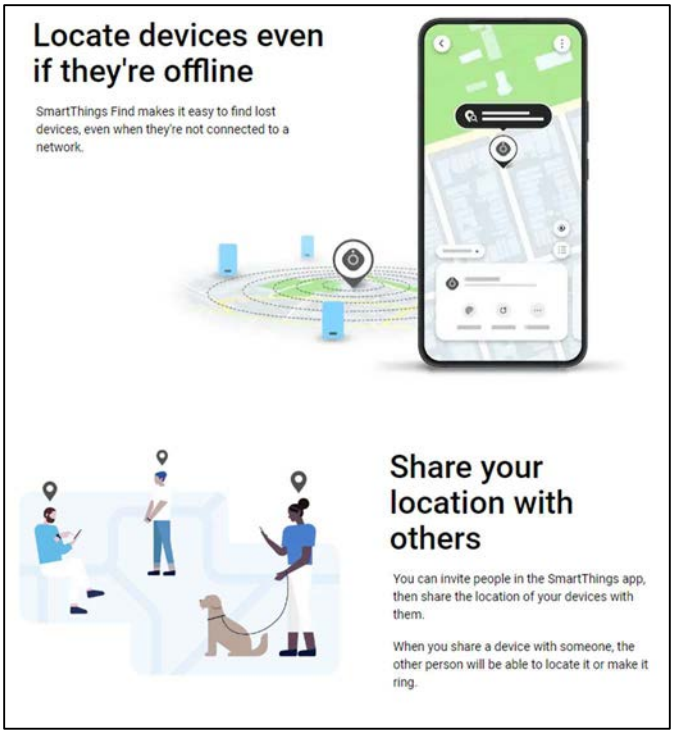
[12] E.g., https://downloadcenter.samsung.com/content/PM/202308/20230808065803698/EB/SAM_X710_X810_X818_X910_EN_FINAL_230624/location_d1e8811.html.

[13] https://www.samsung.com/us/smartphones/galaxy-s22/buy/galaxy-s22-128gb-verizon-sm-s901ulvavzw/?modelCode=SM-S901ULVAVZW (Galaxy S22); see also https://www.samsung.com/us/smartphones/galaxy-s23/buy/galaxy-s23-128gb-unlocked-sm-s911uliaxaa/ (Galaxy S23).

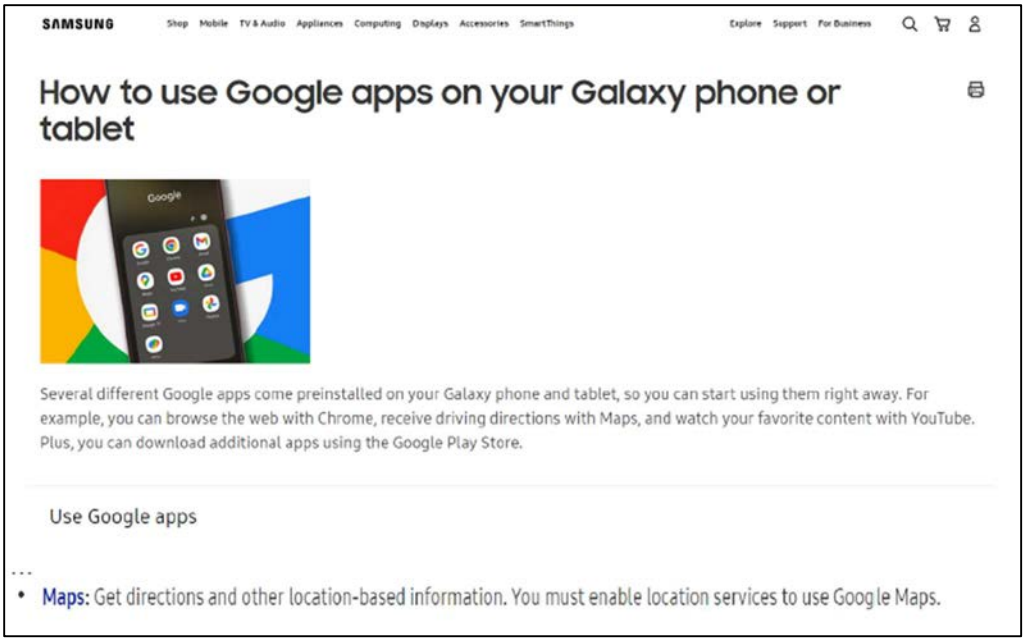
[14] https://www.samsung.com/us/tablets/galaxy-tab-s9/.

providing location-based services and features including, for example, Samsung SmartThings Find and Google Maps. E.g.:[15]





[15] https://smartthingsfind.samsung.com/login?result=true; https://www.samsung.com/us/support/answer/ANS00089082/.

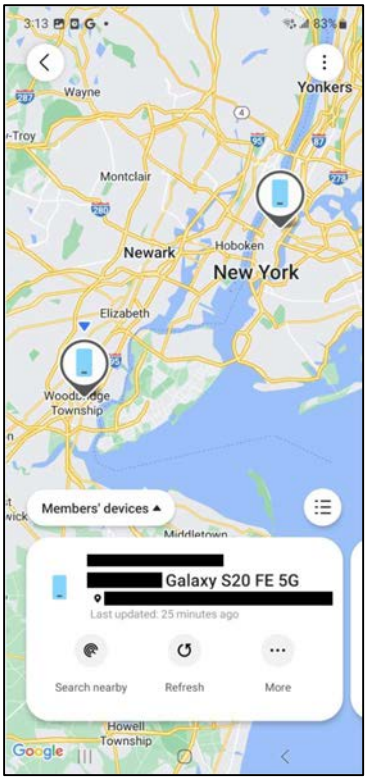


55. On information and belief, Samsung SmartThings Find is installed on at least Samsung phones and tablets.

56. On information and belief, Google Maps is installed on at least Samsung phones, tablets, and watches.

57. Each of the ’117 Accused Products includes programming capable of displaying a plurality of users, wherein each one of said plurality of users is associated to a different one of a plurality of wireless telephones.

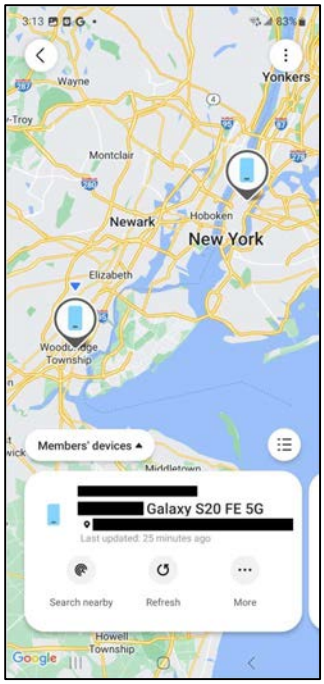
58. For example, each of the ’117 Accused Products includes Samsung SmartThings Find programming and Google Maps programming capable of displaying a plurality of users, wherein each one of said plurality of users is associated to a different one of a plurality of wireless telephones. E.g.:



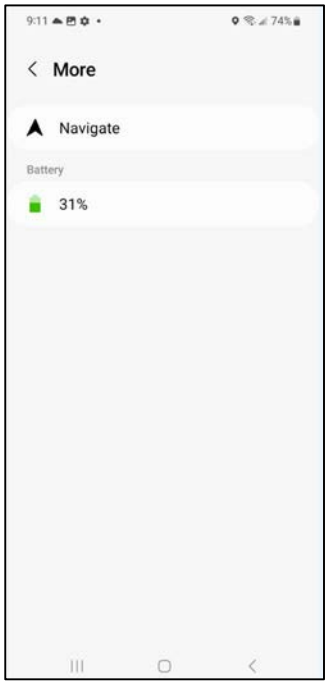
Samsung A54 phone (Redacted screen shot showing the display in Samsung SmartThings Find of a first user (center-left portion of the display) and a second user (top-right portion of the display)).

59. Each of the ’117 Accused Products comprises programming capable of receiving a first manual input in a form of a selection of one of said plurality of users.

60. For example, each of the ’117 Accused Products comprises Samsung SmartThings Find programming and Google Maps programming capable of receiving a first manual input in a form of a selection of one of said plurality of users. E.g.:



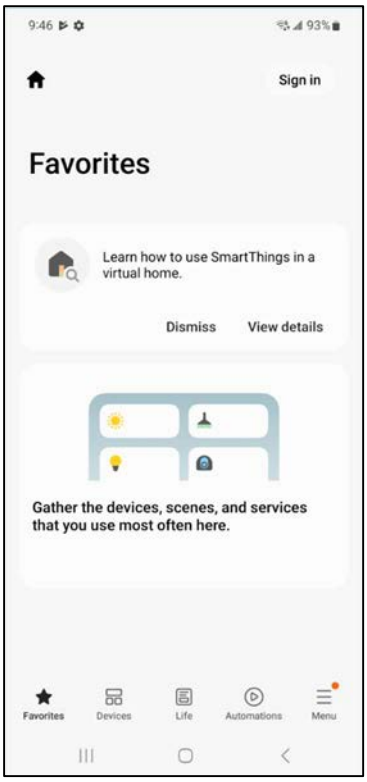
Samsung A54 phone (Redacted screen shot showing the display of a plurality of users, each of which can be manually selected by a user of the Samsung A54 phone).



Samsung A54 phone (Screen shot showing the display in Samsung SmartThings Find of an option to "Navigate" to a particular user's location, which display is provided after a user of the Samsung A54 phone manually selects that particular user from a map display in Samsung SmartThings Find).

61. Each of the ’117 Accused Products comprises programming capable of receiving an input in a form of a login and a second manual input in a form of a password.

62. For example, each of the ’117 Accused Products comprises Samsung SmartThings Find programming and Google Maps programming capable of receiving an input in a form of a login and a second manual input in a form of a password. E.g.:



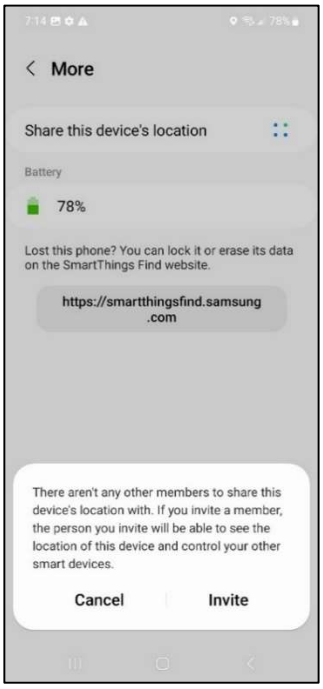
Samsung A54 phone (Screen shot showing that a user must “Sign in” (using a login and password) to access Samsung SmartThings Find location-based features).

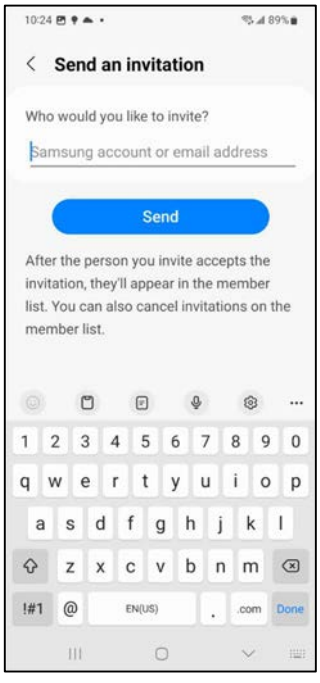
63. Each of the ’117 Accused Products comprises programming capable of providing said login and said password to a remote server for use in determining whether to allow access of location information for said one of said plurality of wireless telephones associated to said selected one of said plurality of users, said determining including identifying a user of said wireless telephone using said login, determining said password is associated with said login, and determining whether said selected one of said plurality of users has provided access rights for said

location information to said user of said wireless telephone. For example, each Samsung phone and Samsung tablet programmed with the location-based services and features of Samsung SmartThings Find and Google Maps, is capable of providing the device user's login and associated password to a server, which determines on the basis of such information whether the selected one of said plurality of users has provided to said device user access rights for said location information of said selected one of said plurality of users. Only specific authenticated users associated with specific logins are permitted to access another user's location information.

64. Each of the '117 Accused Products comprises programming capable of assigning location access rights to said one of said plurality of wireless telephones associated with said selected one of said plurality of users for obtaining said location of said wireless telephone.

65. For example, each Samsung phone and Samsung tablet programmed with the location-based services and features of Samsung SmartThings Find and Google Maps is capable of displaying an option for a device user to assign location access rights to a selected one of a plurality of users. E.g.:

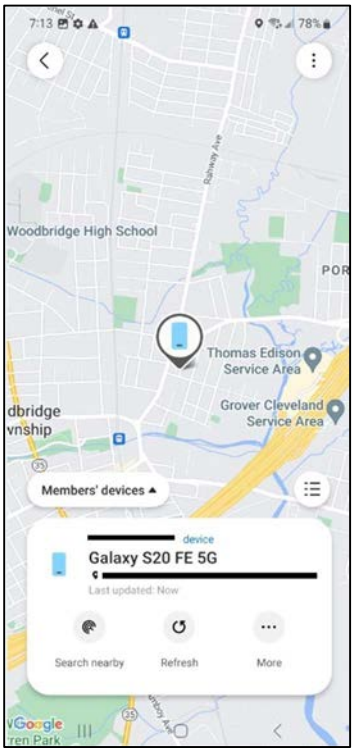




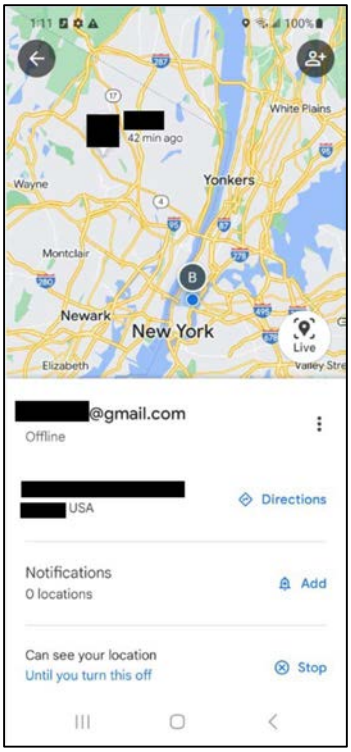
Samsung A54 phone (Screen shots showing the capability to assign to another user in Samsung SmartThings Find location access rights to see the Samsung A54 phone's location).

66. Each of the '117 Accused Products comprises programming capable of receiving said location information for said one of said plurality of wireless telephones from a server and displaying said location information.

67. For example, each Samsung phone and Samsung tablet programmed with the location-based services and features of Samsung SmartThings Find and Google Maps is capable of receiving from a server and displaying location information for a selected one of the plurality of wireless telephones on, for example, a map. E.g.:



Samsung A54 phone (Redacted screen shot showing the display in Samsung SmartThings Find of a location of another user).



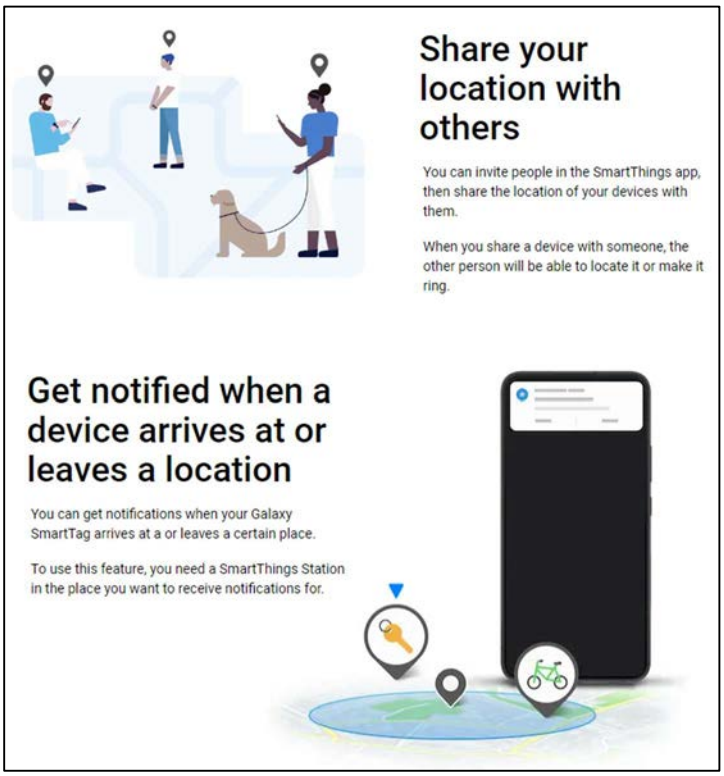
Samsung Galaxy S23 (Screen shot showing the display in Google Maps of a first user (redacted black square) and a second user (identified as "B")).

68. Samsung has also indirectly infringed the '117 Patent by actively inducing and contributing to the infringement of the '117 Patent by others, including customers, resellers, and retailers. On information and belief, Samsung had knowledge of the '117 Patent and of its infringement thereof before the filing of the original Complaint for at least the reasons described above in paragraphs 9-18.

69. On information and belief, Samsung has specifically induced and intended others, such as customers, resellers, and retailers, to infringe the '117 Patent by, for example, using or selling the '117 Accused Products, and knew that such others perform acts that constituted direct infringement. For example, Samsung has provided instructions to its customers regarding the infringing use and operation of the '117 Accused Products. When others have followed such instructions, they have directly infringed one or more claims of the '117 Patent. By providing such instructions, Samsung knew and intended that others would follow such instructions, and thereby

directly infringe one or more claims of the '117 Patent. Thus, Samsung knew that its actions actively induced infringement by others.

70. For example, Samsung has instructed end users how to open and use Samsung SmartThings Find, for example, for sharing location information with others. E.g.:[16]



71. As another example, Samsung has and continues to instruct end users how to open and use Google Maps, for example, to find one's family and friends on a map. E.g.:[17,18]

[16] https://smartthingsfind.samsung.com/login?result=true.

[17] https://www.youtube.com/watch?app=desktop&v=wjXDjjPdGb0.

[18] https://r2.community.samsung.com/t5/Tech-Talk/How-to-Find-Your-Family-and-Friends-Using-Google-Maps/td-p/7430575.



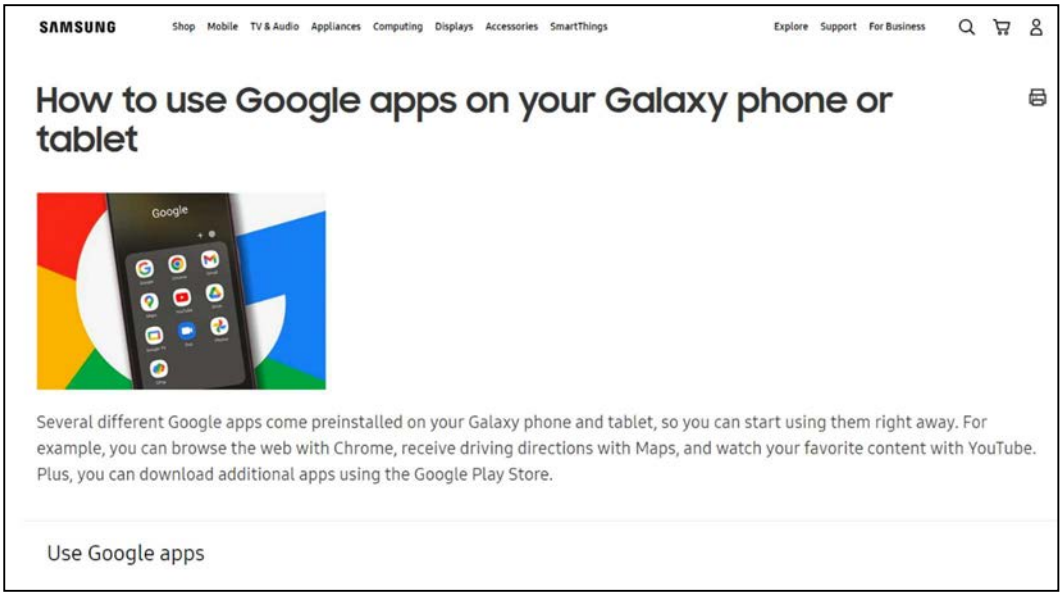
…



72. As another example, Samsung has and continues to directly hyperlink from Samsung's description of Google Maps on Samsung's website to Google's website pages that provide further instructions on how end users can utilize Google Maps, for example, for location sharing via a map and obtaining directions. E.g.:[19,20]

[19] https://www.samsung.com/us/support/answer/ANS00089082/.

[20] https://support.google.com/maps#topic=3092425; see also https://support.google.com/maps/answer/7326816?hl=en&ref_topic=7301134&sjid=16018432753100644351-NA ("Share your real-time location with others"); https://support.google.com/maps/answer/11966807?hl=en&ref_topic=7301134&sjid=16018432753100644351-NA ("Get Location Sharing notifications").



…





73. Samsung has also contributed to the direct infringement of the ’117 Patent by others because the location-based technologies of the ’117 Accused Products have no substantial non-infringing use and are a material part of the invention. On information and belief, there is no substantial way to utilize the location-based technologies of the ’117 Accused Products (e.g., within Samsung SmartThings Find) and not infringe the ’117 Patent. Samsung contributes to the direct infringement of the ’117 Patent when, for example, Samsung causes or instructs end users to download updates to the programming on the ’117 Accused Products that, together with such

products' hardware and/or other software, infringes the '117 Patent.

74. Plaintiff has suffered damages as a result of Samsung's infringement of the '117 Patent in an amount to be proved at trial.

75. On information and belief, Samsung's infringement of the '117 Patent has been willful.

76. Plaintiff should be awarded damages in accordance with 35 U.S.C. §§ 271, 281, and 284, in an amount adequate to compensate for Samsung's infringement of the '117 Patent, but in no event less than a reasonable royalty for the use made of the inventions by Samsung together with interest and costs as fixed by the Court.

COUNT II
INFRINGEMENT OF U.S. PATENT NO. 11,190,633

77. Plaintiff references and incorporates by reference the preceding paragraphs of this Complaint as if fully set forth herein.

78. Plaintiff has not licensed or otherwise authorized Samsung to make, use, offer for sale, sell, export, or import any products that embody the inventions of the '633 Patent.

79. Samsung has and continues to directly infringe the '633 Patent, either literally or under the doctrine of equivalents, without authority and in violation of 35 U.S.C. § 271, by making, using (e.g., testing), offering to sell, selling, exporting from, and/or importing into the United States products that satisfy each and every limitation of one or more claims of the '633 Patent.

80. On information and belief, Samsung's products that infringe the '633 Patent include at least Samsung's smart watches. E.g., https://www.samsung.com/us/watches/. Collectively, the Samsung products that infringe the '633 Patent are referred to as the "'633 Accused Products."

81. Samsung has and continues to directly infringe one or more claims of the '633 Patent including, for example, at least claim 1 of the '633 Patent, by making, using (e.g., testing),

offering to sell, selling, and/or importing into the United States the ’633 Accused Products, each of which comprises a watch for use with a mobile telephonic device that provides notification of an incoming call. For example, each Samsung watch is a watch for use with a mobile phone, where the Samsung watch notifies a user of an incoming call to the phone. E.g.:[21,22]

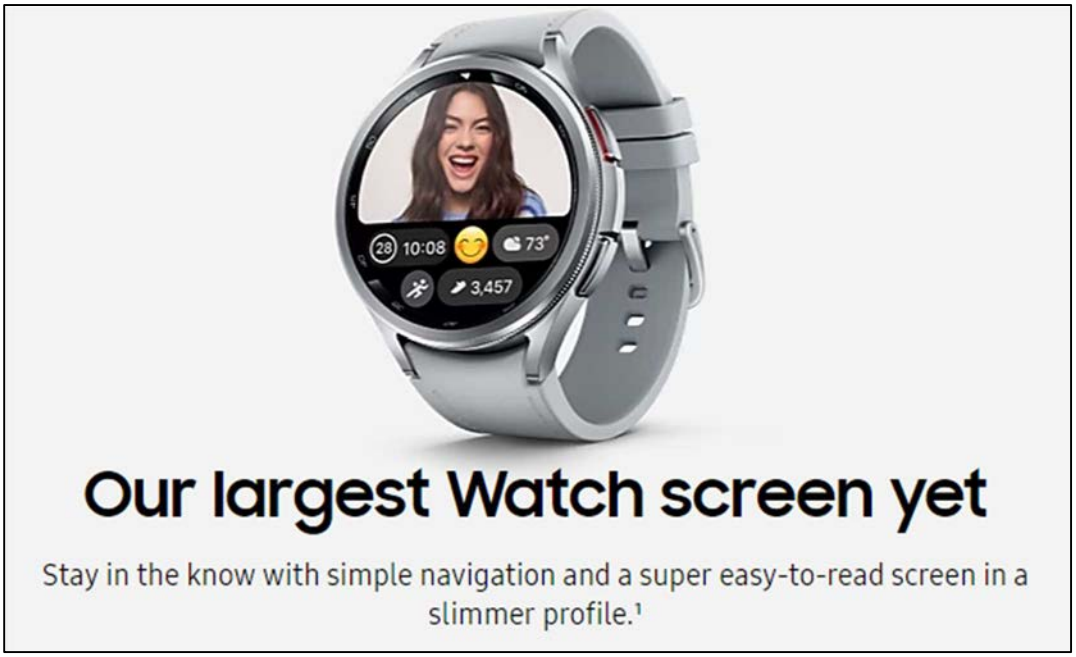


[21] https://www.samsung.com/us/watches/.

[22] https://www.youtube.com/watch?app=desktop&v=Cr3-8NDt3Hk.



82. Each of the '633 Accused Products comprises a watch band, a second watch band, and a buckle, where said buckle is coupled to said second watch band. E.g.:[23]



[23] https://www.samsung.com/us/watches/.



83. Each of the '633 Accused Products comprises a device operable to receive first wireless communication signals associated with a first event and second wireless communication signals associated with a second event from said mobile telephonic device, wherein said first event and second event are different. For example, each Samsung watch is operable to receive wireless communication signals from a phone associated with notification events. Such notification events include, for example, an incoming call, missed call, voice message, text message, reminder, and calendar notification, which are different events. E.g.:[24,25,26,27,28,29]

[24] https://www.youtube.com/watch?app=desktop&v=Cr3-8NDt3Hk (incoming call notification).

[25] https://medium.com/@iOSTrixFixX/call-function-in-samsung-galaxy-watch-with-iphone-613a2949c4d2 (missed call notification).

[26] https://www.reddit.com/r/GalaxyWatch/comments/n1bsbk/voicemail_notification_wont_go_away_but_no/?rdt=54836 (voicemail notification).

[27] https://www.youtube.com/watch?app=desktop&v=h_oRlZFILlY (text message notification).

[28] https://www.att.com/device-support/article/wireless/KM1498216/Samsung/SamsungSMR925U (reminder notification).

[29] https://eu.community.samsung.com/t5/wearables/galaxy-watch-4-classic-calendar-entries-amp-notification/td-p/3873477 (calendar notification).



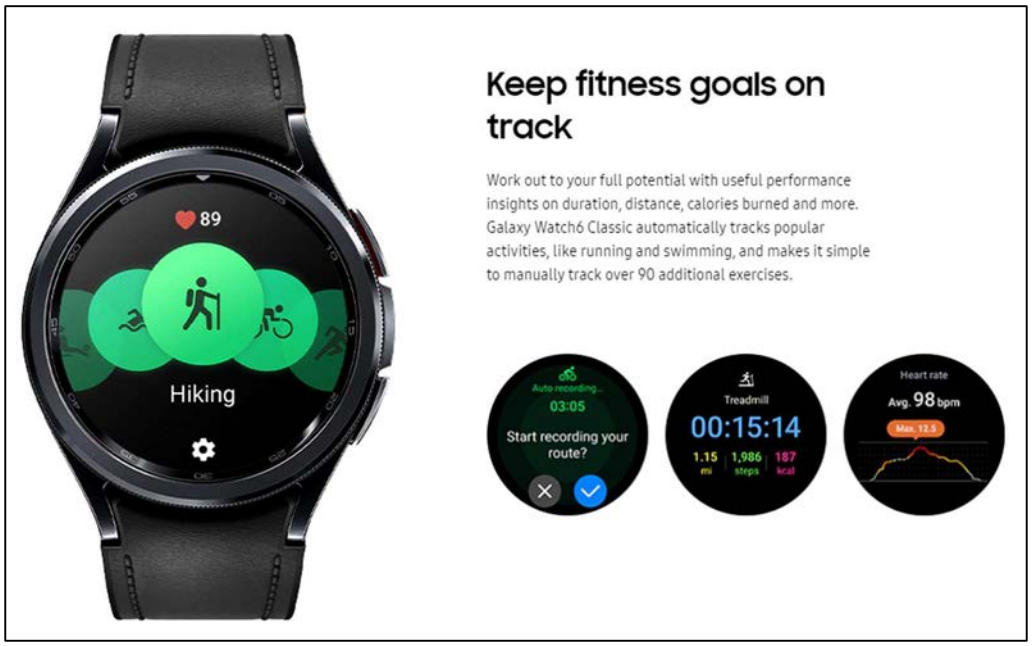
84. Each of the '633 Accused Products comprises a battery. E.g.:[30]



85. Each of the '633 Accused Products comprises motion sensing operable to distinguish between a plurality of different types of motion. For example, each Samsung watch

[30] https://www.samsung.com/us/watches/galaxy-watch6-classic/#performance.

includes an accelerometer and a gyroscope.[31] Samsung watches also include, for example, step detection motion sensing: E.g.:[32]

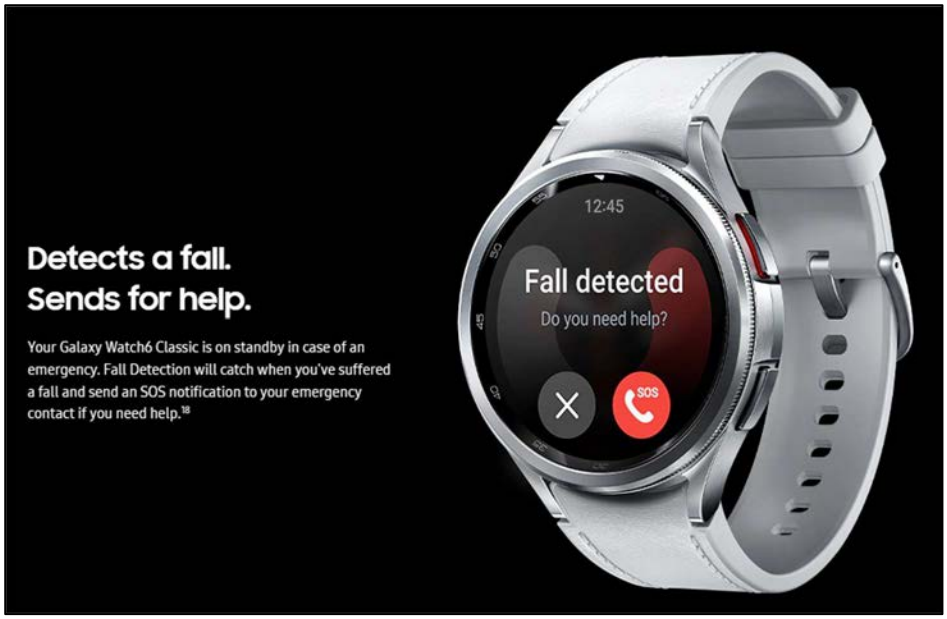


86. As another example, Samsung watches include fall detection motion sensing. E.g.:[33]

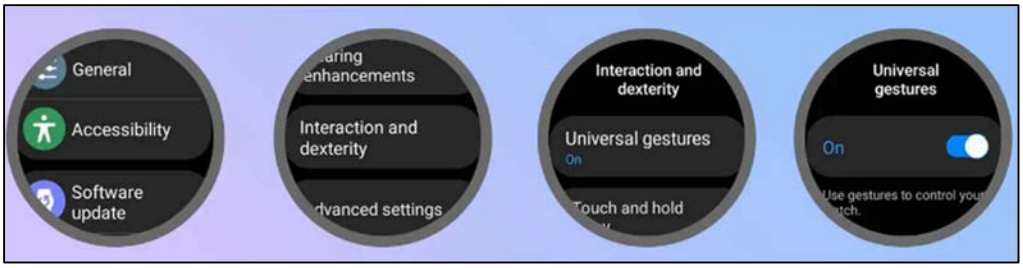
[31] E.g., https://developer.samsung.com/tizen/blog/en-us/2019/04/15/how-to-use-sensors-on-a-galaxy-watch.

[32] https://www.samsung.com/us/watches/galaxy-watch6-classic/#performance.

[33] https://www.samsung.com/us/watches/galaxy-watch6-classic/#performance.



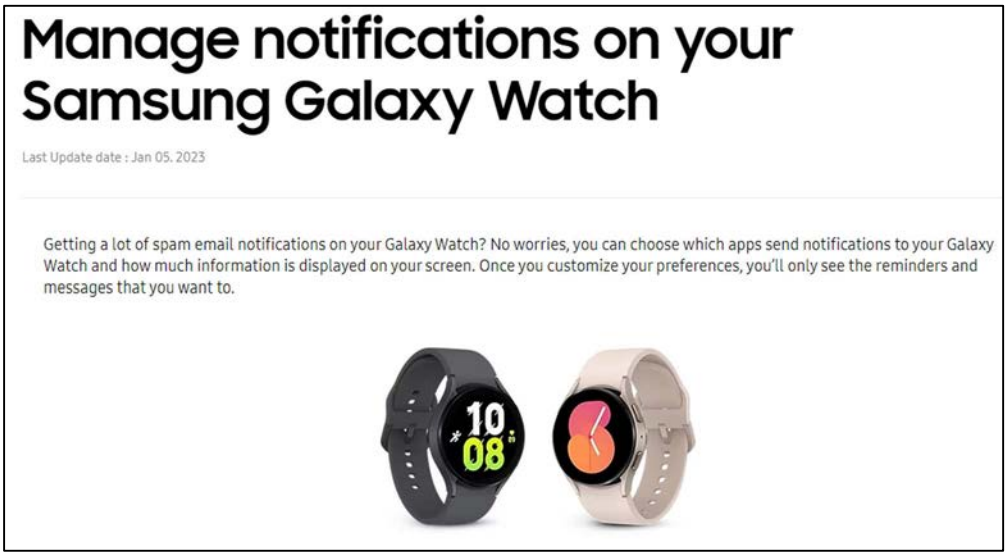
87. In addition, Samsung watches include Universal Gestures sensing to convert different types of gestures into action commands. E.g.:[34]



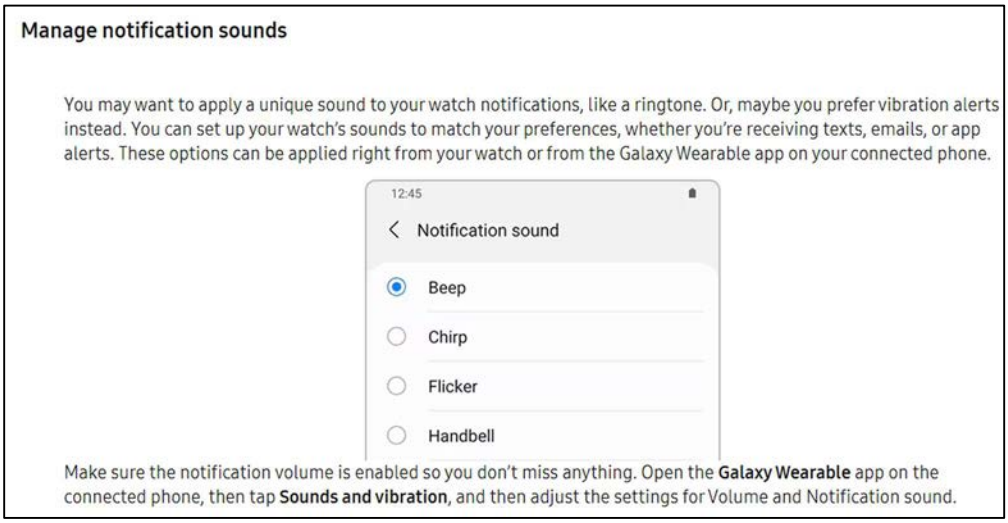
Gesture	Action
Shake your wrist twice	Turn on Universal Gestures
Pinch your thumb and index finger	Next item
Double pinch	Previous item
Make a fist	Tap
Make a fist twice	Open the action menu

[34] https://9to5google.com/2023/06/09/interactive-gestures-galaxy-watch/.

88. Each of the '633 Accused Products is operable to provide first user-perceivable notification signals that are dependent upon said received first communication signals, and said device is operable to provide second user perceivable notification signals that are dependent upon said second communication signals. For example, each Samsung watch is operable to provide various visual displays as well as audio and haptic signals that can be perceived by a user and that correspond to various respective notifications. E.g.:[35]



…



[35] https://www.samsung.com/latin_en/support/mobile-devices/manage-notifications-on-your-samsung-galaxy-watch/.

89. Samsung also has and continues to indirectly infringe the ’633 Patent by actively inducing and contributing to the infringement of the ’633 Patent by others, including customers, resellers, and retailers. On information and belief, Samsung has possessed knowledge of the ’633 Patent and of its infringement thereof both before and after the filing of the original Complaint for at least the reasons described above in paragraphs 9-18.

90. On information and belief, Samsung has and continues to specifically induce and intend that others, such as customers, resellers, and retailers, infringe the ’633 Patent by, for example, using or selling the ’633 Accused Products, and has and continues to know that such others perform acts that constitute direct infringement. For example, Samsung has and continues to provide instructions to its customers regarding the infringing use and operation of the ’633 Accused Products. See e.g., Samsung’s website instructions identified in the foregoing paragraphs regarding the motion-sensing and notification technologies of Samsung’s watches. When others follow such instructions, they have and continue to directly infringe one or more claims of the ’633 Patent. By providing such instructions, Samsung has and continues to know and intend that others will follow such instructions, and thereby directly infringe one or more claims of the ’633 Patent. Thus, Samsung has and continues to know that its actions actively induce infringement by others.

91. Samsung also has and continues to contribute to the direct infringement of the ’633 Patent by others because the motion-sensing and notification technologies of the ’633 Accused Products have no substantial non-infringing use and are a material part of the invention. On information and belief, there is no substantial way to utilize the motion-sensing and notification technologies of the ’633 Accused Products and not infringe the ’633 Patent. Samsung contributes to the direct infringement of the ’633 Patent when, for example, Samsung causes or instructs end users to download updates to the programming on the ’633 Accused Products that, together with

such products' hardware and/or other software, infringes the '633 Patent.

92. Plaintiff has and continues to suffer damages as a result of Samsung's infringement of the '633 Patent in an amount to be proved at trial.

93. On information and belief, Samsung's infringement of the '633 Patent has and continues to be willful.

94. Plaintiff should be awarded damages in accordance with 35 U.S.C. §§ 271, 281, and 284 in an amount adequate to compensate for Samsung's infringement of the '633 Patent but in no event less than a reasonable royalty for the use made of the inventions by Samsung, together with interest and costs as fixed by the Court.

COUNT III
INFRINGEMENT OF U.S. PATENT NO. 11,122,418

95. Plaintiff references and incorporates by reference the preceding paragraphs of this Complaint as if fully set forth herein.

96. Plaintiff has not licensed or otherwise authorized Samsung to make, have made, use, offer for sale, sell, export, or import any products that embody the inventions of the '418 Patent.

97. Samsung has directly infringed the '418 Patent, either literally or under the doctrine of equivalents, without authority and in violation of 35 U.S.C. § 271, by making, using (e.g., testing), offering to sell, selling, exporting from, and/or importing into the United States products that satisfy each and every limitation of one or more claims of the '418 Patent.

98. On information and belief, Samsung's products that infringe the '418 Patent include at least Samsung's mobile phones and tablet computers. E.g., https://www.samsung.com/us/smartphones/; https://www.samsung.com/us/tablets/. Collectively, the Samsung products that infringe the '418 Patent are referred to as the "'418 Accused Products."

99. Samsung has directly infringed one or more claims of the '418 Patent including, for example, at least claims 1, 2, 6, 7, 10, 13, and 17 of the '418 Patent, by making, using (e.g., testing), offering to sell, selling, and/or importing into the United States the '418 Accused Products, each of which comprises a system that is capable of providing location-based services and features. For example, each Samsung phone and Samsung tablet includes memory for storing programming capable of executing on the phone or tablet, respectively.[36]

100. Each Samsung phone and Samsung tablet stores programming in its memory capable of providing location-based services and features including, for example, Samsung SmartThings Find and Google Maps.[37]

101. Each of the '418 Accused Products comprises a first wireless device, wherein a location of said first wireless device is operable of being determined. For example, Samsung phones and tablets include a global positioning system operable to determine a location of the phone or tablet, respectively.[38,39] In addition, Samsung phones and tablets are operable to determine a location of the phone or tablet on the basis of, for example, Wi-Fi signals in the vicinity of the device.[40]

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[36] E.g., https://www.samsung.com/us/smartphones/galaxy-s22/buy/galaxy-s22-128gb-verizon-sm-s901ulvavzw/?modelCode=SM-S901ULVAVZW (Galaxy S22); see also https://www.samsung.com/us/smartphones/galaxy-s23/buy/galaxy-s23-128gb-unlocked-sm-s911uliaxaa/ (Galaxy S23); https://www.samsung.com/us/tablets/galaxy-tab-s9/.

[37] E.g., https://smartthingsfind.samsung.com/login?result=true; https://www.samsung.com/us/support/answer/ANS00089082/.

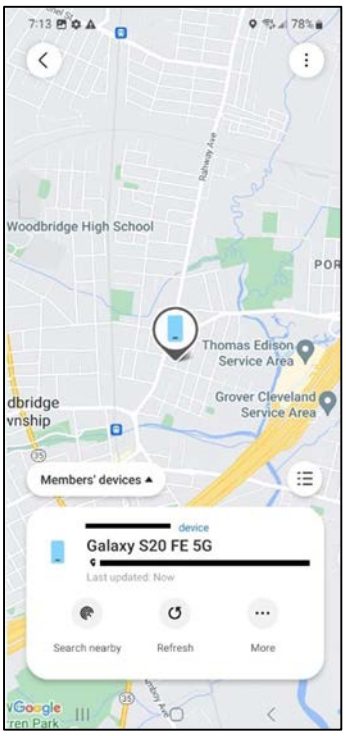
[38] https://www.samsung.com/latin_en/support/mobile-devices/how-to-activate-my-location-and-change-settings-for-location-permissions/.

[39] https://downloadcenter.samsung.com/content/PM/202308/20230808065803698/EB/SAM_X710_X810_X818_X910_EN_FINAL_230624/location_d1e8811.html.

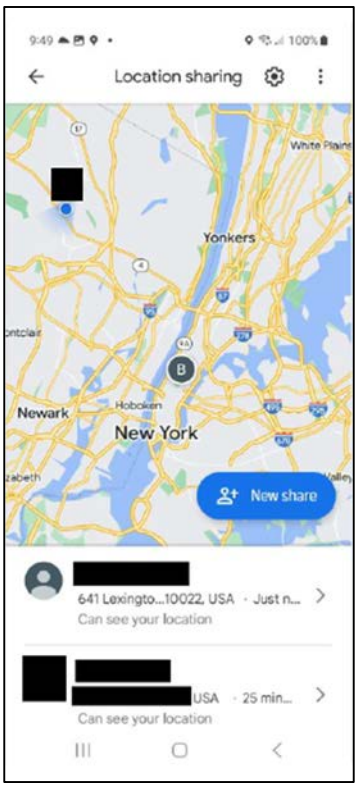
[40] *d.*

102. Each of the ’418 Accused Products is operable to provide said location of said first wireless device to a remote system, which location is operable of being requested by a second wireless device outside of a call for communication between said first wireless device and said second wireless device. Each Samsung phone and tablet programmed with the foregoing location-based services and features is capable of providing the location of the phone or tablet, respectively, to a remote server system, which location is operable of being requested by a second wireless device outside of a call for communication between said first wireless device and said second wireless device.

103. For example, the location of the Samsung phone or tablet is operable to be requested via Samsung SmartThings Find and Google Maps by a second wireless device, and outside of a call for communication between the first wireless device and the second wireless device. E.g.:



Samsung A54 phone (Redacted screen shot showing the display in Samsung SmartThings Find of another user’s location outside of a call for communication; likewise, the location of the Samsung A54 phone can be requested and displayed on such user’s Samsung Galaxy S20 FE 5G phone outside of a call for communication).

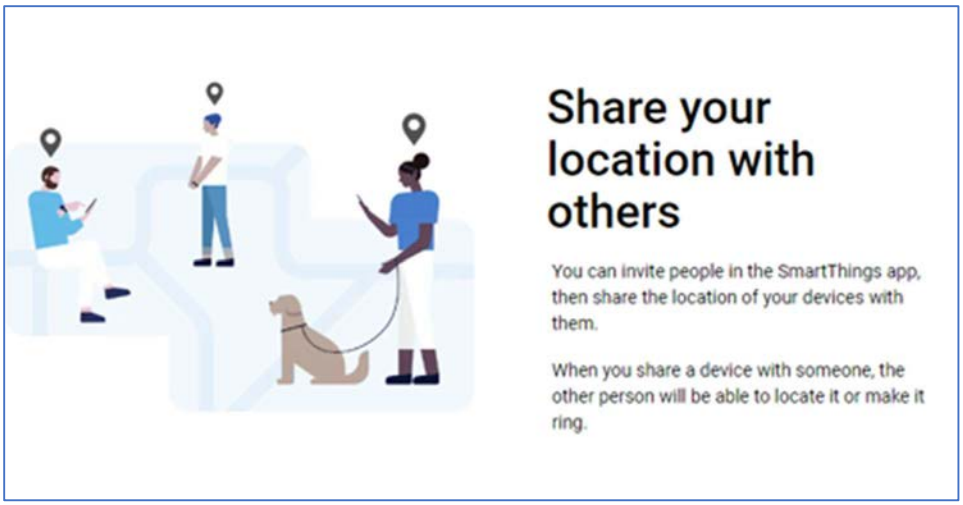


Samsung Galaxy S23 (Screen shot showing the display in Google Maps of a map that identifies the locations of friends (i.e., one identified with a Redacted black box and the other identified as "B"), including one such location updated "Just n[ow]" notwithstanding that there is no active call for communication with such device).

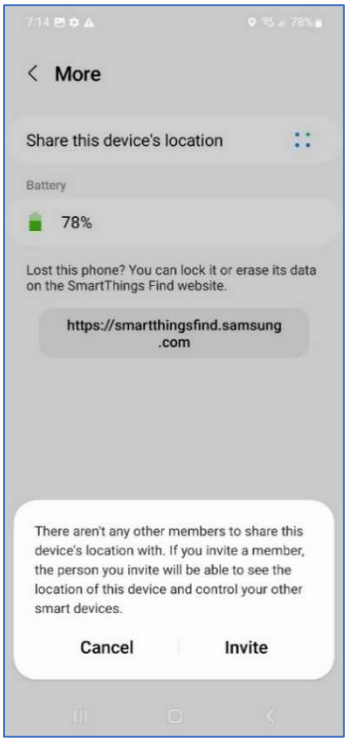
104. Each of the '418 Accused Products is operable to provide a permission by said first wireless device for said second wireless device to access location information about said location, wherein said permission is operable of being stored in said remote system, said remote system is located remotely from said first and second wireless devices, and said location information is operable of being provided from said remote system to said second wireless device in accordance with said permission outside of said call.

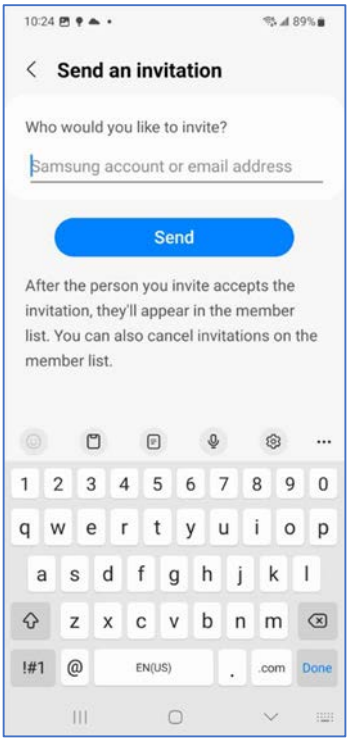
105. For example, each Samsung phone and tablet programmed with the location-based services and features of Samsung SmartThings Find and Google Maps is operable to provide, for storage in a remote server system, a permission for the second wireless device to access location information about the phone or tablet's location. Each Samsung phone and tablet programmed

with the location-based services and features of Samsung SmartThings Find and Google Maps includes, for example, options to add and/or remove devices that can access the phone or tablet's location from the remote server system. Such options, when selected, instruct the remote server system to change the wireless device(s) authorized to view the first wireless device's location data. E.g.:[41]

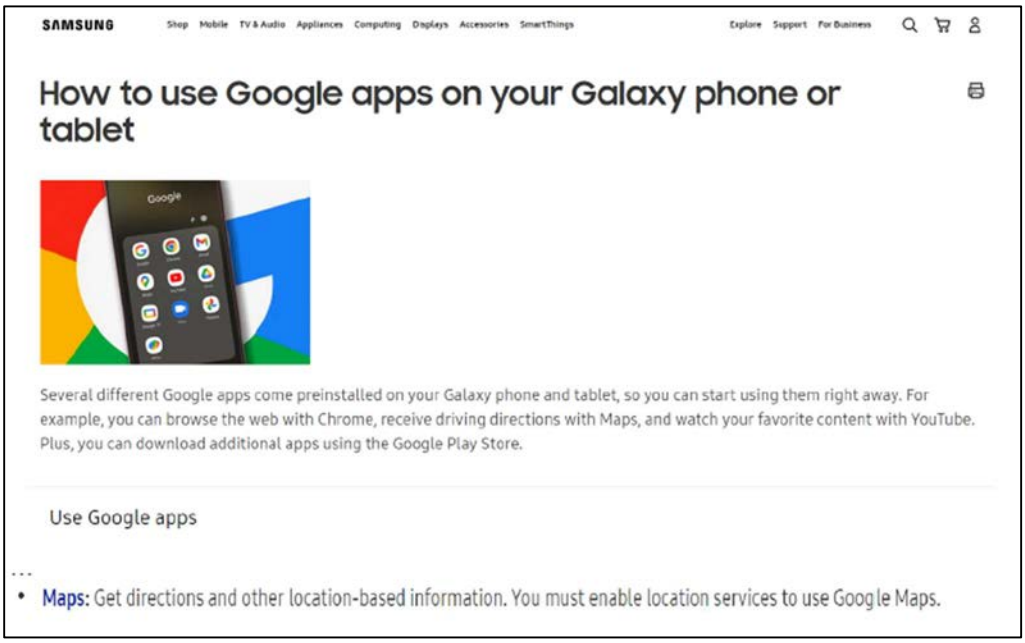


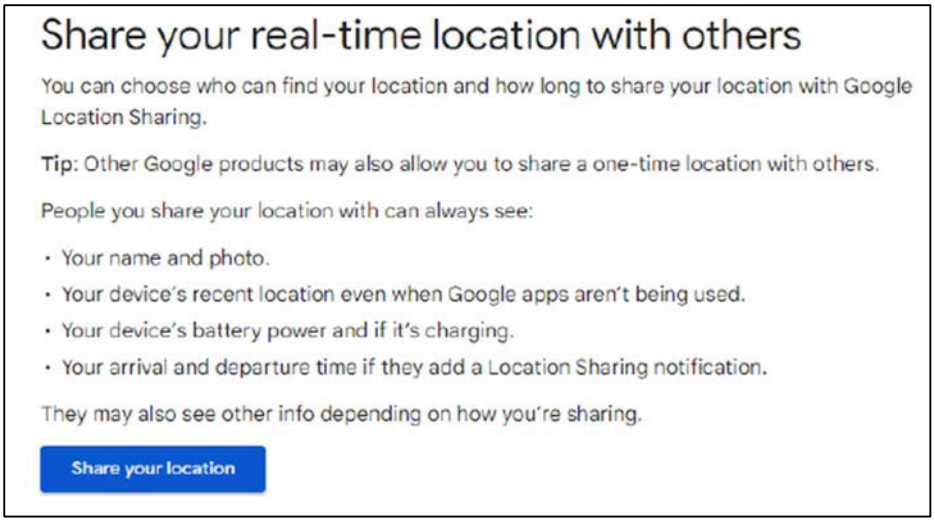
[41] https://smartthingsfind.samsung.com/login?result=true; https://www.samsung.com/us/support/answer/ANS00089082/; https://support.google.com/maps/answer/7326816?hl=en&ref_topic=7301134&sjid=16018432753100644351-NA.





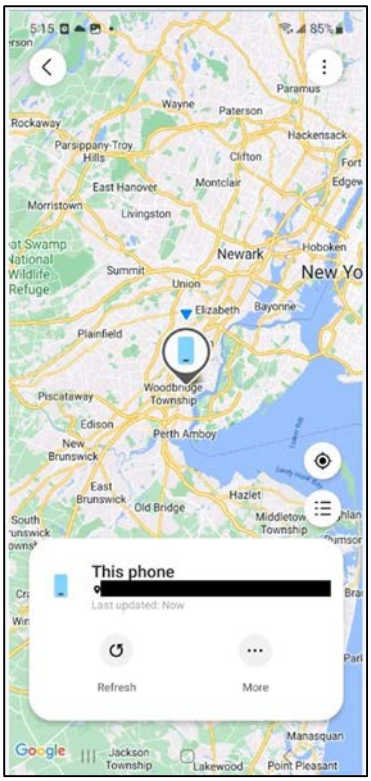
Samsung A54 phone (Screen shots showing the capability in Samsung SmartThings Find to allow another user to see the A54 phone's location).



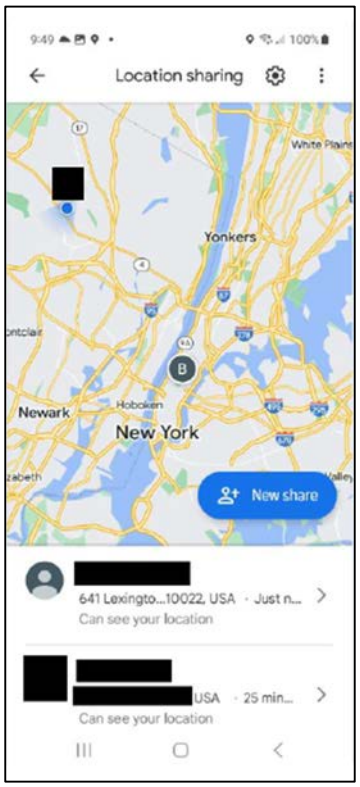


106. Each of the '418 Accused Products is operable to provide a first map provided with respect to said location.

107. For example, each of the '418 Accused Products is operable to provide in Samsung SmartThings Find and Google Maps a first map provided with respect to said location. E.g.:



Samsung A54 phone (Redacted screen shot showing in Samsung SmartThings Find a map provided with respect to the location of the Samsung A54 phone).



Samsung Galaxy S23 (Screen shot showing the display in Google Maps of a map that identifies the wireless telephone's location with a blue spot and in relation to the locations of friends (i.e., one identified with a Redacted black box and the other identified as "B")).

108. Samsung has also indirectly infringed the '418 Patent by actively inducing and contributing to the infringement of the '418 Patent by others, including customers, resellers, and retailers. On information and belief, Samsung had knowledge of the '418 Patent and of its infringement thereof before the filing of the original Complaint for at least the reasons described above in paragraphs 9-18.

109. On information and belief, Samsung has specifically induced and intended others, such as customers, resellers, and retailers, to infringe the '418 Patent by, for example, using or selling the '418 Accused Products, and knew that such others perform acts that constituted direct infringement. For example, Samsung has provided instructions to its customers regarding the

infringing use and operation of the '418 Accused Products. When others have followed such instructions, they have directly infringed one or more claims of the '418 Patent. By providing such instructions, Samsung knew and intended that others would follow such instructions, and thereby directly infringe one or more claims of the '418 Patent. Thus, Samsung knew that its actions actively induced infringement by others.

110. For example, Samsung has instructed end users how to open and use Samsung SmartThings Find, for example, for location sharing with other users outside of a call for communication.[42]

111. As another example, Samsung has and continues to instruct end users how to open and use Google Maps, for example, to find one's family and friends on a map.[43,44]

112. As another example, Samsung has and continues to directly hyperlink from Samsung's description of Google Maps on Samsung's website to Google's website pages that provide further instructions on how end users can utilize Google Maps, for example, for location sharing via a map and obtaining directions.[45,46]

113. Samsung has also contributed to the direct infringement of the '418 Patent by others because the location-based technologies of the '418 Accused Products have no substantial non-

[42] https://smartthingsfind.samsung.com/login?result=true.

[43] https://www.youtube.com/watch?app=desktop&v=wjXDjjPdGb0.

[44] https://r2.community.samsung.com/t5/Tech-Talk/How-to-Find-Your-Family-and-Friends-Using-Google-Maps/td-p/7430575.

[45] https://www.samsung.com/us/support/answer/ANS00089082/.

[46] https://support.google.com/maps#topic=3092425; see also https://support.google.com/maps/answer/7326816?hl=en&ref_topic=7301134&sjid=16018432753100644351-NA ("Share your real-time location with others"); https://support.google.com/maps/answer/11966807?hl=en&ref_topic=7301134&sjid=16018432753100644351-NA ("Get Location Sharing notifications").

infringing use and are a material part of the invention. On information and belief, there is no substantial way to utilize the location-based technologies of the '418 Accused Products (e.g., within Samsung SmartThings Find) and not infringe the '418 Patent. Samsung contributes to the direct infringement of the '418 Patent when, for example, Samsung causes or instructs end users to download updates to the programming on the '418 Accused Products that, together with such products' hardware and/or other software, infringes the '418 Patent.

114. Plaintiff has suffered damages as a result of Samsung's infringement of the '418 Patent in an amount to be proved at trial.

115. On information and belief, Samsung's infringement of the '418 Patent has been willful.

116. Plaintiff should be awarded damages in accordance with 35 U.S.C. §§ 271, 281, and 284 in an amount adequate to compensate for Samsung's infringement of the '418 Patent but in no event less than a reasonable royalty for the use made of the inventions by Samsung, together with interest and costs as fixed by the Court.

COUNT IV
INFRINGEMENT OF U.S. PATENT NO. 11,109,218

117. Plaintiff references and incorporates by reference the preceding paragraphs of this Complaint as if fully set forth herein.

118. Plaintiff has not licensed or otherwise authorized Samsung to make, use, offer for sale, sell, export, or import any products that embody the inventions of the '218 Patent.

119. Samsung has and continues to directly infringe the '218 Patent, either literally or under the doctrine of equivalents, without authority and in violation of 35 U.S.C. § 271, by making, using (e.g., testing), offering to sell, selling, exporting from, and/or importing into the United States products that satisfy each and every limitation of one or more claims of the '218 Patent.

120. On information and belief, Samsung's products that infringe the '218 Patent include at least Samsung's mobile phones and tablet computers. E.g., https://www.samsung.com/us/smartphones/; https://www.samsung.com/us/tablets/. Collectively, the Samsung products that infringe the '218 Patent are referred to as the "'218 Accused Products."

121. Samsung has and continues to directly infringe one or more claims of the '218 Patent including, for example, at least claims 11-15 of the '218 Patent, by making, using, offering to sell, selling, and/or importing into the United States the '218 Accused Products, each of which comprises a system capable of providing location-based services and features. For example, each Samsung phone and tablet stores in memory programming capable of providing location-based services and features including, for example, Samsung SmartThings Find and Google Maps.

122. Each of the '218 Accused Products comprises a wireless telephonic device. For example, each Samsung phone is capable of supporting telephonic communications over cellular networks such as 5G. Each Samsung tablet is likewise capable of supporting telephonic communications over, for example, WiFi using WiFi calling and/or cellular networks such as 5G.

123. Each of the '218 Accused Products is operable to provide a display screen after a request from said wireless telephonic device for access to a first location of a first wireless device, wherein said display screen includes a map provided from a perspective of said wireless telephonic device. For example, each Samsung phone and tablet programmed with Google Maps is capable of requesting a location of a first wireless device from a server when, for example, a user of the phone or tablet accesses the Google Maps application. Each Samsung phone and tablet programmed with Google Maps is capable of displaying an option to access a first location of a first wireless device when, for example, a user of the phone or tablet or has shared its location with

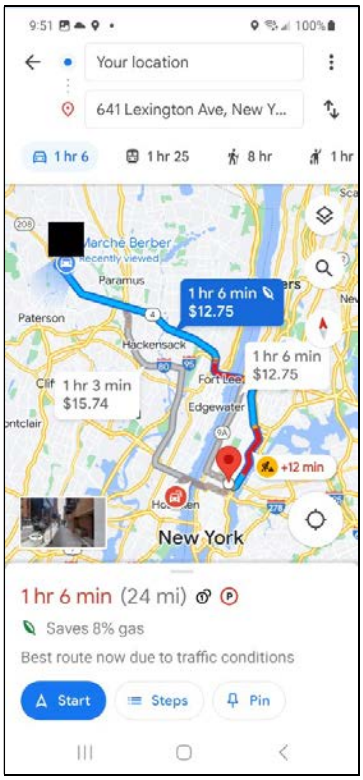
the first wireless device and either the first wireless device has not yet provided reciprocal location access rights or has revoked the user's location access rights. E.g.:



Samsung Galaxy S23 (Redacted screen shot showing the display in Google Maps of an option to request location access rights from a first wireless device ("Request")).

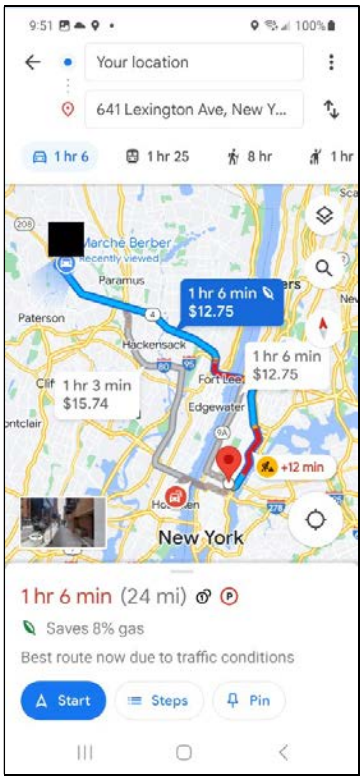
124. On information and belief, Google Maps is preinstalled on at least Samsung phones, tablets, and watches.

125. After each such Samsung phone and tablet requests access to the first location of the first wireless device, each such phone and tablet is operable to provide a display screen that includes a map provided from a perspective of the Samsung phone or tablet, respectively. E.g.:



Samsung Galaxy S23 (Redacted screen shot showing the display in Google Maps of a map from the perspective of the Samsung Galaxy S23 phone, where the location of the phone ("Your location") is marked with a blue spot on the map in the top left portion of the display).

126. Each of the '218 Accused Products is also operable to provide on such a display screen indicia on said map representative of said first location, indicia on said map representative of a second user according to a second location obtained from a second wireless device, a distance from said wireless telephonic device to said first location, a compass, an address of said first location, and a travel time based on at least the first location and the location of said wireless telephonic device. E.g.:



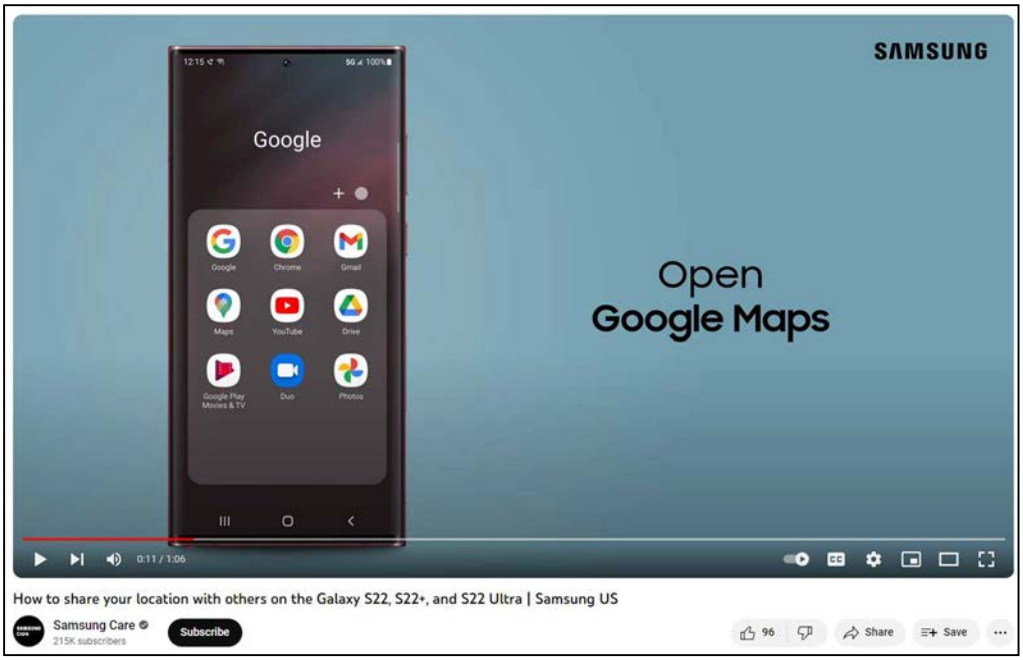
Samsung Galaxy S23 (Redacted screen shot showing the display in Google Maps of (i) indicia on a map representative of said first location (identified as the destination point of the travel route); (ii) indicia on said map representative of a second user according to a second location obtained from a second wireless device (identified as the location marker redacted by a black square box in the top left portion of the display , on top of the blue spot that reflects the location of the Galaxy S23 phone); (iii) a distance from the Galaxy S23 phone to said first location ("24 mi[les]"); (iv) a compass (shown towards the right-middle edge of the display); (v) an address of said first location ("641 Lexington Ave …"); and (vi) a travel time based on at least the first location and the location of said wireless telephonic device (e.g., "1 hr 6 min")).

127. Samsung also has and continues to indirectly infringe the '218 Patent by actively inducing and contributing to the infringement of the '218 Patent by others, including customers, resellers, and retailers. On information and belief, Samsung has possessed knowledge of the '218 Patent and of its infringement thereof both before and after the filing of the original Complaint for at least the reasons described above in paragraphs 9-18.

128. On information and belief, Samsung has and continues to specifically induce and intend that others, such as customers, resellers, and retailers, infringe the '218 Patent by, for

example, using or selling the '218 Accused Products, and has and continues to know that such others perform acts that constitute direct infringement. For example, Samsung has and continues to provide instructions to its customers regarding the infringing use and operation of the '218 Accused Products. When others have and continue to follow such instructions, they directly infringe one or more claims of the '218 Patent. By providing such instructions, Samsung has and continues to know and intend that others follow such instructions, and thereby directly infringe one or more claims of the '218 Patent. Thus, Samsung has and continues to know that its actions actively induce infringement by others.

129. For example, Samsung has and continues to instruct end users how to open and use Google Maps, for example, to find one's family and friends on a map. E.g.:[47,48]



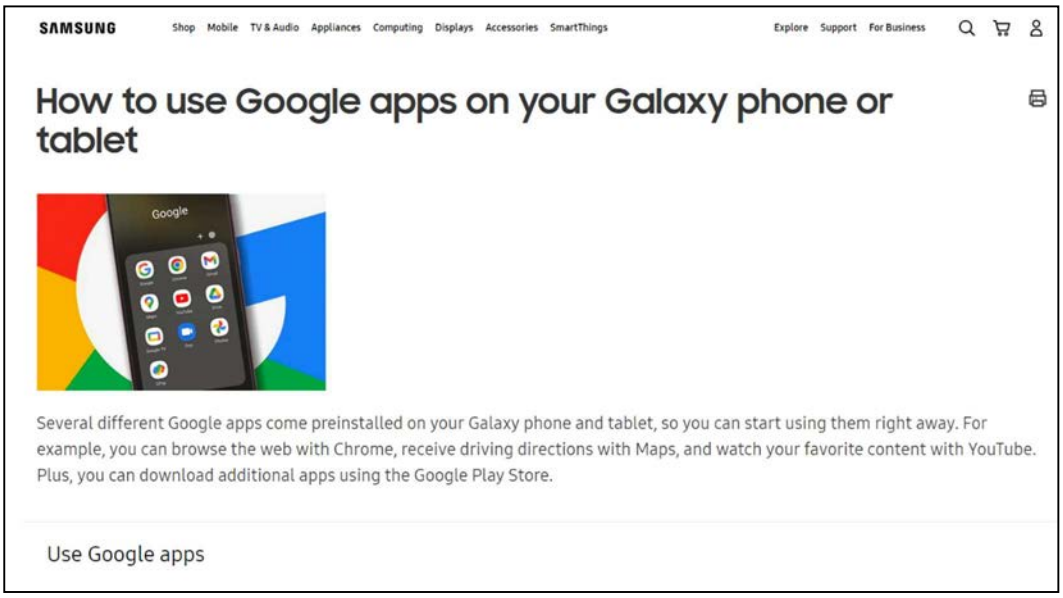
…

[47] https://www.youtube.com/watch?app=desktop&v=wjXDjjPdGb0.

[48] https://r2.community.samsung.com/t5/Tech-Talk/How-to-Find-Your-Family-and-Friends-Using-Google-Maps/td-p/7430575.



130. As another example, Samsung has and continues to directly hyperlink from Samsung's description of Google Maps on Samsung's website to Google's website pages that provide further instructions on how end users can utilize Google Maps, for example, for location sharing via a map and obtaining directions. E.g.:[49,50]



[49] https://www.samsung.com/us/support/answer/ANS00089082/.

[50] https://support.google.com/maps#topic=3092425; see also https://support.google.com/maps/answer/7326816?hl=en&ref_topic=7301134&sjid=16018432753100644351-NA ("Share your real-time location with others"); https://support.google.com/maps/answer/11966807?hl=en&ref_topic=7301134&sjid=16018432753100644351-NA ("Get Location Sharing notifications").



131. As another example, Samsung has and continues to induce end users to use Google Maps to obtain directions to other users by way of Samsung specifically programming into the Samsung SmartThings Find application an option to "Navigate" to another user, selection of which launches the Google Maps application to provide such directions. E.g.:[51]



…

- **Navigate:** Open Google Maps Navigation to generate the fastest route to your device. This option may not be available if the device cannot be located. You may need to tap **More**, and then tap **Navigate**.

132. Samsung also has and continues to contribute to the direct infringement of the '218 Patent by others because the location-based technologies of the '218 Accused Products have no

[51] E.g., https://www.samsung.com/us/support/answer/ANS00088182/.

substantial non-infringing use and are a material part of the invention. On information and belief, there is no substantial way to utilize the location-based technologies of the '218 Accused Products and not infringe the '218 Patent. Samsung contributes to the direct infringement of the '218 Patent when, for example, Samsung causes or instructs end users to download updates to the programming on the '218 Accused Products that, together with such products' hardware and/or other software, infringes the '218 Patent.

133. Plaintiff has and continues to suffer damages as a result of Samsung's infringement of the '218 Patent in an amount to be proved at trial.

134. On information and belief, Samsung's infringement of the '218 Patent has and continues to be willful.

135. Plaintiff should be awarded damages in accordance with 35 U.S.C. §§ 271, 281, and 284 in an amount adequate to compensate for Samsung's infringement of the '218 Patent but in no event less than a reasonable royalty for the use made of the inventions by Samsung, together with interest and costs as fixed by the Court.

COUNT V
INFRINGEMENT OF U.S. PATENT NO. 11,096,039

136. Plaintiff references and incorporates by reference the preceding paragraphs of this Complaint as if fully set forth herein.

137. Plaintiff has not licensed or otherwise authorized Samsung to make, use, offer for sale, sell, export, or import any products that embody the inventions of the '039 Patent.

138. Samsung has and continues to directly infringe the '039 Patent, either literally or under the doctrine of equivalents, without authority and in violation of 35 U.S.C. § 271, by making, using (e.g., testing), offering to sell, selling, exporting from, and/or importing into the United States products, including server systems, that satisfy each and every limitation of one or more

claims of the ’039 Patent (the “’039 Accused Products”).

139. Samsung has and continues to directly infringe one or more claims of the ’039 Patent including, for example, at least claims 1, 4, 7, 8, 9, and 13 of the ’039 Patent. For example, on information and belief, Samsung has and continues to directly infringe claim 1 of the ’039 Patent by making, using, offering to sell, selling, and/or importing into the United States the ’039 Accused Products, each of which comprises a remote system that allows Samsung phones and tablets to access location-based services and features. On information and belief, Samsung both provides the remote system (e.g., server) software including at least server software for Samsung SmartThings Find and Samsung Find and provides or controls the remote system hardware.[52]

140. As another example, on information and belief, Samsung directly infringes the ’039 Patent because demonstrates and/or tests at least Samsung phones and/or tablets in the United States, which, in turn, puts into use the ’039 Accused Products that provide location-based services and features.[53]

141. On information and belief, Samsung has and/or continues to test and/or otherwise put into use the ’039 Accused Products in a manner that infringes the ’039 Patent during product testing, demonstrations, and/or troubleshooting.

142. For example, on information and belief, a Samsung Engineering Manager in this District (Plano, Texas) manages a team of 20 Samsung engineers who have tested the accused

[52] E.g., https://aws.amazon.com/solutions/case-studies/samsung-migrates-off-oracle-to-amazon-aurora/ (stating that by March 2020 Samsung migrated to Amazon Web Services (AWS) so that “Samsung can serve more users more quickly than before: now 90 percent of latency is less than 60 ms. The automation of the cloud solution also allows Samsung to deliver more features to users faster.”).

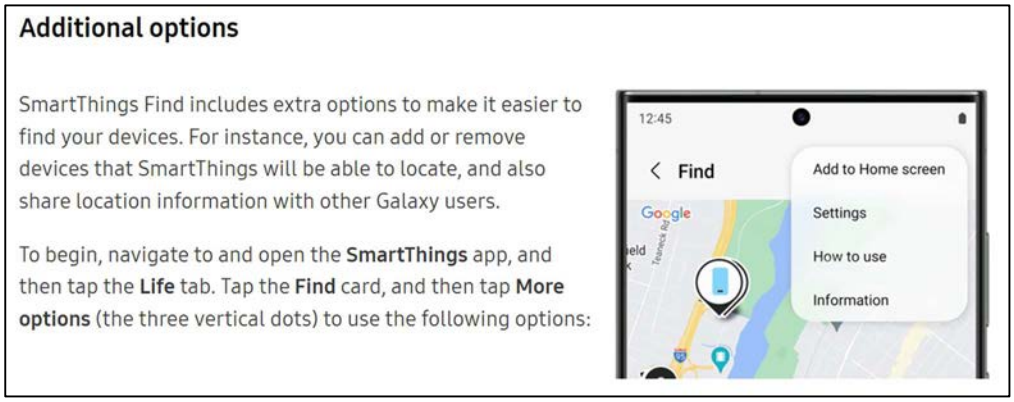
[53] E.g., https://www.zdnet.com/article/how-samsung-tests-its-smartphones-and-hopes-to-win-back-trust/ (noting that “Our [Samsung] phones are extensively tested, retested, and then tested again.”).

Samsung SmartThings Find technology claimed by the '039 Patent. E.g., Ex. 6 ("Managing a team of 20 Engineers … development and quality assurance of strategic services"; "SmartThings Find development testing").

143. As another example, on information and belief, Samsung personnel have put into use the '039 Accused Products in the United States in a manner that infringes the '039 Patent for marketing purposes and/or in order to generate Samsung marketing materials (e.g., Samsung device screen shots) that are used to teach Samsung customers or potential customers how to use Samsung SmartThings Find. E.g.:[54]

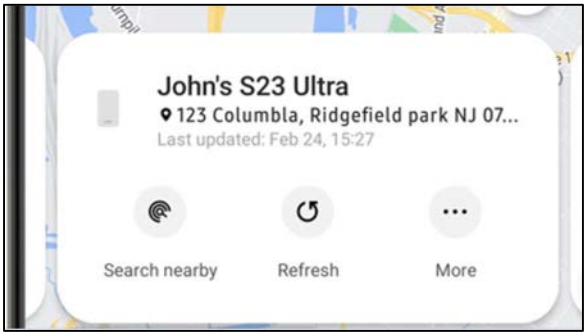


…



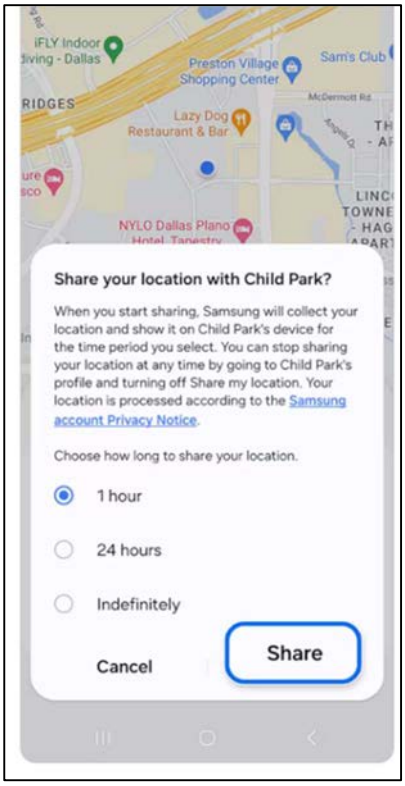
[54] E.g., https://www.samsung.com/us/support/answer/ANS00088182/.

…

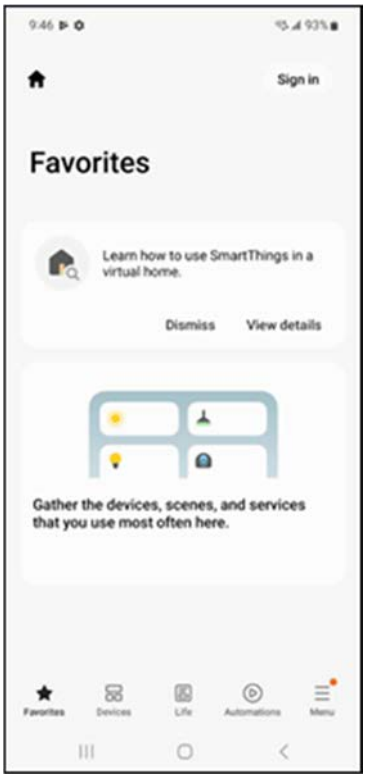


144. See also the following, which is a further example, on information and belief, of Samsung personnel having put into use the '039 Accused Products in the United States (e.g., in Plano, Texas) in a manner that infringes the '039 Patent for marketing purposes and/or in order to generate Samsung marketing materials (e.g., Samsung device screen shots) that are used to teach Samsung customers or potential customers how to use the '039 Accused Products:[55]

[55] E.g., https://www.samsung.com/uk/support/mobile-devices/use-the-samsung-find-app-to-share-your-location-with-your-friends-child-family-and-other-contacts/; https://www.androidcentral.com/apps-software/samsung-find-app-now-available-on-galaxy-store.

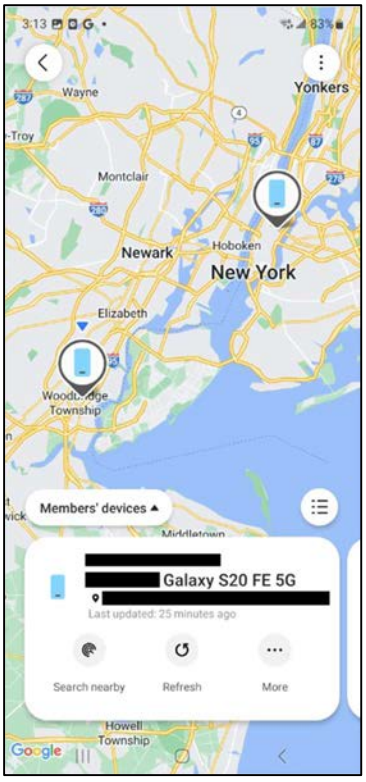


145. Each of the ’039 Accused Products comprises a remote system, wherein user information is operable to be identified from a plurality of different user information by receiving at least a manually entered login from a first wireless device associated with said user information and a manually entered password associated with said login. For example, the ’039 Accused Products running Samsung SmartThings Find and Samsung Find server software are operable to receive from each Samsung phone and tablet programmed with Samsung SmartThings Find and Samsung Find a user’s manually input login as well as a manually input password in order to identify such device for location sharing. E.g.:



Samsung A54 phone (Screen shot showing that a user must "Sign in" (using a login and password) to access location-based features of Samsung SmartThings Find).

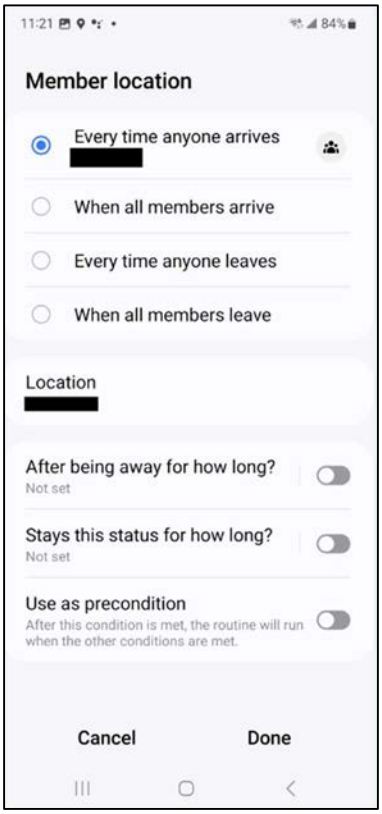
146. Each of the '039 Accused Products is operable to record a location of said first wireless device after said user information has been identified on said first wireless device and said location is associated with said user information and provided by said first wireless device to said remote system. For example, each of the '039 Accused Products is capable of obtaining and recording a location of a Samsung phone or tablet from the phone or tablet, and of providing to the Samsung phone or tablet the location of another wireless telephone. E.g.:



Samsung A54 phone (Redacted screen shot showing the display in Samsung SmartThings Find of a first user's location (redacted Galaxy S20 FE 5G identified on left side of image as an icon depicting a wireless telephone) obtained from a remote system).

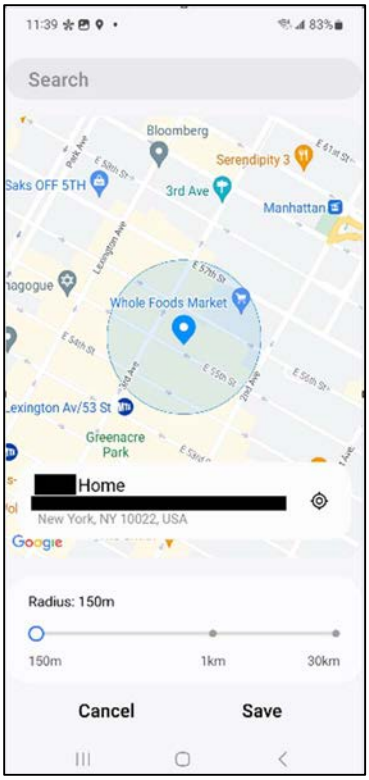
147. Each of the '039 Accused Products is operable to provide a location-based event based, at least in part, on said location of said first wireless device, wherein said location-based event is operable to be manually pre-selected from a list of at least three types of location-based events on a device, and a location-based event notification is operable to be provided on said device as a result of, at least in part, location access rights of said device from said first wireless device. For example, each Samsung phone and tablet programmed with Samsung SmartThings Find and Samsung Find is capable of displaying selectable location-based events, including at least events corresponding to whether the first wireless device such as another Samsung phone or tablet (i) arrives at a location, (ii) leaves a location, (iii) is one of multiple member devices that all have arrived at a location, and (iv) is one of multiple member devices that all have left a location. The

’039 Accused Products transmit alerts to a Samsung phone or table in response to the user of such phone or tablet setting such events in Samsung SmartThings Find and Samsung Find. E.g.:



Samsung A54 phone (Redacted screen shot showing the display in Samsung SmartThings Find of selectable location-based events that are based on the location of another member’s wireless device).

148. Each of the ’039 Accused Products is operable to provide at least three types of location-based events, wherein a first one of said at least three types of location-based events is, at least in part, region-based, and a second one of said at least three types of location-based events is, at least in part, distance-based. For example, the ’039 Accused Products are operable to provide location-based events as a result of user selection of options displayed on Samsung phones and tablets via Samsung SmartThings Find and Samsung Find, including with regard to events (i) – (iv) enumerated above. Each of the events (i) – (iv) enumerated above is, at least in part, region based including because each corresponding location can be defined as an area. E.g.:



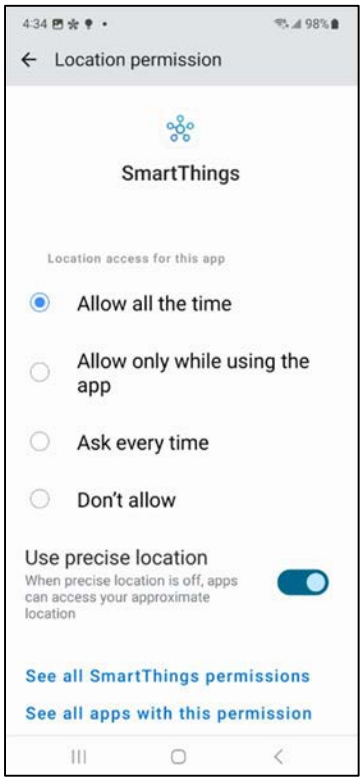
Samsung A54 phone (Redacted screen shot showing the display in Samsung SmartThings Find of a selectable location for region-based notification).

149. At least the Samsung SmartThings Find and Samsung Find above-enumerated event (iii) corresponding to the device being one of multiple member devices that all have arrived at a location is, at least in part, distance based including because it relates to the distance between the member devices in Samsung SmartThings Find and Samsung Find, including both the wireless device that set the notification and the first wireless device. Such a notification indicates that all member devices are at the same location, which means that there is no distance between the wireless device that set the notification and the first wireless device.

150. All of the above-enumerated events (i)-(iv) for Samsung SmartThings Find and Samsung Find are also, at least in part, distance-based including because each corresponding location is defined as having a radius corresponding to a specific distance. As identified in the screen shot above, the user can adjust the radius from “150m” (meters) to “30km” (kilometers)

which means that the notification can be triggered when a device is within a specific distance (150m – 30km) of a center point.

151. In addition, all of the above-enumerated events (i)-(iv) for Samsung SmartThings Find and Samsung Find are, at least in part, distance-based including because each corresponding location can be defined as having a customizable distance that it occupies, including either a precise location or an approximate location. E.g.:



Samsung A54 phone (Screen shot showing the display of location permissions for SmartThings Find, including whether to "[u]se precise location" or "approximate location").

152. Samsung also has and continues to indirectly infringe the '039 Patent, including at least claims 1, 4, 7, 8, 9, and 13 of the '039 Patent, by actively inducing and contributing to the infringement of at least such claims of the '039 Patent by others, including service providers (e.g., AWS), customers, resellers, and retailers. On information and belief, Samsung has possessed knowledge of the '039 Patent and of its infringement thereof both before and after the filing of the

original Complaint for at least the reasons described above in paragraphs 9-18.

153. On information and belief, Samsung has and continues to specifically induce and intend that others, such as service providers, customers, resellers, and retailers, infringe the '039 Patent by, for example, making, using or selling the '039 Accused Products, and has and continues to know that such others perform acts that constitute direct infringement. For example, Samsung has and continues to provide instructions to its service providers (e.g., AWS) regarding how to make the '039 Accused Products, including by loading Samsung-provided server software onto server hardware. As another example, Samsung has and continues to provide instructions to its customers regarding the infringing use and operation of the '039 Accused Products. When others have and continue to follow such instructions, they have and continue to directly infringe one or more claims of the '039 Patent by putting the '039 Accused Products into use. By providing such instructions, Samsung has and continues to know and intend that others follow such instructions, and thereby directly infringe one or more claims of the '039 Patent. Thus, Samsung has and continues to know that its actions actively induce infringement by others.

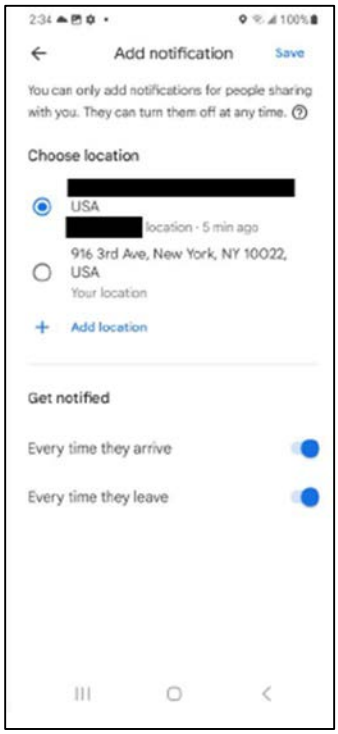
154. For example, Samsung has instructed end users how to open and use Samsung SmartThings Find and Samsung Find, for example, for location sharing with other users, which induces end users to use a Samsung SmartThings Find or Samsung Find remote system in a manner that infringes the '039 Patent.[56]

155. As another example, Samsung has and continues to instruct end users how to open and use Google Maps, for example, to find one's family and friends on a map, which induces end

[56] https://smartthingsfind.samsung.com/login?result=true.

users to use a Google Maps remote system in a manner that infringes the '039 Patent.[57]

156. As another example, Samsung has and continues to directly hyperlink from Samsung's description of Google Maps on Samsung's website[58] to Google's website pages that provide further instructions on how end users can utilize Google Maps, for example, for location sharing via a map, directions, and notifications, which induces end users to use a Google Maps remote system in a manner that infringes the '039 Patent.[59] See also e.g.:



Samsung Galaxy S23 (Screen shot showing the display in Google Maps of selectable location-based events).

[57] https://www.youtube.com/watch?app=desktop&v=wjXDjjPdGb0; see also https://r2.community.samsung.com/t5/Tech-Talk/How-to-Find-Your-Family-and-Friends-Using-Google-Maps/td-p/7430575.

[58] https://www.samsung.com/us/support/answer/ANS00089082/.

[59] https://support.google.com/maps#topic=3092425; see also https://support.google.com/maps/answer/7326816?hl=en&ref_topic=7301134&sjid=16018432753100644351-NA ("Share your real-time location with others"); https://support.google.com/maps/answer/11966807?hl=en&ref_topic=7301134&sjid=16018432753100644351-NA ("Get Location Sharing notifications").

157. Samsung also has and continues to contribute to the direct infringement of the ’039 Patent by others because the location-based technologies of the ’039 Accused Products have no substantial non-infringing use and are a material part of the invention. On information and belief, there is no substantial way to utilize the location-based technologies of the ’039 Accused Products and not infringe the ’039 Patent. Samsung contributes to the direct infringement of the ’039 Patent when, for example, Samsung provides instructions to its service providers (e.g., AWS) regarding how to make the ’039 Accused Products, including by loading Samsung-provided server software for Samsung SmartThings Find and Samsung Find onto server hardware. As another example, Samsung contributes to the direct infringement of the ’039 Patent when, for example, Samsung causes or instructs end users to download updates to the programming on at least Samsung phones and tablets, and to use such programming, in a manner that results in infringement of the ’039 Patent by putting the ’039 Accused Products into use. Samsung also contributes to the direct infringement of the ’039 Patent when, for example, Samsung provides updates to the programming on the ’039 Accused Products that, together with such products’ hardware and/or other software, results in infringement of the ’039 Patent by putting the ’039 Accused Products into use.

158. Plaintiff has and continues to suffer damages as a result of Samsung’s infringement of the ’039 Patent in an amount to be proved at trial.

159. On information and belief, Samsung’s infringement of the ’039 Patent has and continues to be willful.

160. Plaintiff should be awarded damages in accordance with 35 U.S.C. §§ 271, 281, and 284 in an amount adequate to compensate for Samsung’s infringement of the ’039 Patent but in no event less than a reasonable royalty for the use made of the inventions by Samsung, together with interest and costs as fixed by the Court.

COUNT VI
INFRINGEMENT OF U.S. PATENT NO. 9,204,283

161. Plaintiff references and incorporates by reference the preceding paragraphs of this Complaint as if fully set forth herein.

162. Plaintiff has not licensed or otherwise authorized Samsung to make, use, offer for sale, sell, export, or import any products, or to perform any processes or methods, that embody the inventions of the '283 Patent.

163. Samsung has and continues to directly infringe the '283 Patent, either literally or under the doctrine of equivalents, without authority and in violation of 35 U.S.C. § 271, by performing processes or methods that satisfy each and every limitation of one or more claims of the '283 Patent.

164. On information and belief, Samsung's infringement of the '283 Patent includes Samsung's performance of processes or methods in connection with providing location-based services and features to Samsung devices including phones and tablets, and each of which includes a method of mobile-to-mobile locating (the "'283 Accused Processes").

165. Samsung has and continues to directly infringe one or more claims of the '283 Patent including, for example, at least claims 1, 2, 6, 8, 9, 13, 15, 16, and 17 of the '283 Patent. For example, on information and belief, Samsung demonstrates and/or tests at least Samsung phones and/or tablets in the United States, which, in turn, puts into use the '283 Accused Processes that provide location-based services and features in a manner that infringes the '283 Patent.[60] As another example, on information and belief, Samsung operates, demonstrates, and/or tests Samsung servers in the United States, which, in turn, puts into use the '283 Accused Processes in

[60] E.g., https://www.zdnet.com/article/how-samsung-tests-its-smartphones-and-hopes-to-win-back-trust/.

a manner that infringes the ’283 Patent. On information and belief, all steps of the asserted claims are performed by or attributable to Samsung. On information and belief, Samsung provides the Samsung SmartThings Find and Samsung Find software for phones and tablets, provides the remote system (e.g., server) server software for Samsung SmartThings Find and Samsung Find, and provides or controls the remote system hardware by way of contract establishing that the remote system hardware must run the Samsung remote system software in the manner directed by Samsung.[61]

166. On information and belief, Samsung has and/or continues to test and/or otherwise execute the ’283 Accused Processes in a manner that infringes the ’283 Patent during product testing, demonstrations, and/or troubleshooting.

167. For example, on information and belief, a Samsung Engineering Manager in this District (Plano, Texas) manages a team of 20 Samsung engineers who have tested the accused Samsung SmartThings Find technology claimed by the ’283 Accused Processes. E.g., Ex. 6 (“Managing a team of 20 Engineers … development and quality assurance of strategic services”; “SmartThings Find development testing”).

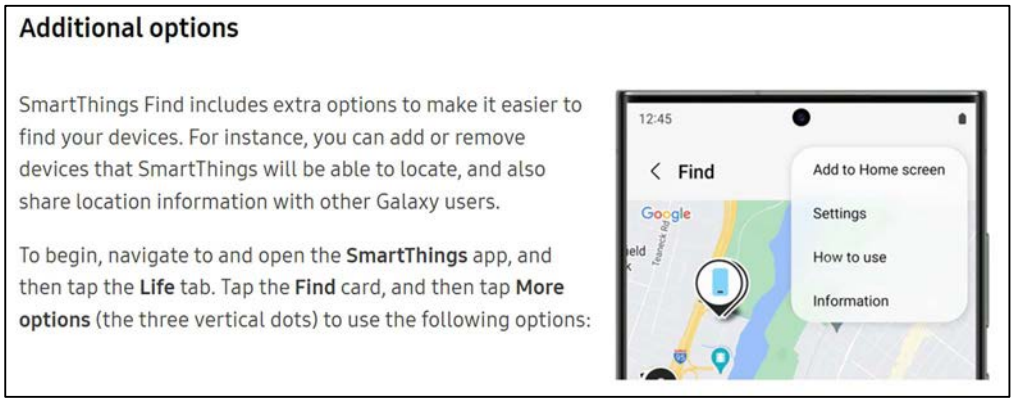
168. As another example, on information and belief, Samsung personnel have executed the ’283 Accused Processes in the United States in a manner that infringes the ’283 Patent for marketing purposes and/or in order to generate Samsung marketing materials (e.g., Samsung

[61] E.g., https://aws.amazon.com/solutions/case-studies/samsung-migrates-off-oracle-to-amazon-aurora/ (stating that by March 2020 Samsung migrated to Amazon Web Services (AWS) so that “Samsung can serve more users more quickly than before: now 90 percent of latency is less than 60 ms. The automation of the cloud solution also allows Samsung to deliver more features to users faster.”).

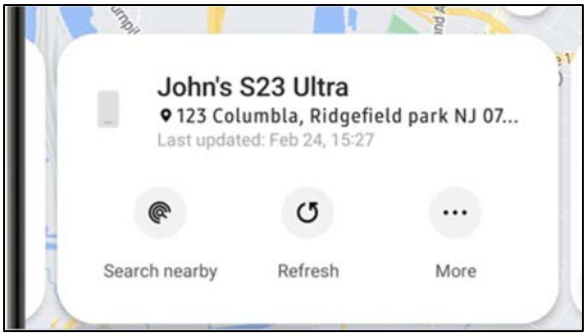
device screen shots) that are used to teach Samsung customers or potential customers how to use Samsung SmartThings Find. E.g.:[62]



…

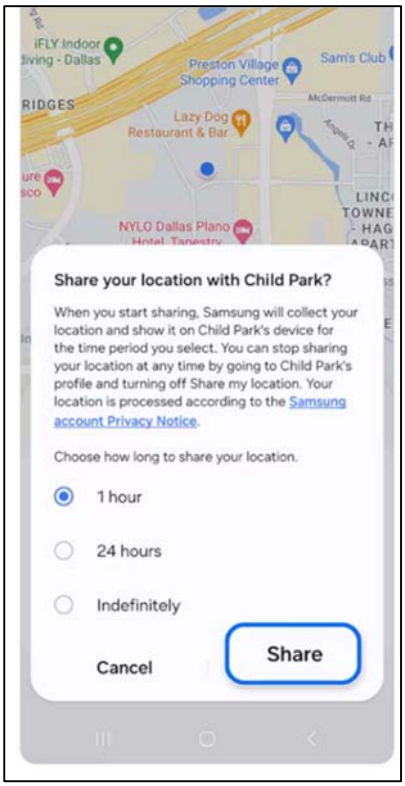


…



[62] E.g., https://www.samsung.com/us/support/answer/ANS00088182/.

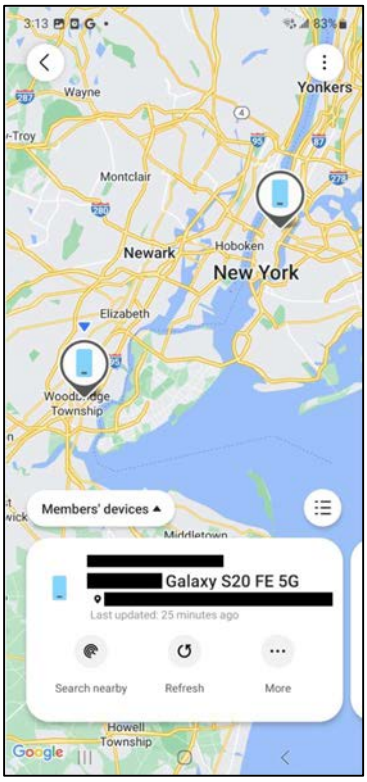
169. See also the following, which is a further example, on information and belief, of Samsung personnel having executed the '283 Accused Processes in the United States (e.g., in Plano, Texas) in a manner that infringes the '283 Patent for marketing purposes and/or in order to generate Samsung marketing materials (e.g., Samsung device screen shots) that are used to teach Samsung customers or potential customers how to use the '283 Accused Processes:[63]



170. Each of the '283 Accused Processes comprises displaying on a first wireless telephonic device a plurality of users, wherein each one of said plurality of users is associated to a different one of a plurality of wireless telephonic devices.

[63] E.g., https://www.samsung.com/uk/support/mobile-devices/use-the-samsung-find-app-to-share-your-location-with-your-friends-child-family-and-other-contacts/; https://www.androidcentral.com/apps-software/samsung-find-app-now-available-on-galaxy-store.

171. For example, each Samsung phone and tablet is a first wireless telephonic device programmed with the location-based services and features of Samsung SmartThings Find or Samsung Find including the capability to display the locations of other users. A remote server system provides such location information for display on the first wireless telephonic device in response to, for example, a user of the first wireless telephonic device accessing Samsung SmartThings Find or Samsung Find. E.g.:



Samsung A54 phone (Redacted screen shot showing the display of a plurality of users, each of which is associated to a different one of a plurality of wireless telephonic devices).

172. Each of the ’283 Accused Processes comprises receiving on said first wireless telephonic device a first manual input in a form of a selection of one of said plurality of users. For example, each Samsung phone and tablet programmed with the location-based services and features of Samsung SmartThings Find or Samsung Find, including the capability to display the locations of other users, includes the capability to display the locations of such other users in a

manner such that each of such other users can be manually selected by a user of the Samsung phone or tablet. See e.g., the Samsung SmartThings Find screen shot provided above, in which each other user displayed on the Samsung phone is capable of being selected by manual input.

173. Each of the '283 Accused Processes comprises receiving on said first wireless telephonic device an input in a form of a login and a second manual input in a form of a password. For example, each Samsung phone or tablet programmed with Samsung SmartThings Find or Samsung Find requires a user of the device to manually input, and for the Samsung phone or tablet to receive, a login as well as a password, which are, in turn, received by a remote server system for use in identifying the Samsung phone or tablet.[64]

174. Each of the '283 Accused Processes comprises determining whether to allow access of location information for said one of said plurality of wireless telephonic devices associated to said selected one of said plurality of users, wherein said determination includes identifying said user of said first wireless telephonic device from said plurality of users using said login and determining said password is associated with said login and determining whether said selected one of said plurality of users has provided access rights for said location information to said user of said first wireless telephonic device, and said first wireless telephonic device is operable to assign location access rights to said one of said plurality of wireless telephonic devices associated with said selected one of said plurality of users for obtaining a location of said first wireless telephonic device. For example, a remote server system receives the foregoing login and password and determines on the basis of such information whether the device that provided such information is

[64] E.g., https://www.samsung.com/us/support/troubleshooting/TSG01110304/#:~:text=The%20SmartThings%20app%20uses%20your,the%20account%20from%20the%20app. ("The SmartThings app uses your Samsung account credentials. To create an account, you simply need to sign in with your Samsung account.").

authorized to access location information corresponding to other devices.[65] Each user device is operable to assign location access rights to other devices.[66] According to such defined location access rights, the remote server system only permits specific authenticated users associated with specific logins and passwords to access other devices' location information.[67]

175. Each of the '283 Accused Processes comprises transmitting said location information from a server to said first wireless telephonic device, and displaying said location information on said first wireless device. For example, after the remote server system determines that the selected one of the plurality of users has provided access rights for the location information that permit the first wireless telephonic device to access such location information, the remote server system transmits the location information to the first wireless telephonic device and continues to do so in order to provide location updates for display on said first wireless telephonic device (see e.g. *s ra*, showing on a Samsung mobile device programmed with Samsung SmartThings Find the display on a map of a location of another user's device).

176. Plaintiff has and continues to suffer damages as a result of Samsung's infringement of the '283 Patent in an amount to be proved at trial.

177. On information and belief, Samsung's infringement of the '283 Patent has and continues to be willful.

178. Plaintiff should be awarded damages in accordance with 35 U.S.C. §§ 271, 281, and 284 in an amount adequate to compensate for Samsung's infringement of the '283 Patent but in no event less than a reasonable royalty for the use made of the inventions by Samsung, together

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[65] *d.*

[66] E.g., https://support.smartthings.com/hc/en-us/articles/360051931312-Share-Control-of-your-Smart-Devices- (referring to the ability to grant, or remove, access rights of others in Samsung SmartThings Find).

[67] *d.*

with interest and costs as fixed by the Court.

COUNT VII
INFRINGEMENT OF U.S. PATENT NO. 8,374,575

179. Plaintiff references and incorporates by reference the preceding paragraphs of this Complaint as if fully set forth herein.

180. Plaintiff has not licensed or otherwise authorized Samsung to make, use, offer for sale, sell, export, or import any products, or to perform any processes or methods, that embody the inventions of the '575 Patent.

181. Samsung has directly infringed the '575 Patent, either literally or under the doctrine of equivalents, without authority and in violation of 35 U.S.C. § 271, by performing processes or methods that satisfy each and every limitation of one or more claims of the '575 Patent.

182. On information and belief, Samsung's infringement the '575 Patent includes Samsung's performance of processes or methods in connection with providing location-based services and features to Samsung devices including phones and tablets, and each of which includes a method of mobile-to-mobile locating (the "'575 Accused Processes").

183. Samsung has directly infringed one or more claims of the '575 Patent including, for example, at least claims 1, 2, 3, 6, 8, 13, 23, 24, 26, 28, 30, 31, 32, 35, 37, 38-40, 42, and 44 of the '575 Patent. For example, on information and belief, Samsung has operated, demonstrated and/or tested at least Samsung phones, tablets, and/or servers in the United States, which, in turn, has put into use the '575 Accused Processes that provide location-based services and features in a manner that infringes the '575 Patent.[68] On information and belief, all steps of the asserted claims have been performed by or have been attributable to Samsung. On information and belief, Samsung

[68] E.g., https://www.zdnet.com/article/how-samsung-tests-its-smartphones-and-hopes-to-win-back-trust/.

provides the Samsung SmartThings Find software for phones and tablets, provides the remote system (e.g., server) server software for Samsung SmartThings Find, and provides or controls the remote system hardware by way of contract establishing that the remote system hardware must run the Samsung remote system software in the manner directed by Samsung.[69]

184. On information and belief, Samsung has tested and/or otherwise executed the '575 Accused Processes in a manner that infringes the '575 Patent during product testing, demonstrations, and/or troubleshooting.

185. For example, on information and belief, a Samsung Engineering Manager in this District (Plano, Texas) manages a team of 20 Samsung engineers who have tested the accused Samsung SmartThings Find technology claimed by the '575 Accused Processes. E.g., Ex. 6 ("Managing a team of 20 Engineers … development and quality assurance of strategic services"; "SmartThings Find development testing").

186. As another example, on information and belief, Samsung personnel have executed the '575 Accused Processes in the United States in a manner that infringes the '575 Patent for marketing purposes and/or in order to generate Samsung marketing materials (e.g., Samsung device screen shots) that are used to teach Samsung customers or potential customers how to use Samsung SmartThings Find. E.g.:[70]

[69] E.g., https://aws.amazon.com/solutions/case-studies/samsung-migrates-off-oracle-to-amazon-aurora/ (stating that by March 2020 Samsung migrated to Amazon Web Services (AWS) so that "Samsung can serve more users more quickly than before: now 90 percent of latency is less than 60 ms. The automation of the cloud solution also allows Samsung to deliver more features to users faster.").

[70] E.g., https://www.samsung.com/us/support/answer/ANS00088182/.

SAMSUNG Shop Mobile TV & Audio Appliances Computing Displays Accessories SmartThings Explore Support For Business

Use SmartThings Find with the SmartThings app



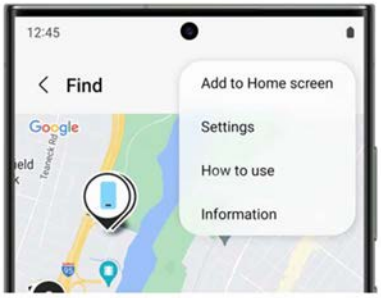
With all the devices we own these days, it's easy to accidentally misplace one or two. Luckily, SmartThings Find in the SmartThings app will help you locate your precious devices, like your phone, tablet, earbuds, and watch. SmartThings Find will scan for your devices and even show you a map with detailed information, including addresses and timestamps. You can also share device information with other Galaxy users so a friend can locate a device for you, or turn on the Offline finding feature. If you need additional tracking options, you can use the Samsung SmartTag as well.

...

Additional options

SmartThings Find includes extra options to make it easier to find your devices. For instance, you can add or remove devices that SmartThings will be able to locate, and also share location information with other Galaxy users.

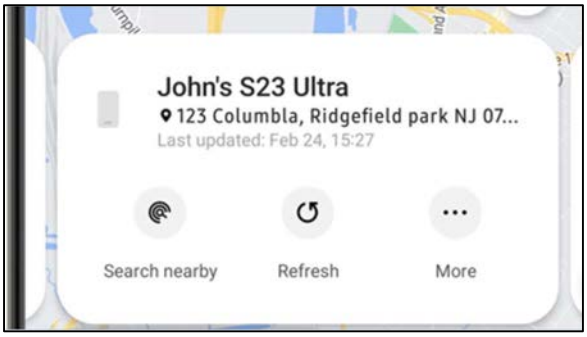
To begin, navigate to and open the **SmartThings** app, and then tap the **Life** tab. Tap the **Find** card, and then tap **More options** (the three vertical dots) to use the following options:



...

- **Navigate:** Open Google Maps Navigation to generate the fastest route to your device. This option may not be available if the device cannot be located. You may need to tap **More**, and then tap **Navigate**.

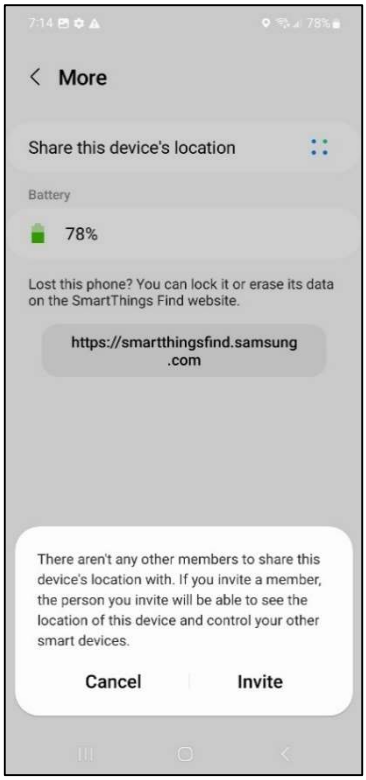
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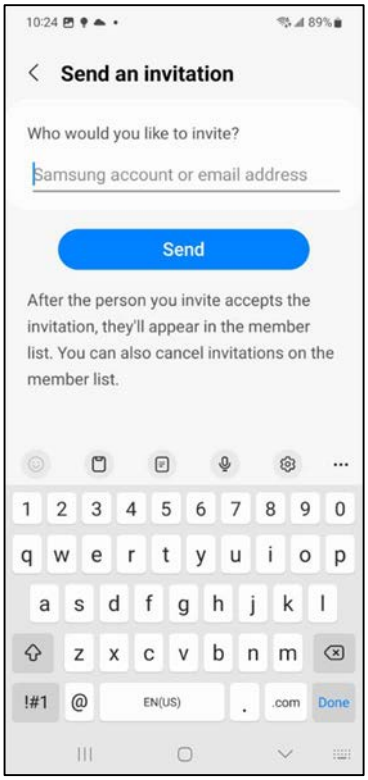


187. Regarding, for example, claim 30, each of the '575 Accused Processes comprises obtaining a location of a first wireless telephone. For example, each Samsung phones and tablets is a wireless telephone. Samsung phones and tablets are capable of obtaining a location of the phone or tablet using a global positioning system. As another example, Samsung phones and tablets are capable of determining a location of the phone or tablet on the basis of, for example, Wi-Fi signals in the vicinity of the phone or tablet. Each Samsung phone and tablet is capable of providing the location of the phone or tablet to a remote server system.

188. Each of the '575 Accused Processes comprises changing, at the direction of said first wireless telephone, a list of users on a remote server for a profile associated with said first wireless telephone that are allowed to access said location, wherein each user of said list of users is representative of one of a plurality of wireless telephones.

189. For example, each Samsung phone and tablet programmed with the location-based services and features of Samsung SmartThings Find includes options to add and/or remove individuals who can access the phone's or tablet's location from a remote server. Such options, when selected, instruct such server to change in a profile associated with the device a list of users authorized to view the device's location data, where each such authorized user is associated with a wireless telephone (e.g., phone or tablet). E.g.:





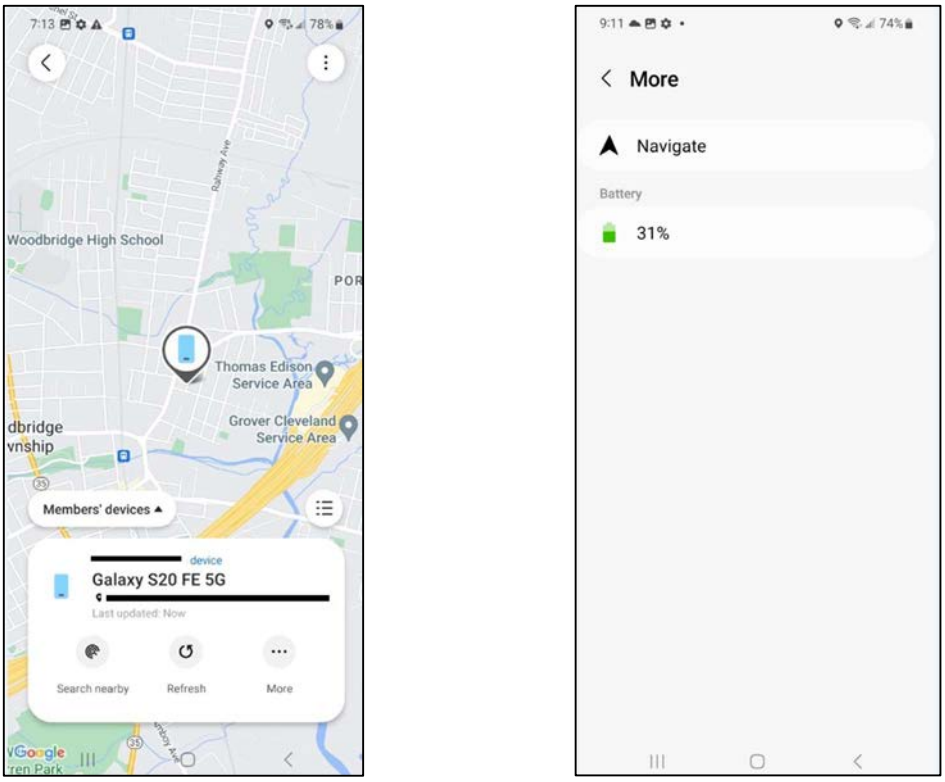
Samsung A54 phone (Screen shots showing the ability to assign to another user of a wireless telephone in Samsung SmartThings Find location access rights to see the A54 phone's location).

190. Each of the '575 Accused Processes comprises transmitting said location from said remote server to at least one of said users of said list of users. For example, the remote server system is capable of transmitting the location of a Samsung phone or tablet to at least one of the users of the list of users that are authorized to access the location of the phone or tablet.

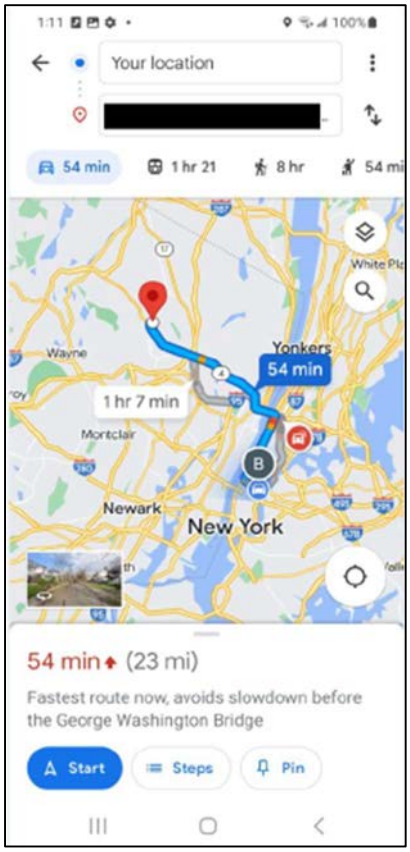
191. Each of the '575 Accused Processes comprises determining a second location associated with one of said plurality of wireless telephones. For example, a remote server system determines the location of each Samsung phone or tablet for which location sharing is enabled in Samsung SmartThings Find.

192. Each of the '575 Accused Processes comprises providing directional information to said one of said plurality of wireless telephones, wherein said directional information is representative of directions between said location and said second location.

193. For example, each Samsung phone and tablet programmed with the location-based services and features of Samsung SmartThings Find is capable of displaying directional information in the form of a "Navigate" option. Each Samsung phone and tablet displays the locations of the wireless telephones associated with the device user's friends, and upon selection of one of such wireless telephones, displays the "Navigate" option to receive and display directions from the location of the phone or tablet to the selected wireless telephone. E.g.:



Samsung A54 phone (Screen shots showing the ability to request in Samsung SmartThings Find that directions between the Samsung A54 phone and another user be received and displayed – left (redacted): selectable other user; right: "Navigate" option which, after being selected, launches a map that includes directions between the Samsung A54 phone and the other user's location).



Samsung wireless telephone (Screen shot showing that the Samsung wireless telephone provides directions between a location and a second location for display).

194. Plaintiff has suffered damages as a result of Samsung's infringement of the '575 Patent in an amount to be proved at trial.

195. On information and belief, Samsung's infringement of the '575 Patent has been willful.

196. Plaintiff should be awarded damages in accordance with 35 U.S.C. §§ 271, 281, and 284 in an amount adequate to compensate for Samsung's infringement of the '575 Patent but in no event less than a reasonable royalty for the use made of the inventions by Samsung, together with interest and costs as fixed by the Court.

COUNT VIII
INFRINGEMENT OF U.S. PATENT NO. 11,246,024

197. Plaintiff references and incorporates by reference the preceding paragraphs of this

Complaint as if fully set forth herein.

198. Plaintiff has not licensed or otherwise authorized Samsung to make, use, offer for sale, sell, export, or import any products that embody the inventions of the '024 Patent.

199. Samsung has directly infringed the '024 Patent, either literally or under the doctrine of equivalents, without authority and in violation of 35 U.S.C. § 271, by making, using, offering to sell, selling, exporting from, and/or importing into the United States products, including server systems, that satisfy each and every limitation of one or more claims of the '024 Patent (the "'024 Accused Products").

200. Samsung has directly infringed one or more claims of the '024 Patent including, for example, at least claims 1-14, 16-20, 22-35, 37-41, 43-50, 53-57, 59-69, 71-75, 77, and 78 of the '024 Patent. For example, on information and belief, Samsung has directly infringed claim 24 of the '024 Patent by making, using, offering to sell, selling, and/or importing into the United States the '024 Accused Products, each of which comprises a remote system that allows Samsung phones and tablets to access location-based services and features. On information and belief, Samsung both provided the remote system (e.g., server) software including at least server software for Samsung SmartThings Find and provided or controlled the remote system hardware.[71]

201. As another example, on information and belief, Samsung has operated, demonstrated, and/or tested at least Samsung phones and/or tablets in the United States, which, in

[71] E.g., https://aws.amazon.com/solutions/case-studies/samsung-migrates-off-oracle-to-amazon-aurora/ (stating that by March 2020 Samsung migrated to Amazon Web Services (AWS) so that "Samsung can serve more users more quickly than before: now 90 percent of latency is less than 60 ms. The automation of the cloud solution also allows Samsung to deliver more features to users faster.").

turn, has put into use the '024 Accused Products that provide location-based services and features in a manner that has infringed the '024 Patent.[72]

202. On information and belief, Samsung has tested and/or otherwise put into use the '024 Accused Products in a manner that infringed the '024 Patent during product testing, demonstrations, and/or troubleshooting.

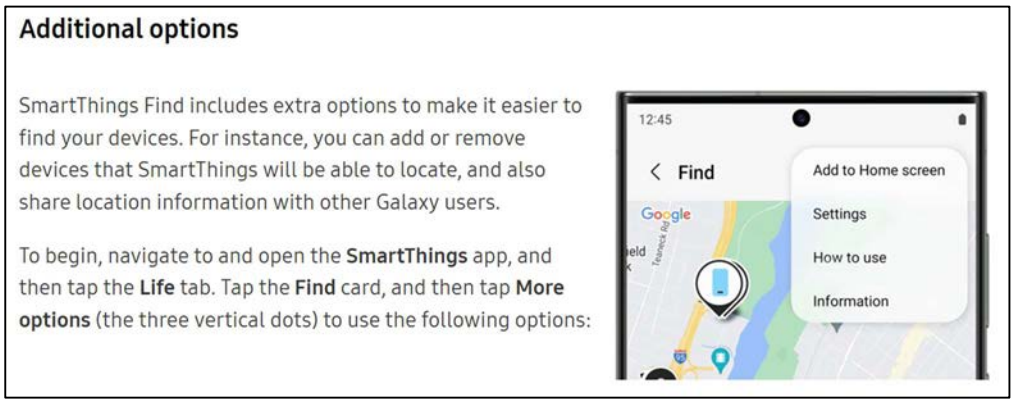
203. For example, on information and belief, a Samsung Engineering Manager in this District (Plano, Texas) manages a team of 20 Samsung engineers who have tested the accused Samsung SmartThings Find technology claimed by the '024 Patent. E.g., Ex. 6 ("Managing a team of 20 Engineers … development and quality assurance of strategic services"; "SmartThings Find development testing").

204. As another example, on information and belief, Samsung personnel have put into use the '024 Accused Products in the United States in a manner that infringed the '024 Patent for marketing purposes and/or in order to generate Samsung marketing materials (e.g., Samsung device screen shots) that are used to teach Samsung customers or potential customers how to use Samsung SmartThings Find. E.g.:[73]

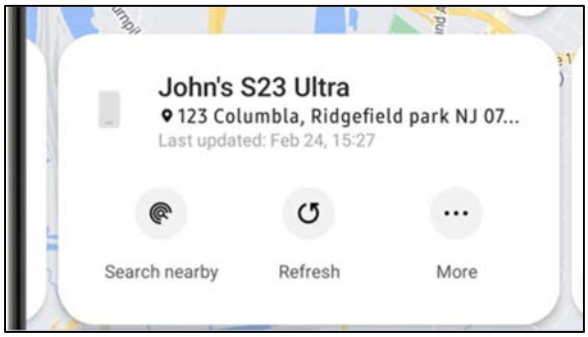
[72] E.g., https://www.zdnet.com/article/how-samsung-tests-its-smartphones-and-hopes-to-win-back-trust/.
[73] E.g., https://www.samsung.com/us/support/answer/ANS00088182/.



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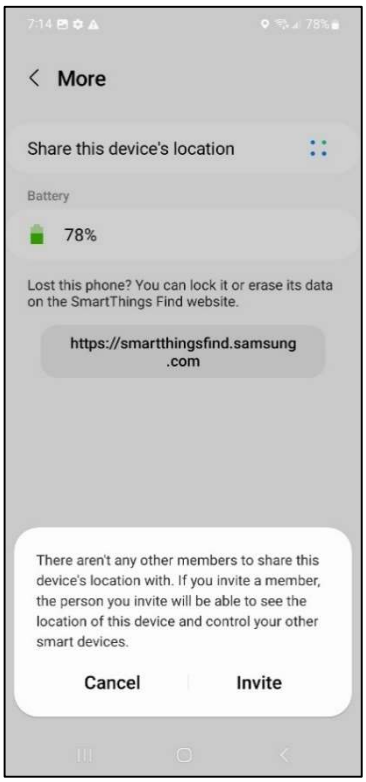


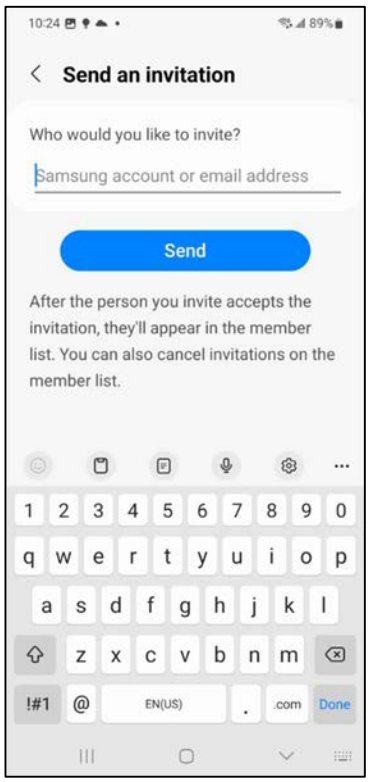
205. Each of the '024 Accused Products comprises a remote system comprising a server, the remote system capable of communicating with wireless telephones over a communications network. For example, a remote server system running Samsung SmartThings Find server

software is operable to receive over a communications network a location of each Samsung phone or tablet programmed with Samsung SmartThings Find.

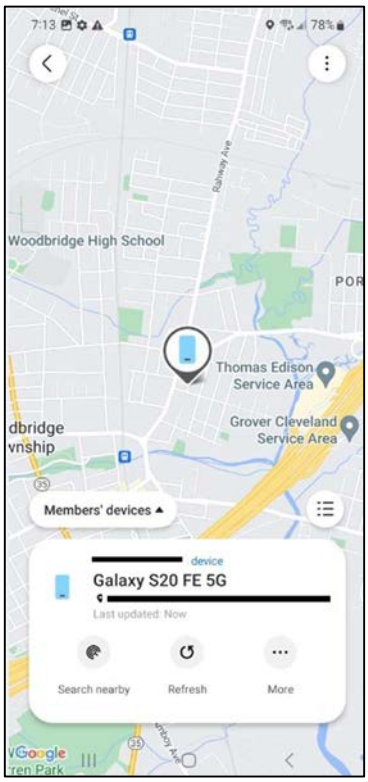
206. Each of the '024 Accused Products is capable of receiving from a first wireless telephone over said communications network a selection of one of a plurality of users, said selection corresponding to a user of said first wireless telephone manually selecting said one of said plurality of users from a display of said first wireless telephone, wherein each one of said plurality of users is associated to a different one of a plurality of wireless telephones.

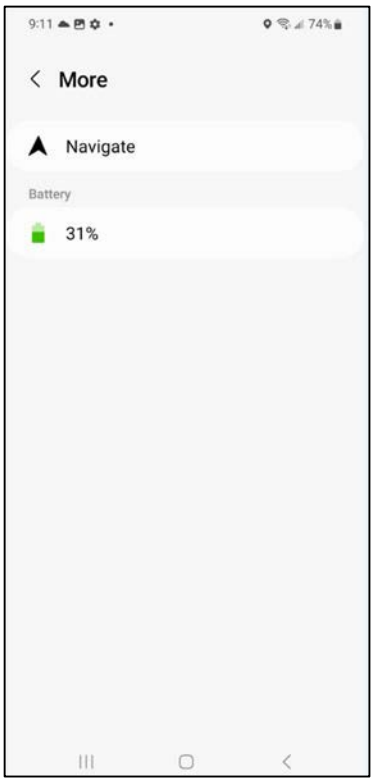
207. For example, each Samsung phone and tablet programmed with the location-based services and features of Samsung SmartThings Find includes the capability to display options to select individuals who can access the phone's or tablet's location from a remote server system, and/or individuals to which a user of the Samsung phone or tablet wishes to navigate. E.g.:





Samsung A54 phone (Screen shots showing the ability to assign to another user in Samsung SmartThings Find location access rights to allow the other user to see the A54 phone's location).

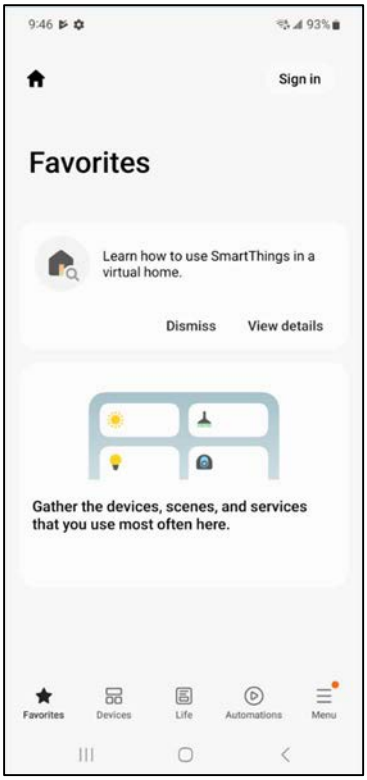




Samsung A54 phone (Screen shots showing the ability in Samsung SmartThings Find to select a another user from a display (left, redacted), after which a "Navigate" option is provided (right) to obtain directions between the Samsung A54 phone and the other user's location).

208. Each of the '024 Accused Products is capable of receiving from said first wireless telephone information indicative of a login and a password.

209. For example, each Samsung phone and tablet programmed with the location-based services and features of Samsung SmartThings Find is capable of receiving an input in a form of a login and a second manual input in a form of a password, and information regarding same is provided to and received by the remote server system. E.g.:



Samsung A54 phone (Screen shot showing that a user must "Sign in" (using a login and password) to access location-based features of Samsung SmartThings Find).

210. Each of the '024 Accused Products is capable of determining whether to allow access of location information for said one of said plurality of wireless telephones associated to said selected one of said plurality of users, wherein said determining includes identifying said user of said first wireless telephone using said information indicative of said login and password and determining whether said selected one of said plurality of users has provided access rights for said location information to said user of said first wireless telephone. For example, each Samsung phone and Samsung tablet programmed with the foregoing location-based services and features is capable of providing information regarding the device user's login and password to a remote server system, which determines on the basis of such information whether the selected one of said plurality of users has provided access rights for said location information to said Samsung phone

or tablet.[74] Only specific authenticated users associated with specific logins and passwords are permitted to access another user's location information.[75]

211. Each of the '024 Accused Products is capable of determining whether said user of said first wireless telephone has assigned location access rights to said one of said plurality of wireless telephones associated with said selected one of said plurality of users for obtaining a location of said first wireless telephone. For example, a user of a Samsung phone or tablet can revoke the location access rights of the one of the plurality of wireless telephones at any time, and/or can provide location access rights to the one of the plurality of wireless telephones for only a specific period of time.[76] Accordingly, before each time that a remote server system provides a location of the first wireless telephone to the one of the plurality of wireless telephones, the remote server system determines whether the user of the first wireless telephone has assigned location access rights to the one of the plurality of wireless telephones.[77]

212. Each of the '024 Accused Products is capable of transmitting over said communications network said location information to said first wireless telephone.

213. For example, when the remote server system determines that the selected one of the plurality of users has provided access rights for the location information, the server system transmits the location information to the first wireless telephone for display in Samsung

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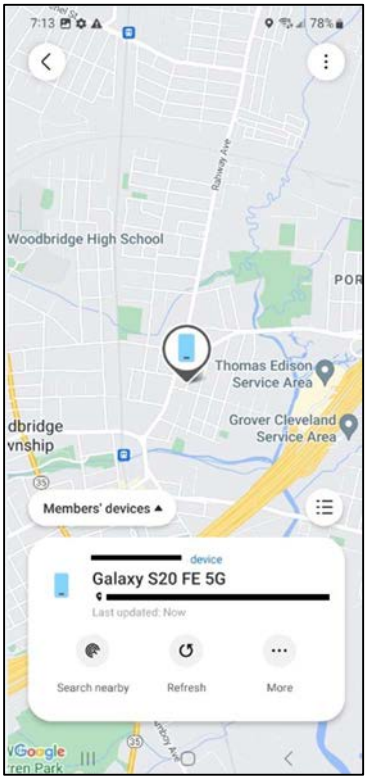
[74] E.g., https://www.samsung.com/us/support/troubleshooting/TSG01110304/#:~:text=The%20SmartThings%20app%20uses%20your,the%20account%20from%20the%20app. ("The SmartThings app uses your Samsung account credentials. To create an account, you simply need to sign in with your Samsung account. To log out, you will need to remove the account from the app.").

[75] *d.*

[76] E.g., https://support.smartthings.com/hc/en-us/articles/360051931312-Share-Control-of-your-Smart-Devices- (referring to the ability to grant, or remove, access rights of others in Samsung SmartThings Find).

[77] *d.*

SmartThings Find. E.g.:



Samsung A54 phone (Redacted screen shot showing the display in Samsung SmartThings Find of a location of another user).

214. Samsung has also indirectly infringed the '024 Patent by actively inducing and contributing to the infringement of the '024 Patent by others, including service providers (e.g., AWS), customers, resellers, and retailers. On information and belief, Samsung had knowledge of the '024 Patent and of its infringement thereof before the filing of the original Complaint for at least the reasons described above in paragraphs 9-18.

215. On information and belief, Samsung has specifically induced and intended others, such as service providers, customers, resellers, and retailers, to infringe the '024 Patent by, for example, making, using, or selling the '024 Accused Products, and knew that such others perform acts that constituted direct infringement. For example, Samsung has provided instructions to its service providers (e.g., AWS) regarding how to make the '024 Accused Products, including by

loading Samsung-provided server software onto server hardware. As another example, Samsung has provided instructions to its customers regarding the infringing use and operation of the '024 Accused Products. When others have followed such instructions, they have directly infringed one or more claims of the '024 Patent by putting the '024 Accused Products into use. By providing such instructions, Samsung knew and intended that others would follow such instructions, and thereby directly infringe one or more claims of the '024 Patent. Thus, Samsung knew that its actions actively induced infringement by others.

216. For example, Samsung has instructed end users how to open and use Samsung SmartThings Find, for example, for location sharing with others, which induces end users to use a SmartThings Find remote system in a manner that infringes the '024 Patent.[78]

217. As another example, Samsung has and continues to instruct end users how to open and use Google Maps, for example, to find one's family and friends on a map, which induces end users to use a Google Maps remote system in a manner that infringes the '024 Patent.[79]

218. As another example, Samsung has and continues to directly hyperlink from Samsung's description of Google Maps on Samsung's website[80] to Google's website pages that provide further instructions on how end users can utilize Google Maps, for example, for location sharing via a map, directions, and notifications, which induces end users to use a Google Maps remote system in a manner that infringes the '024 Patent.[81] See also e.g.:

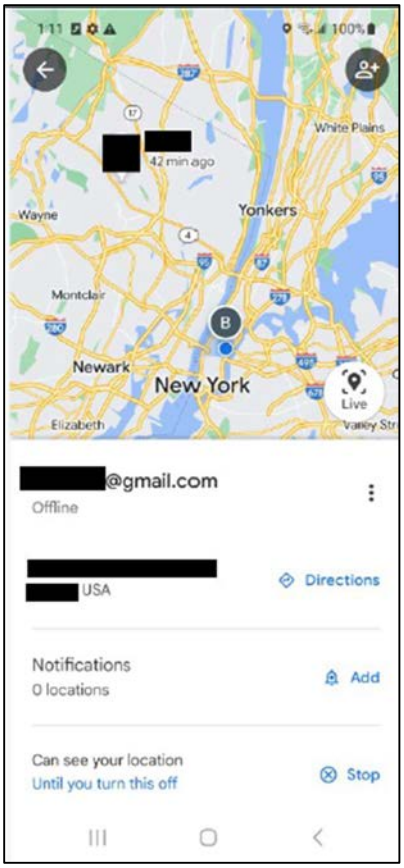
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[78] E.g., https://smartthingsfind.samsung.com/login?result=true.

[79] https://www.youtube.com/watch?app=desktop&v=wjXDjjPdGb0; see also https://r2.community.samsung.com/t5/Tech-Talk/How-to-Find-Your-Family-and-Friends-Using-Google-Maps/td-p/7430575.

[80] https://www.samsung.com/us/support/answer/ANS00089082/.

[81] https://support.google.com/maps#topic=3092425; see also https://support.google.com/maps/answer/7326816?hl=en&ref_topic=7301134&sjid=16018432753100644351-NA ("Share your real-time location with others");



Samsung Galaxy S23 (Screen shot showing the display in Google Maps of the location of a first user (redacted black square) and a second user (identified as "B")).

219. Samsung has also contributed to the direct infringement of the '024 Patent by others because the location-based technologies of the '024 Accused Products have no substantial non-infringing use and are a material part of the invention. On information and belief, there is no substantial way to utilize the location-based technologies of the '024 Accused Products and not infringe the '024 Patent. Samsung contributes to the direct infringement of the '024 Patent when, for example, Samsung provides instructions to its service providers (e.g., AWS) regarding how to make the '024 Accused Products, including by loading Samsung-provided server software for Samsung SmartThings Find onto server hardware. As another example, Samsung contributes to

https://support.google.com/maps/answer/11966807?hl=en&ref_topic=7301134&sjid=16018432753100644351-NA ("Get Location Sharing notifications").

the direct infringement of the '024 Patent when, for example, Samsung causes or instructs end users to download updates to the programming on at least Samsung phones and tablets, and to use such programming, in a manner that results in infringement of the '024 Patent by putting the '024 Accused Products into use. Samsung also contributes to the direct infringement of the '024 Patent when, for example, Samsung provides updates to the programming on the '024 Accused Products that, together with such products' hardware and/or other software, results in infringement of the '024 Patent by putting the '024 Accused Products into use.

220. Plaintiff has suffered damages as a result of Samsung's infringement of the '024 Patent in an amount to be proved at trial.

221. On information and belief, Samsung's infringement of the '024 Patent has been willful.

222. Plaintiff should be awarded damages in accordance with 35 U.S.C. §§ 271, 281, and 284 in an amount adequate to compensate for Samsung's infringement of the '024 Patent but in no event less than a reasonable royalty for the use made of the inventions by Samsung, together with interest and costs as fixed by the Court.

PRAYER FOR RELIEF

WHEREFORE, Plaintiff respectfully requests that this Court enter:

A. A judgment in favor of Plaintiff that Samsung has infringed, either literally and/or under the doctrine of equivalents, one or more claims of each Patent-in-Suit;

B. A judgment in favor of Plaintiff that Samsung's infringement of each Patent-in-Suit has been willful;

C. An award of damages resulting from Samsung's acts of infringement in accordance with 35 U.S.C. § 284;

D. A judgment and order finding that this is an exceptional case within the meaning of 35 U.S.C. § 285, that Plaintiff is entitled to up to treble damages, and awarding to Plaintiff its reasonable attorneys' fees against Samsung; and

E. Any and all other relief as the Court may deem just and proper.

DEMAND FOR JURY TRIAL

Plaintiff requests a trial by jury of all issues so triable.

Dated: December 3, 2024

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CERTIFICATE OF SERVICE

I certify that, on December 3, 2024, I electronically filed the foregoing with the Clerk of Court using the CM/ECF system, which will send notification of such filing via electronic mail to all counsel of record.

/s/ Peter . nell
Peter F. Snell

EXHIBIT 1

US011234117B2

(12) United States Patent
Mullen

(10) **Patent No.: US 11,234,117 B2**
(45) **Date of Patent: *Jan. 25, 2022**

(54) **SYSTEMS AND METHODS FOR LOCATING CELLULAR PHONES AND SECURITY MEASURES FOR THE SAME**

(76) Inventor: **Jeffrey David Mullen**, Pittsburgh, PA (US)

(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 0 days.

This patent is subject to a terminal disclaimer.

(21) Appl. No.: **11/834,674**

(22) Filed: **Aug. 6, 2007**

(65) **Prior Publication Data**

US 2008/0039059 A1 Feb. 14, 2008

Related U.S. Application Data

(63) Continuation of application No. 10/400,296, filed on Mar. 25, 2003.

(60) Provisional application No. 60/367,967, filed on Mar. 25, 2002.

(51) **Int. Cl.**

H04M 11/04	(2006.01)
H04W 8/14	(2009.01)
H04W 64/00	(2009.01)
H04W 8/16	(2009.01)

(52) **U.S. Cl.**

CPC ***H04W 8/14*** (2013.01); ***H04W 64/00*** (2013.01); *H04W 8/16* (2013.01)

(58) **Field of Classification Search**

CPC H04W 8/14; H04W 64/00; H04W 8/16
USPC 455/456.1, 415, 457, 435, 404.1
See application file for complete search history.

(56) **References Cited**

U.S. PATENT DOCUMENTS

4,654,879	A	3/1987	Goldman et al.
5,043,736	A	8/1991	Darnell et al.
5,086,390	A	2/1992	Matthews
5,097,416	A	3/1992	Matthews
5,197,092	A	3/1993	Bamburak
5,305,201	A	4/1994	Matthews

(Continued)

FOREIGN PATENT DOCUMENTS

WO	WO 99/000717	2/1999
WO	WO 99/009775	2/1999

(Continued)

OTHER PUBLICATIONS

Wrolstad, Jay, "Sprint Claims First With E911-Capable Phone," newsfactor.com (as viewed at http://www.newsfactor.com/perl/story/13952.html on Jan. 22, 2007), Oct. 4, 2001).

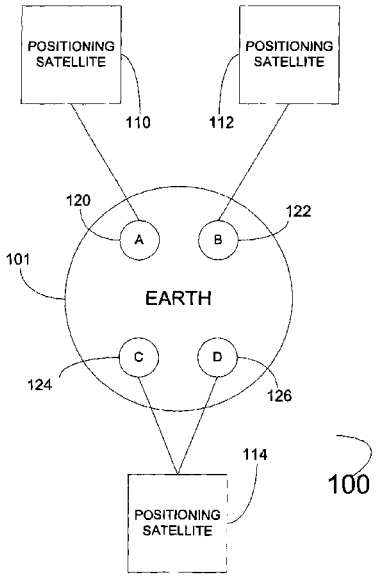
(Continued)

Primary Examiner — William J Deane, Jr.

(57) **ABSTRACT**

Systems and methods for locating a cellular phone are provided. More particularly, systems and methods for providing the location of a requested user's cellular phone from a requesting user's device (e.g., a second cellular phone) based on access rights defined by the requested user. Location descriptions may be provided at a multitude of levels. For example, if a cellular phone, or an identity associated to (e.g., logged into) a cellular phone, has been given access rights to a cell phone's exact location for an indefinite amount of time, that cell phone can receive, on command, the exact location of the approved cell phone. Other levels of location information that can be granted include, for example, proximities, states, and countries.

92 Claims, 17 Drawing Sheets



(56) **References Cited**

U.S. PATENT DOCUMENTS

5,327,144	A		7/1994	Stilp et al.
5,337,334	A		8/1994	Alvesalo
5,337,344	A		8/1994	Alvesalo
5,338,147	A		8/1994	Kucharczyk
5,341,410	A		8/1994	Aron et al.
5,375,124	A	*	12/1994	D'Ambrogio H04Q 11/0428 370/420
5,384,824	A		1/1995	Alvesalo
5,388,147	A		2/1995	Grimes
5,442,805	A		8/1995	Sagers et al.
5,479,482	A		12/1995	Grimes
5,502,757	A		3/1996	Bales et al.
5,519,760	A		5/1996	Borkowski et al.
5,537,460	A		7/1996	Holliday, Jr. et al.
5,548,816	A		8/1996	DeVaney
5,551,058	A		8/1996	Hutcheson et al.
5,555,286	A		9/1996	Tendler
5,719,563	A		2/1998	Thompson
5,767,788	A		6/1998	Ness
5,778,315	A		7/1998	Proietti
5,796,634	A		8/1998	Craport et al.
5,805,999	A		9/1998	Inoue
5,815,538	A		9/1998	Grell et al.
5,832,381	A		11/1998	Kauppi
5,847,976	A		12/1998	Lescourret
5,875,398	A		2/1999	Snapp
5,889,474	A		3/1999	LaDue
5,890,062	A		3/1999	Courtney et al.
5,920,820	A		7/1999	Qureshi et al.
5,929,752	A		7/1999	Janky et al.
5,950,125	A		9/1999	Buhrmann et al.
5,961,569	A		10/1999	Craport et al.
5,961,572	A		10/1999	Craport et al.
5,978,747	A		11/1999	Craport et al.
5,987,019	A		11/1999	Lipsanen et al.
5,999,124	A		12/1999	Sheynblat
6,023,241	A		2/2000	Clapper
6,028,537	A		2/2000	Suman et al.
6,032,042	A		2/2000	Kauppi
6,035,189	A		3/2000	All-Vehmas
6,035,198	A		3/2000	Wiehe
6,038,446	A		3/2000	Courtney et al.
6,047,051	A		4/2000	Ginzboorg
6,049,711	A		4/2000	Ben-Yehezkel
6,061,561	A		5/2000	Alanara et al.
6,078,578	A		6/2000	Matsumoto
6,088,586	A		7/2000	Haverty
6,091,959	A		7/2000	Souissi et al.
6,138,003	A		10/2000	Kingdon et al.
6,144,336	A		11/2000	Preston et al.
6,157,841	A		12/2000	Bolduc et al.
6,166,626	A		12/2000	Janky et al.
6,173,182	B1		1/2001	Cha
6,201,803	B1		3/2001	Munday et al.
6,208,866	B1		3/2001	Rouhollahzadeh et al.
6,215,863	B1		4/2001	Bennett et al.
6,236,359	B1		5/2001	Watters et al.
6,236,858	B1		5/2001	Griffith
6,240,069	B1		5/2001	Alperovich
6,246,376	B1		6/2001	Bork et al.
6,246,861	B1		6/2001	Messier et al.
6,256,543	B1		6/2001	Camp
6,256,498	B1		7/2001	Ludwig
6,259,923	B1		7/2001	Lim et al.
6,275,544	B1		8/2001	Aiello
6,275,771	B1		8/2001	Berstis et al.
6,311,060	B1		10/2001	Evans et al.
6,314,365	B1		11/2001	Smith
6,317,718	B1		11/2001	Fano
6,321,092	B1		11/2001	Fitch et al.
6,324,404	B1		11/2001	Dennison et al.
6,330,452	B1		12/2001	Fattouche et al.
6,360,101	B1		3/2002	Irvin
6,360,102	B1	*	3/2002	Havinis et al. 455/457
6,360,167	B1		3/2002	Millington et al.
6,374,306	B1		4/2002	Tognazzini
6,377,565	B1		4/2002	Puckette
6,377,810	B1		4/2002	Geiger et al.
6,393,274	B1		5/2002	Peltonen
6,397,065	B1		5/2002	Huusko et al.
6,400,946	B1		6/2002	Vazvan
6,400,956	B1		6/2002	Richton
6,408,186	B1		6/2002	Park et al.
6,421,009	B2		7/2002	Suprunov
6,438,376	B1		8/2002	Elliott et al.
6,438,381	B1		8/2002	Alberth, Jr. et al.
6,449,486	B1		9/2002	Rao
6,456,854	B1		9/2002	Chern
D464,033	S		10/2002	Piano-Poirier
6,462,674	B2	*	10/2002	Ohmura G08G 1/0969 340/901
6,466,788	B1		10/2002	Carlssen
6,532,360	B1		3/2003	Shaffer
6,564,064	B1		5/2003	Ciganer et al.
6,580,914	B1		6/2003	Smith
6,580,918	B1		6/2003	Leickel
6,584,314	B1		6/2003	Haumont
6,587,691	B1	*	7/2003	Granstam et al. 455/456.1
6,603,969	B1		8/2003	Vuoristo
6,603,977	B1		8/2003	Walsh et al.
6,610,687	B1		8/2003	Clark
6,618,593	B1		9/2003	Drutman et al.
6,618,671	B2		9/2003	Dooley et al.
6,622,020	B1		9/2003	Seki
6,628,938	B1		9/2003	Rachabathuni et al.
6,647,257	B2		11/2003	Owensby
6,662,014	B1		12/2003	Walsh et al.
6,665,389	B1	*	12/2003	Haste, III 379/196
6,677,894	B2		1/2004	Sheynblat
6,714,791	B2		3/2004	Friedman
6,716,101	B1	*	4/2004	Meadows et al. 455/456.1
6,725,032	B1		4/2004	Sheridan
6,735,564	B1		5/2004	Puhakainen
6,765,528	B2	*	7/2004	Tranchina G01S 5/0009 342/357.31
6,778,837	B2		8/2004	Bade et al.
6,779,094	B2		8/2004	Selkirk et al.
6,795,710	B1		9/2004	Creemer
6,798,358	B2		9/2004	Joyce et al.
6,806,813	B1		10/2004	Cheng et al.
6,816,735	B1		11/2004	Rayburn et al.
6,826,398	B1		11/2004	Lagerstrom et al.
6,836,667	B1		12/2004	Smith
6,870,822	B2		3/2005	Balogh
6,879,836	B2	*	4/2005	Nakamoto G01C 21/20 340/991
6,879,838	B2		4/2005	Rankin et al.
6,882,837	B2		4/2005	Fernandez et al.
6,882,856	B1		4/2005	Alterman
6,885,874	B2	*	4/2005	Grube et al. 455/520
6,912,398	B1		6/2005	Domnitz
6,912,545	B1		6/2005	Lundy et al.
6,920,319	B2		7/2005	Knutsson et al.
6,920,328	B2	*	7/2005	Wollrab 455/456.1
6,928,279	B2		8/2005	Seligmann et al.
6,932,698	B2		8/2005	Sprogis
6,944,447	B2		9/2005	Portman et al.
6,968,179	B1		11/2005	De Vries
6,975,998	B1	*	12/2005	Jones 705/7.26
6,999,777	B1		2/2006	Ganesh
7,010,110	B2	*	3/2006	Jorasch H04M 1/2535 379/207.04
7,010,306	B1	*	3/2006	Tanibayashi et al. 455/456.1
7,013,148	B1	*	3/2006	Ganesh 455/456.1
7,072,956	B2	*	7/2006	Parupudi et al. 709/223
7,130,630	B1		10/2006	Enzmann
7,177,651	B1		2/2007	Almassy
7,203,674	B2	*	4/2007	Cohen 707/3
7,215,965	B2	*	5/2007	Fournier et al. 455/456.1
7,248,872	B2		7/2007	Bassett et al.
7,269,426	B2		9/2007	Kokkonen et al.
7,269,428	B1	*	9/2007	Wallenius et al. 455/456.2
7,271,742	B2	*	9/2007	Sheha G01C 21/3664 340/995.19

(56) **References Cited**

U.S. PATENT DOCUMENTS

7,272,220	B1	9/2007	Zhang	
7,324,823	B1	1/2008	Rosen	
7,333,776	B1	2/2008	York	
7,366,522	B2 *	4/2008	Thomas	H04W 8/10 455/456.1
7,409,429	B2	8/2008	Kaufman	
7,570,958	B2	8/2009	Krasner	
7,812,766	B2 *	10/2010	Leblanc	G01C 21/206 342/457
7,870,293	B2 *	1/2011	Tso	G06Q 30/04 709/246
7,983,947	B2	7/2011	Kaiwa	
8,073,087	B2	12/2011	Casaccia	
8,478,304	B1	7/2013	David et al.	
8,994,591	B2 *	3/2015	Dupray	G01C 21/206 342/457
9,446,118	B2	9/2016	Bublot et al.	
2001/0029184	A1	10/2001	L'Anson et al.	
2001/0048364	A1 *	12/2001	Kalthoff et al.	340/573.1
2001/0055328	A1	12/2001	Dowling	
2002/0003470	A1	1/2002	Auerbach	
2002/0039904	A1	4/2002	Anderson	
2002/0042277	A1	4/2002	Smith	
2002/0086683	A1	7/2002	Kohar et al.	
2002/0102989	A1 *	8/2002	Calvert et al.	455/456
2002/0115453	A1 *	8/2002	Poulin et al.	455/456
2002/0141434	A1	10/2002	Grundvig	
2002/0164998	A1 *	11/2002	Younis	455/456
2002/0183059	A1	12/2002	Noreen et al.	
2003/0001346	A1	1/2003	Mizune et al.	
2003/0004743	A1	1/2003	Callegari	
2003/0013456	A1	1/2003	Bates	
2003/0013461	A1	1/2003	Mizune et al.	
2003/0023726	A1 *	1/2003	Rice et al.	709/225
2003/0069692	A1 *	4/2003	Krasner et al.	701/213
2003/0119522	A1 *	6/2003	Barclay et al.	455/456
2003/0163510	A1 *	8/2003	Janssen	G06F 21/604 718/100
2004/0033795	A1	2/2004	Walsh et al.	
2004/0038706	A1	2/2004	Wasser et al.	
2004/0054428	A1 *	3/2004	Sheha	G01C 21/3664 700/56
2004/0077359	A1	4/2004	Bernas et al.	
2004/0127231	A1	7/2004	Dor	
2004/0180669	A1	9/2004	Kall	
2005/0222756	A1	10/2005	Davis et al.	
2006/0025158	A1 *	2/2006	Leblanc	G01C 21/206 455/456.2
2006/0173754	A1 *	8/2006	Burton	G06Q 30/06 705/26.62
2006/0276196	A1 *	12/2006	Jiang	H04L 12/66 455/446
2008/0288355	A1 *	11/2008	Rosen	705/14
2009/0005019	A1	1/2009	Patel et al.	
2009/0029717	A1 *	1/2009	Bates et al.	455/456.1
2009/0197612	A1	8/2009	Kiiskinen	
2012/0106728	A1	5/2012	Ghaffari et al.	

FOREIGN PATENT DOCUMENTS

WO	WO 99/051051	3/1999
WO	WO 00/028760	5/2000
WO	WO 00/035228	6/2000
WO	WO 00/038350	6/2000
WO	WO 00/064075	10/2000
WO	WO 00/076194	12/2000
WO	WO 00/076243	12/2000
WO	WO 01/001711	1/2001
WO	WO 01/001718	1/2001
WO	WO 01/003406	1/2001
WO	WO 01/003454	1/2001
WO	WO 01/003461	1/2001
WO	WO 01/010718	1/2001
WO	WO 01/020938	3/2001
WO	WO 01/033885	5/2001
WO	WO 01/039525	5/2001
WO	WO 01/039528	5/2001
WO	WO 01/041468	6/2001
WO	WO 01/050544	7/2001
WO	WO 01/086880	11/2001
WO	WO 01/089251	11/2001
WO	WO 02/003718	1/2002

OTHER PUBLICATIONS

Wrolstad, Jay, "Sprint Rolls Out E911 Services," newsfactor.com (as viewed at http://www.newsfactor.com/perl/story/15506.html on Jan. 22, 2007), Dec. 26, 2001).

"Sprint PCS First Quarterly E911 Implementation Report," Before the Federal Communications Commission, In the Matter of Revision of the Commission's Rules to Ensure Compatibility With Enhanced 911 Emergency Calling Systems , CC Docket No. 944-102, Feb. 1, 2002.

"Who is Integrated Data Communications?," presented at the FCC E-911 Automatic Location Identification Round Table, Jun. 28, 1999.

"Wireless Telecommunications Bureau Seeks Comment on Request to Commence Rulemaking to Establish Fair Location Information Practices," WT Docket No. 01-72, DA 01-696, (as viewed at http://www.fcc.gov.Bureaus/Wireless/PublicNotices/9001/da010696.html on Jan. 22, 2007), Mar. 16, 2001.

"Go2 Systems & Integrated Data Communications to Deliver Location Services Automatically to Wireless Phones; Alliance Enables Automatic Recognition of Wireless Caller's Location," Business Wire (as viewed at http://www.findarticles.com/p/articles/mi_m0EIN/is_2000_Feb_28/ai/59621222 on Jan. 22, 2007), Feb. 28, 2000.

"Before the Federal Communications Commission: In the Matter of: E-911 Automatic Location Identification Round Table," Transcript, Jun. 28, 1999.

"Pulver.com's Location Based Services Report," pulver.com (as visited at http://pulver.com/lbareport/lastlbareport.16jan01.txt on Jan. 22, 2007), Jan. 2001.

"Pulver.com's Location Based Services Report," pulver.com (as visited at http://pulver.com/lbareport/lastlbareport.26feb01.txt on Jan. 22, 2007), Feb. 2001.

"Pulver.com's Location Based Services Report," pulver.com (as visited at http://pulver.com/lbareport/lastlbareport.26mar01.txt on Jan. 22, 2007), Mar. 2001.

"Pulver.com's Location Based Services Report," pulver.com (as visited at http://pulver.com/lbareport/lastlbareport.05apr01.txt on Jan. 22, 2007), Apr. 2001.

"Pulver.com's Location Based Services Report," pulver.com (as visited at http://pulver.com/lbareport/lastlbareport.01may01.txt on Jan. 22, 2007), May 2001.

"Pulver.com's Location Based Services Report," pulver.com (as visited at http://pulver.com/lbareport/lastlbareport.10jun01.txt on Jan. 22, 2007), Jun. 2001.

"Pulver.com's Location Based Services Report," pulver.com (as visited at http://pulver.com/lbareport/lastlbareport.05jul01.txt on Jan. 22, 2007), Jul. 2001.

"Pulver.com's Location Based Services Report," pulver.com (as visited at http://pulver.com/lbareport/lastlbareport.01aug01.txt on Jan. 22, 2007), Aug. 2001.

"Pulver.com's Location Based Services Report," pulver.com (as visited at http://pulver.com/lbareport/lastlbareport.04sep01.txt on Jan. 22, 2007), Sep. 2001.

"Pulver.com's Location Based Services Report," pulver.com (as visited at http://pulver.com/lbareport/lastlbareport.02oct01.txt on Jan. 22, 2007), Oct. 2001.

"Pulver.com's Location Based Services Report," pulver.com (as visited at http://pulver.com/lbareport/lastlbareport.02nov01.txt on Jan. 22, 2007), Nov. 2001.

"Pulver.com's Location Based Services Report," pulver.com (as visited at http://pulver.com/lbareport/lastlbareport.03dec01.txt on Jan. 22, 2007), Dec. 2001.

(56) **References Cited**

OTHER PUBLICATIONS

"Pulver.com's Location Based Services Report," pulver.com (as visited at http://pulver.com/lbareport/lastlbareport.07jan02.txt on Jan. 22, 2007), Jan. 2002.
"Pulver.com's Location Based Services Report," pulver.com (as visited at http://pulver.com/lbareport/lastlbareport.04feb02.txt on Jan. 22, 2007), Feb. 2002.
"Pulver.com's Location Based Services Report," pulver.com (as visited at http://pulver.com/lbareport/lastlbareport.04mar02.txt on Jan. 22, 2007), Mar. 2002.
ETSI TS 101 513. "Digital Cellular Telecommunications System (Phase 2): Location Services (LCS)," GSM 12.71, version 8.0.1. 1999.
ETSI TS 101 527 "Digital Cellular Telecommunications System (Phase 2+): Location Services (LCS): Mobile Station (MS): Serving Mobile Location Centre (SMLC)," Radio Resource LCS Protocol (RRLP), GSM 04.31, version 8.1.0. 1999.
"Wireless Telecommunications Bureau Seeks Comment on Request to Commence Rulemaking to Establish Fair Location Information Practices," WT Docket No. 01-72, DA 04-696, (as viewed at http://www.fcc.gov.Bureaus/Wireless/PublicNotices/9001/da010696.html on Jan. 22, 2007), Mar. 16, 2001.
"Go2 Systems & Integrated Data Communications to Deliver Location Services Automatically to Wireless Phones; Alliance Enables Automatic Recognition of Wireless Caller's Location," Business Wire (as viewed at http://www.findarticles.com/p/articles/mi_m0EIN/is_2000_Fev_28/ai/59621222 on Jan. 22, 2007), Feb. 28, 2000.
"Pulver.com's Location Based Services Report," pulver.com (as visited at http://pulver.com/lbareport/lastlbareport.16ian01.txt on Jan. 22, 2007), Jan., 2001.
"Pulver.com's Location Based Services Report," pulver.com (as visited at http://pulver.com/lbareport/lastlbareport.10jun01.txt on Jan. 22, 2007), Jun. 2001.
ETSI TS 101 527 "Digital Cellular Telecommunications (Phase 2+): Location Services (LCS): Mobile (MS): Serving Mobile Location Centre (SMLC)," Radio Resource LCS Protocol (RRLP), GSM 04.31, version 8.1.0. 1999.

* cited by examiner

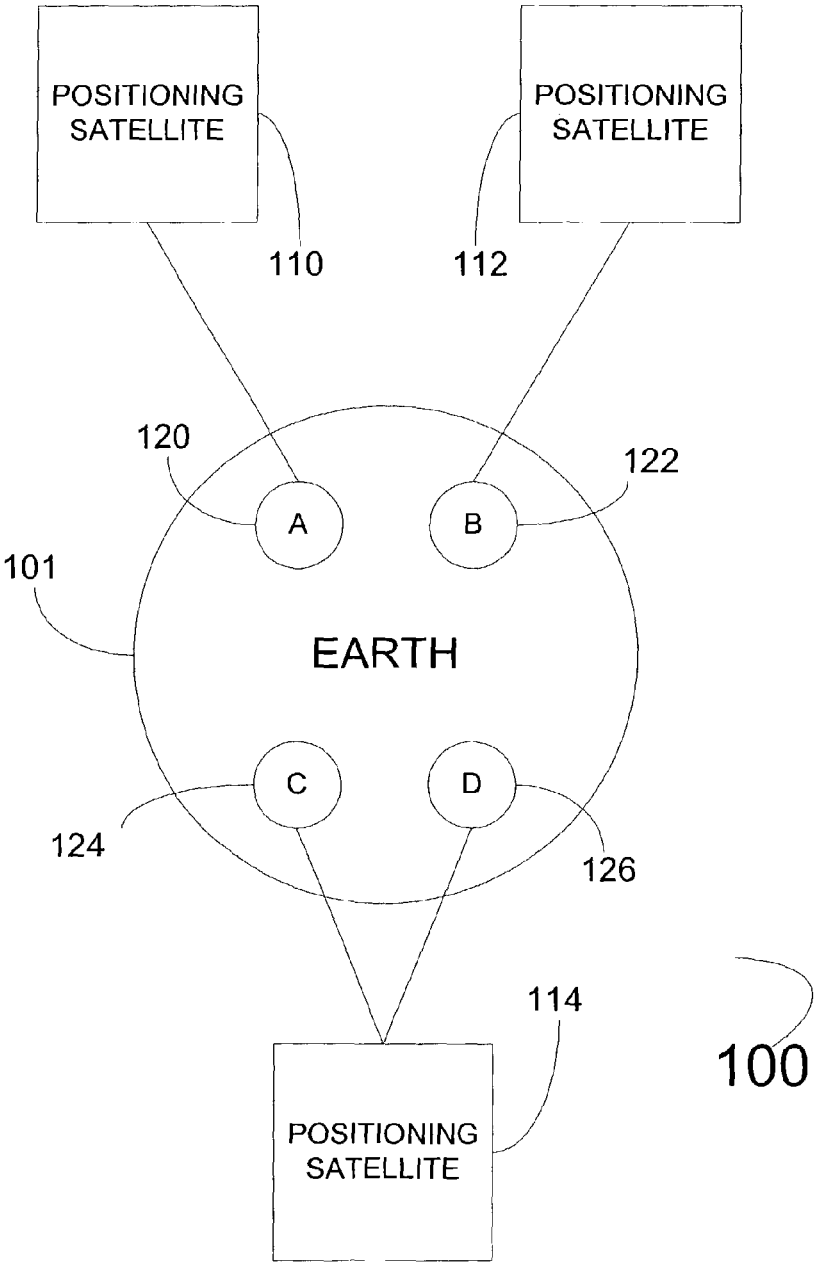

POSITIONING SATELLITE
POSITIONING SATELLITE
110
112
120
122
A
B
101
EARTH
C
D
124
126
114
100
POSITIONING SATELLITE

FIG. 1

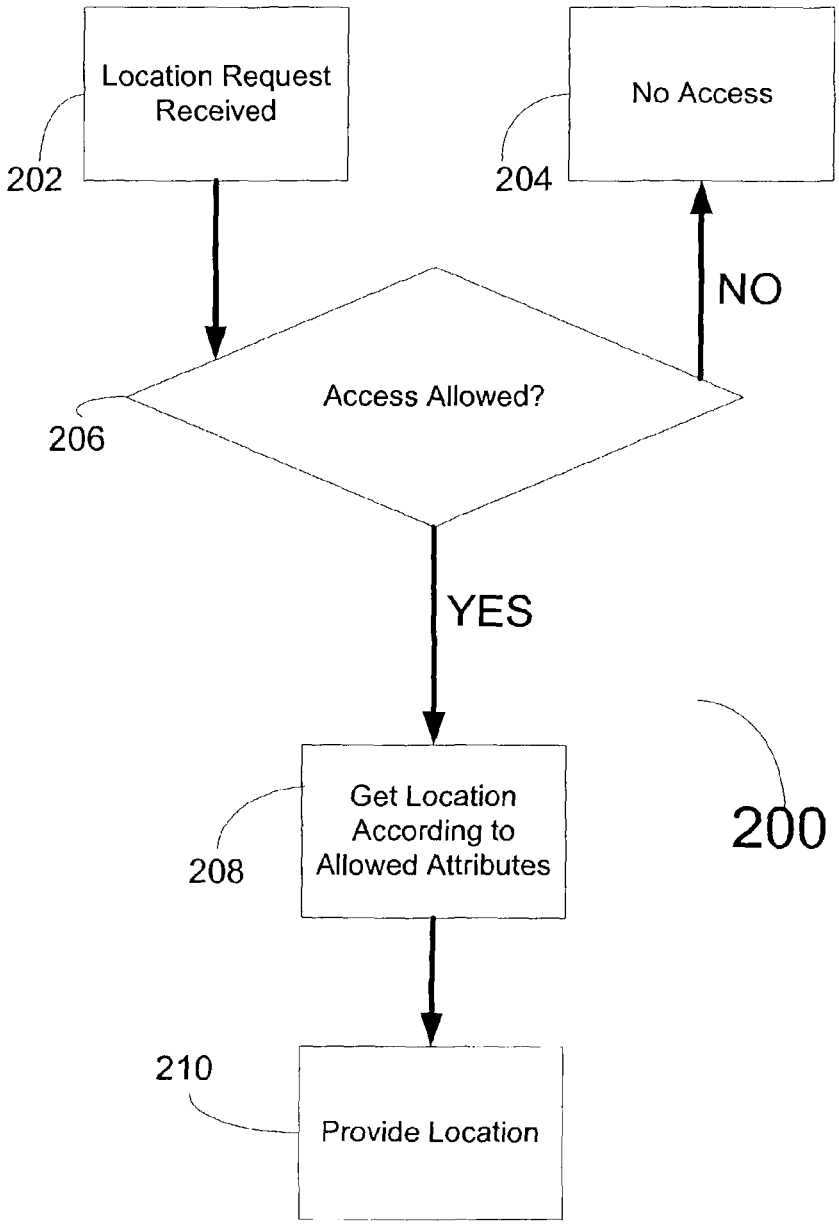

Location Request Received
202
No Access
204
NO
Access Allowed?
206
YES
Get Location According to Allowed Attributes
208
200
210
Provide Location

FIG. 2

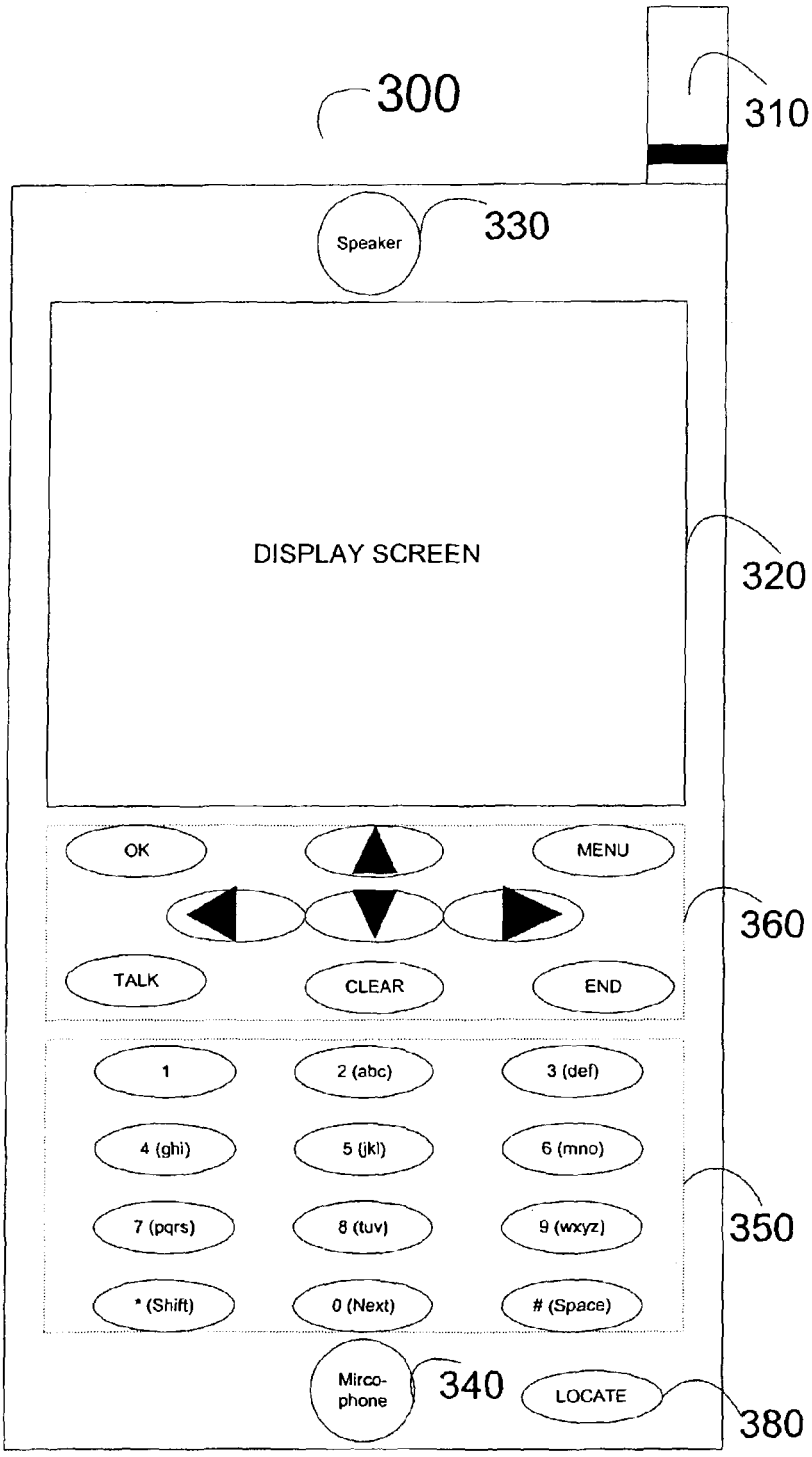

300
310
Speaker
330
DISPLAY SCREEN
320
OK
MENU
360
TALK
CLEAR
END
1
2 (abc)
3 (def)
4 (ghi)
5 (jkl)
6 (mno)
7 (pqrs)
8 (tuv)
9 (wxyz)
* (Shift)
0 (Next)
(Space)
350
Mirco-phone
340
LOCATE
380

FIG. 3

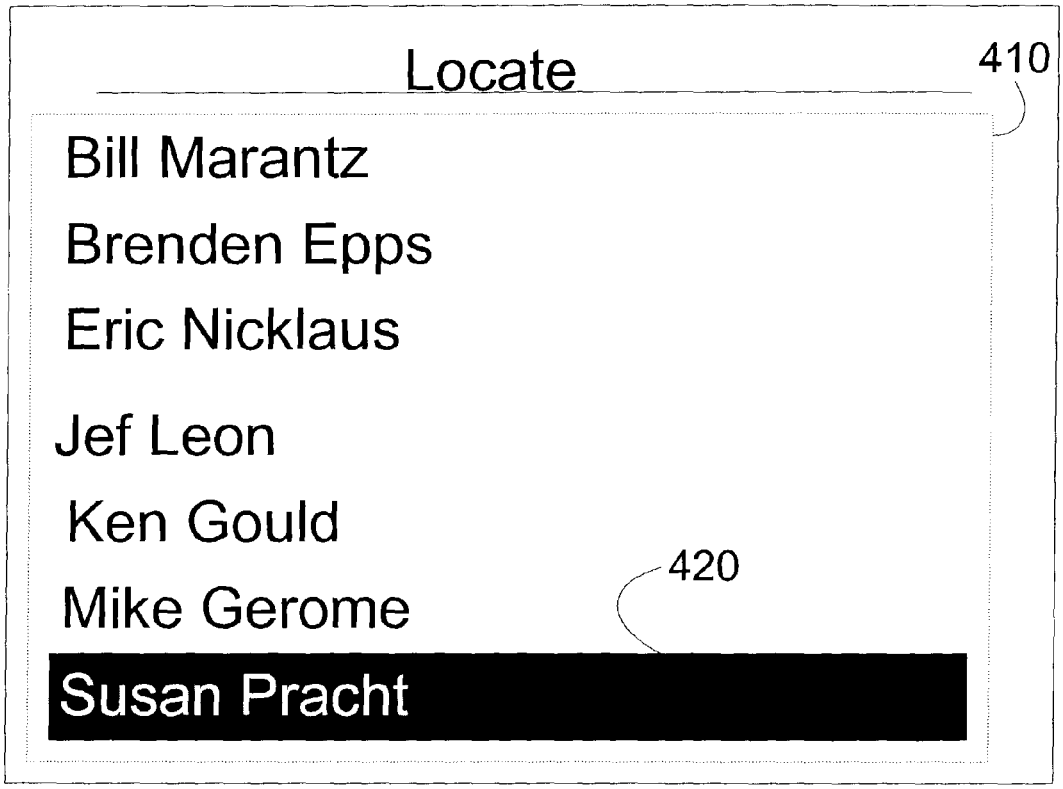

Locate
410
Bill Marantz
Brenden Epps
Eric Nicklaus
Jef Leon
Ken Gould
Mike Gerome
420
Susan Pracht

FIG. 4

400

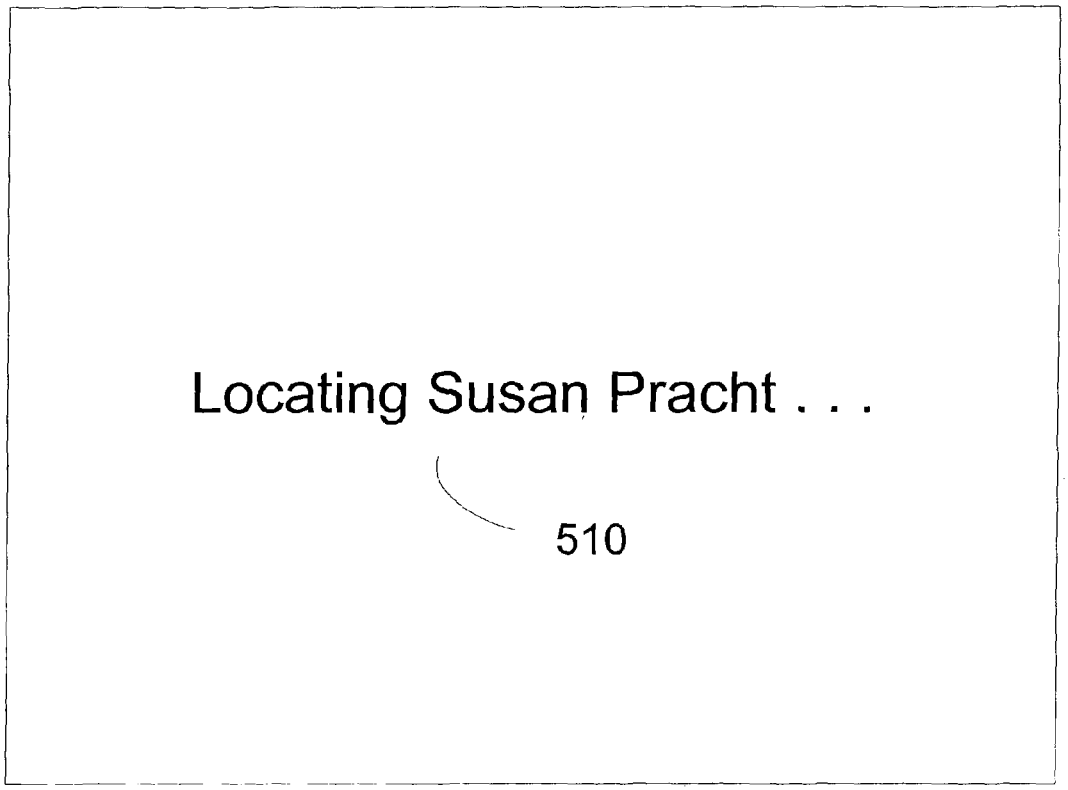


FIG. 5

500

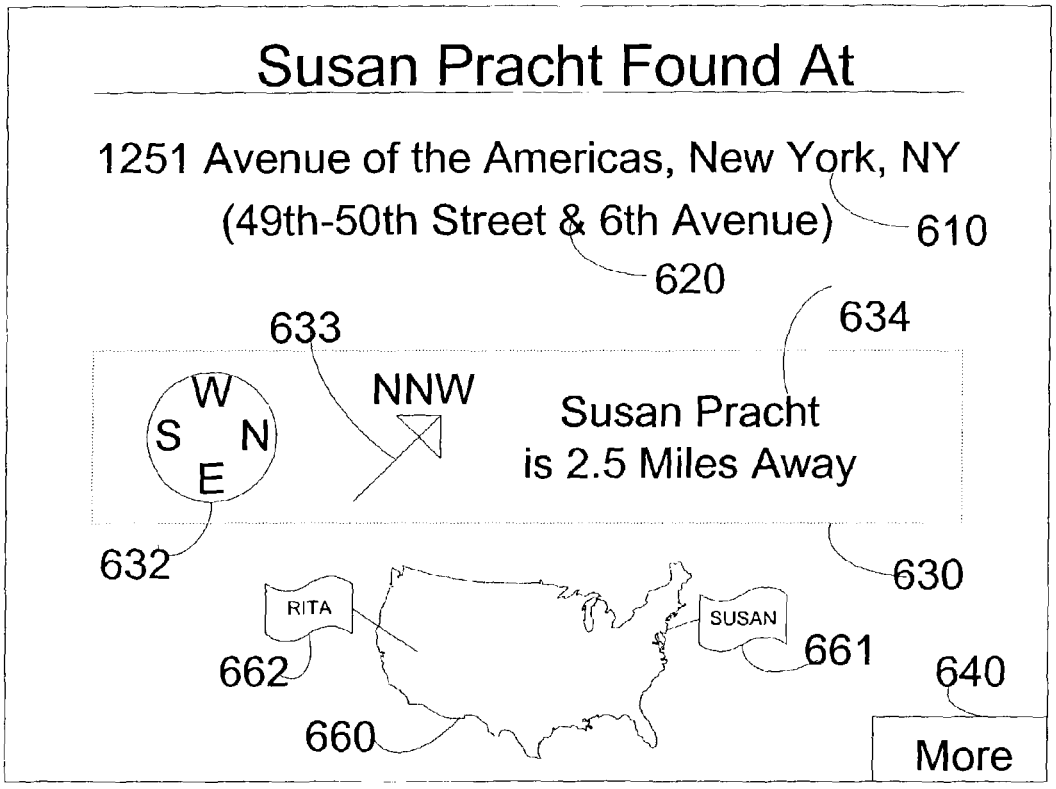

Susan Pracht Found At
1251 Avenue of the Americas, New York, NY
(49th-50th Street & 6th Avenue)
610
620
633
634
W
S
N
E
NNW
Susan Pracht
is 2.5 Miles Away
632
630
RITA
SUSAN
662
661
640
660
More
600

FIG. 6

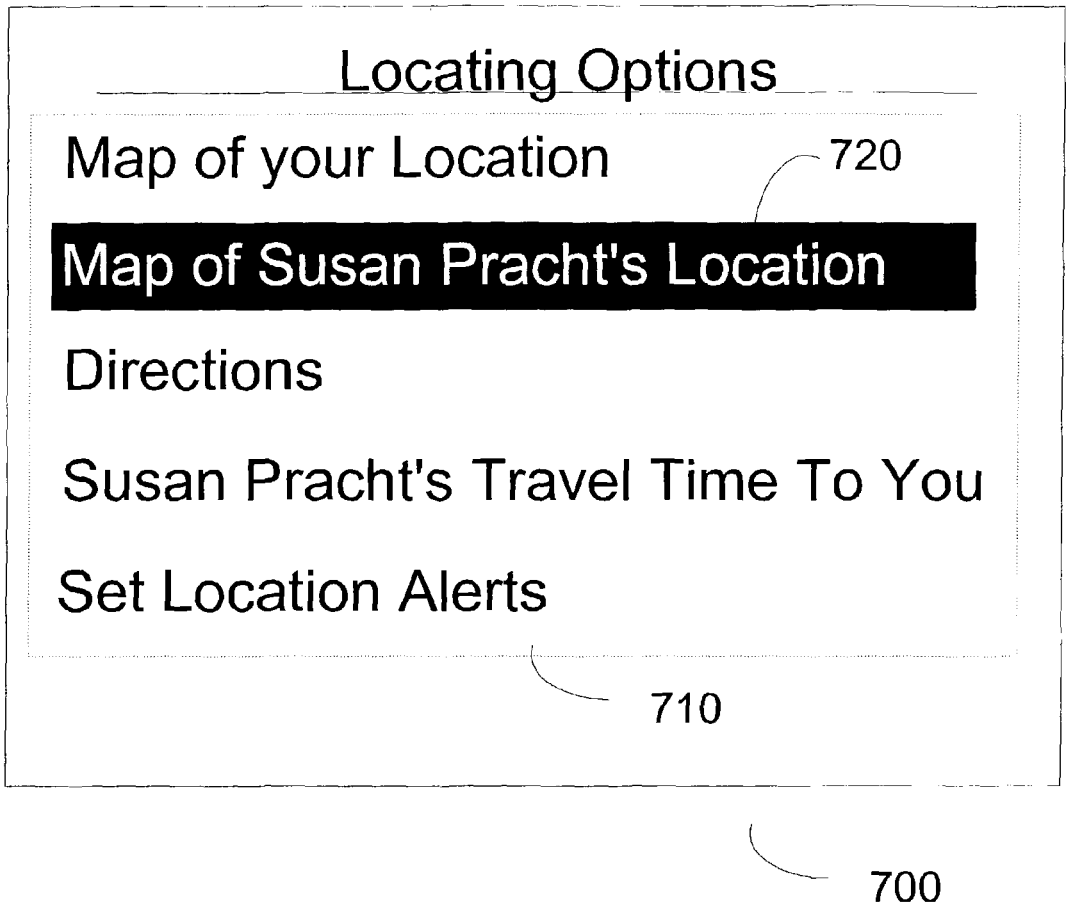

Locating Options
Map of your Location
720
Map of Susan Pracht's Location
Directions
Susan Pracht's Travel Time To You
Set Location Alerts
710
700

FIG. 7

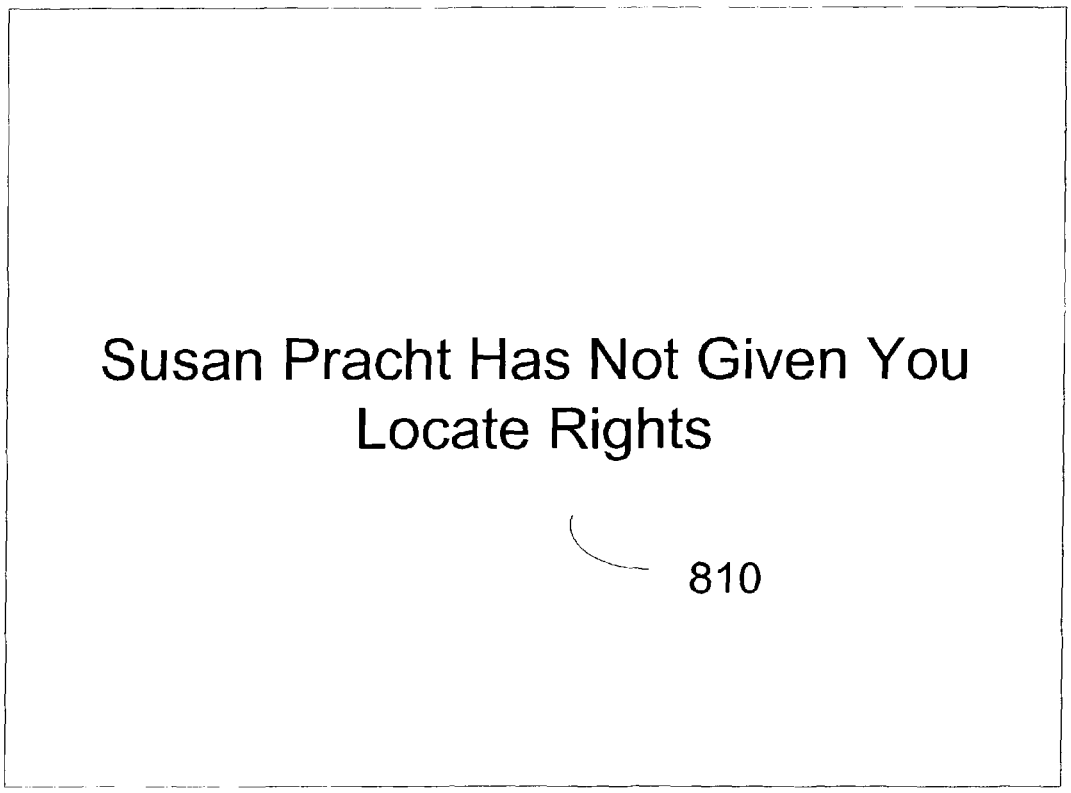


FIG. 8

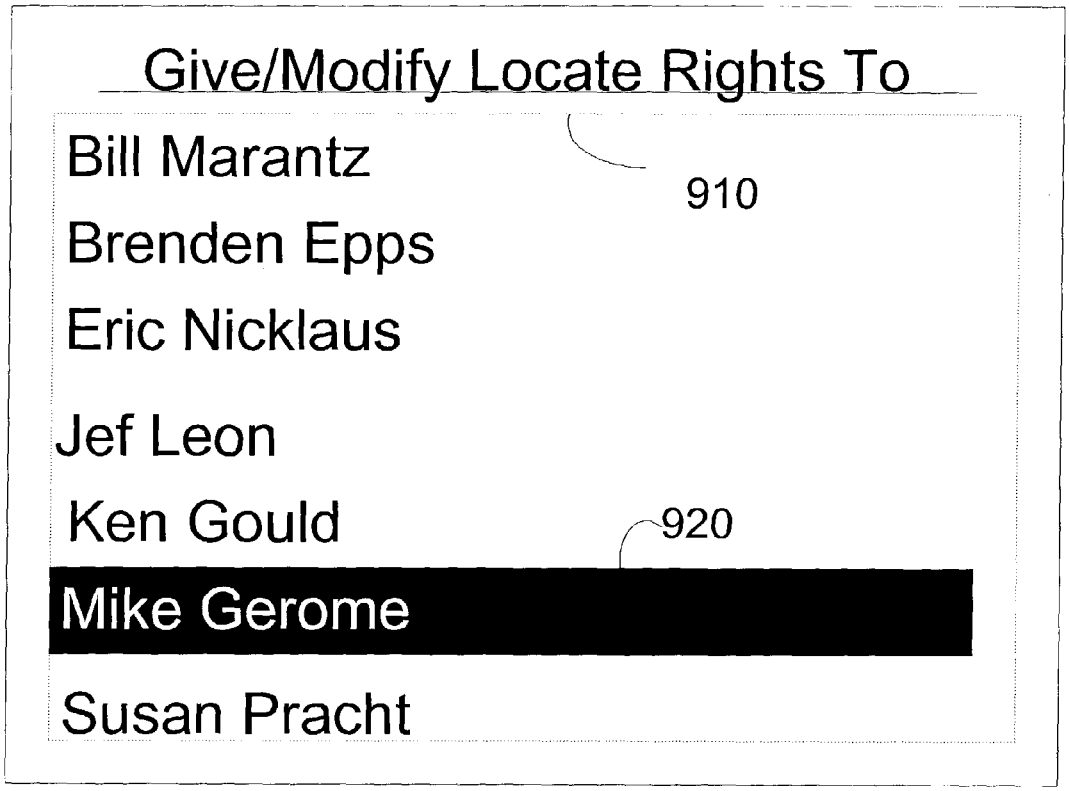

Give/Modify Locate Rights To
Bill Marantz
Brenden Epps
Eric Nicklaus
Jef Leon
Ken Gould
Mike Gerome
Susan Pracht
910
920
900

FIG. 9

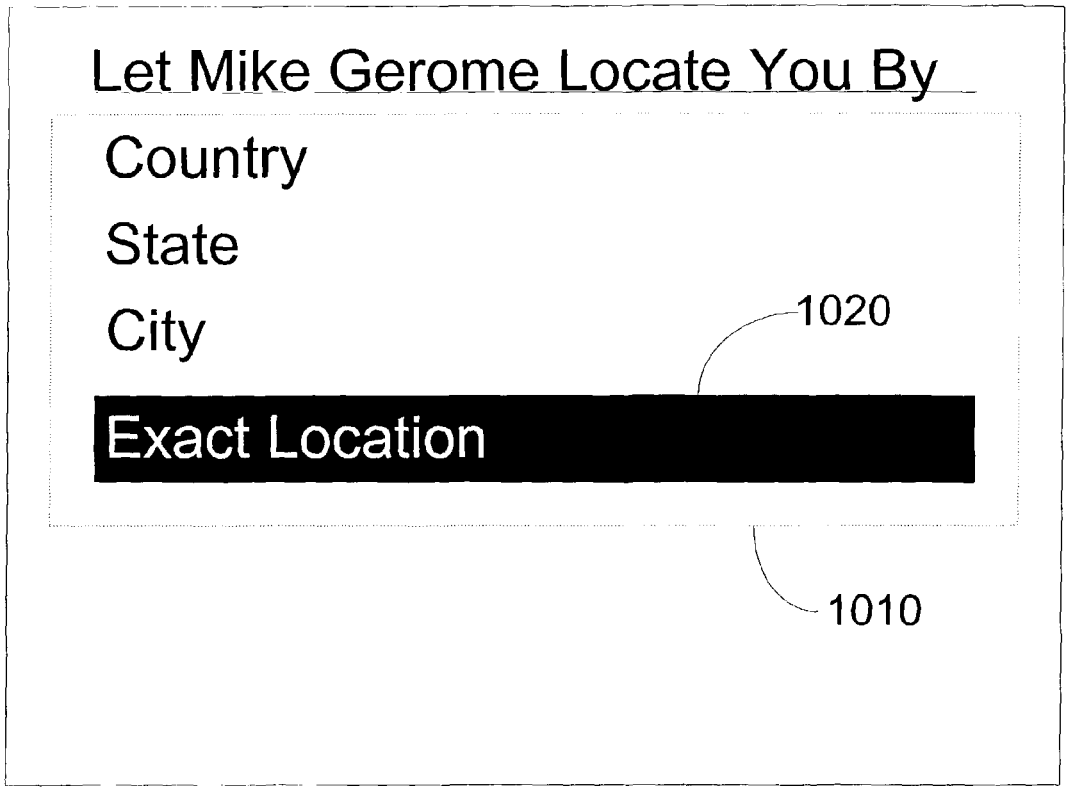

Let Mike Gerome Locate You By
Country
State
City
Exact Location
1020
1010
1000

FIG. 10

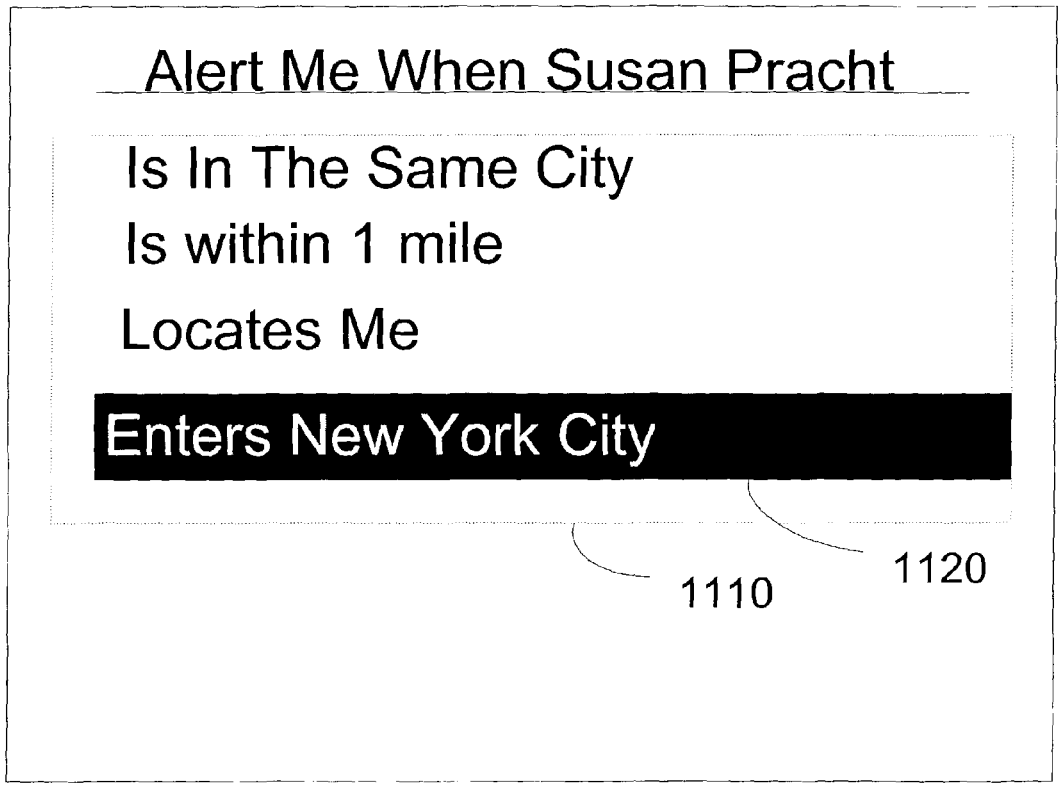

Alert Me When Susan Pracht
Is In The Same City
Is within 1 mile
Locates Me
Enters New York City
1110
1120
1100

FIG. 11

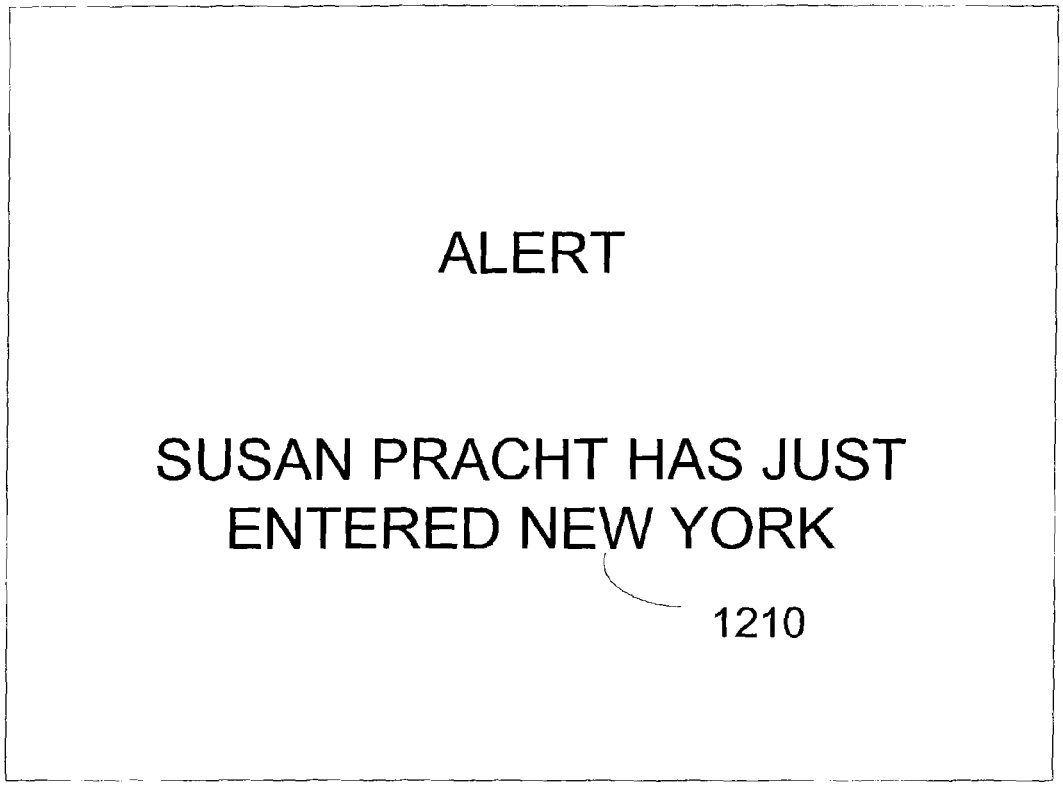


FIG. 12

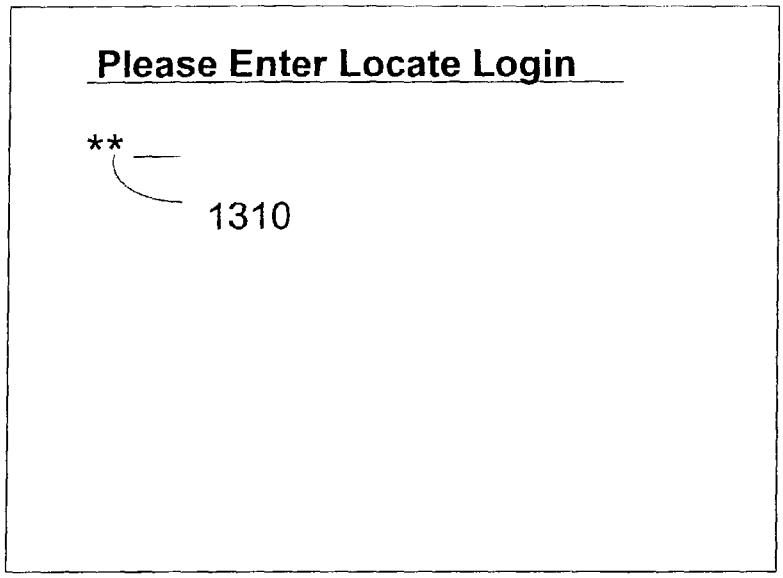

Please Enter Locate Login
**
1310
1300

FIG. 13

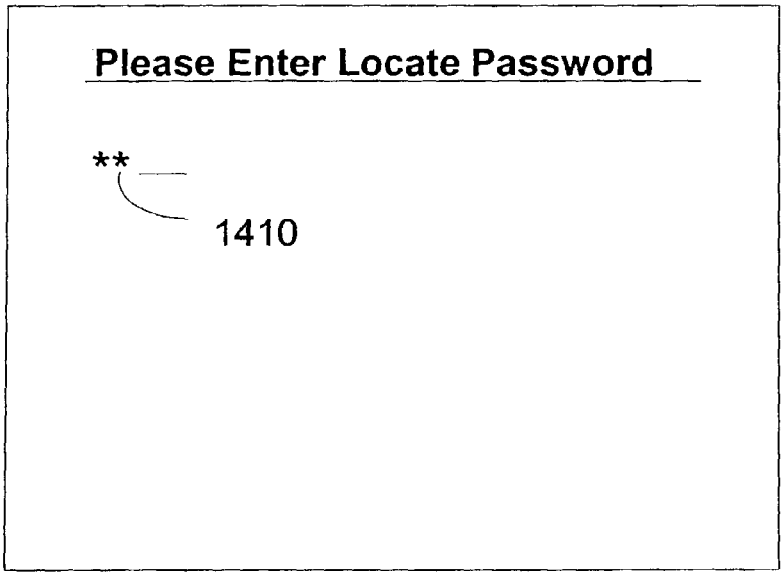

Please Enter Locate Password
**
1410
1400

FIG. 14

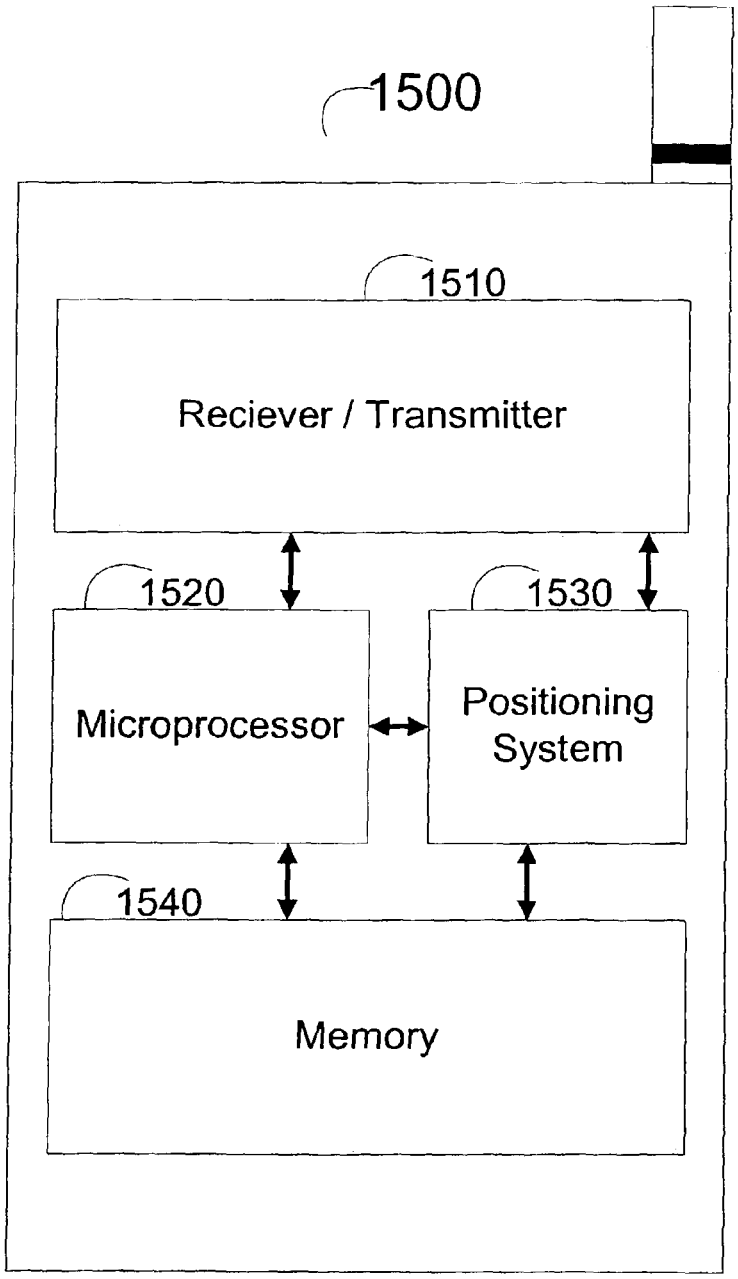

1500
1510
Reciever / Transmitter
1520
1530
Microprocessor
Positioning System
1540
Memory

FIG. 15

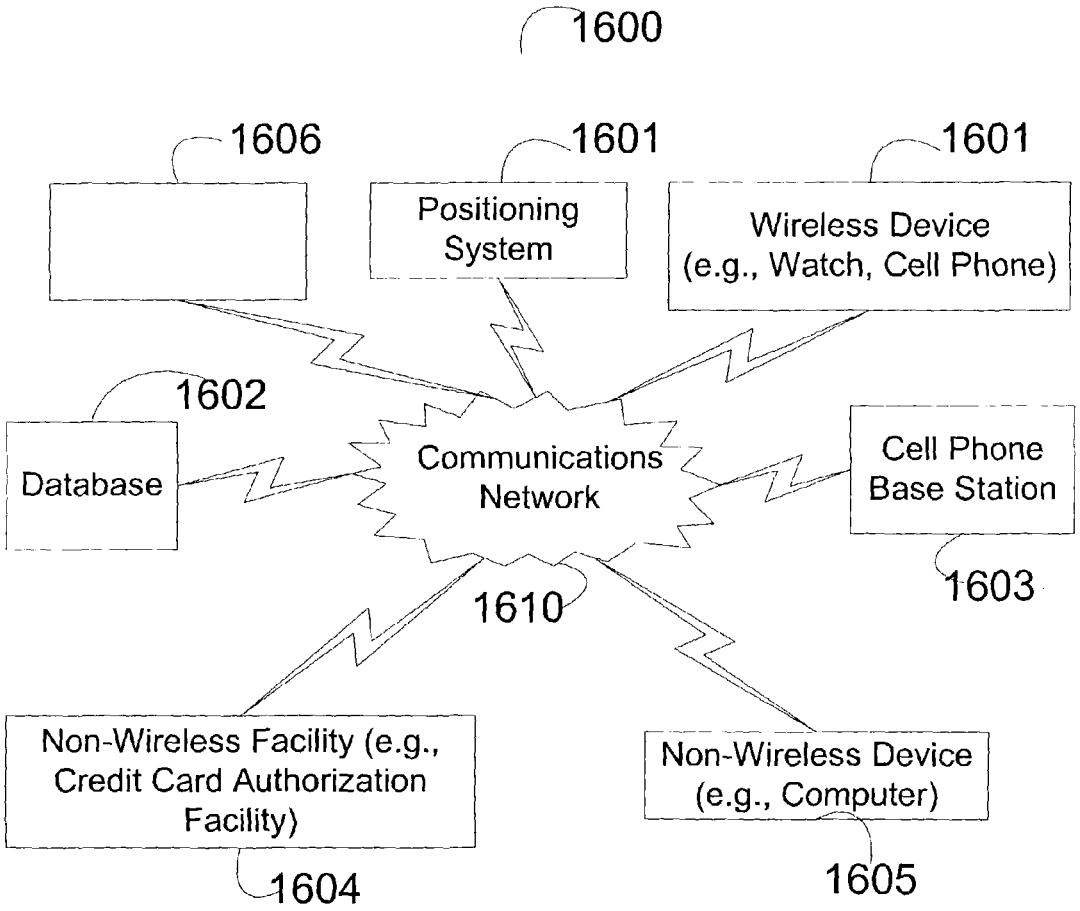

1600
1606
1601
1601
Positioning System
Wireless Device (e.g., Watch, Cell Phone)
1602
Database
Communications Network
Cell Phone Base Station
1603
1610
Non-Wireless Facility (e.g., Credit Card Authorization Facility)
Non-Wireless Device (e.g., Computer)
1604
1605

FIG. 16

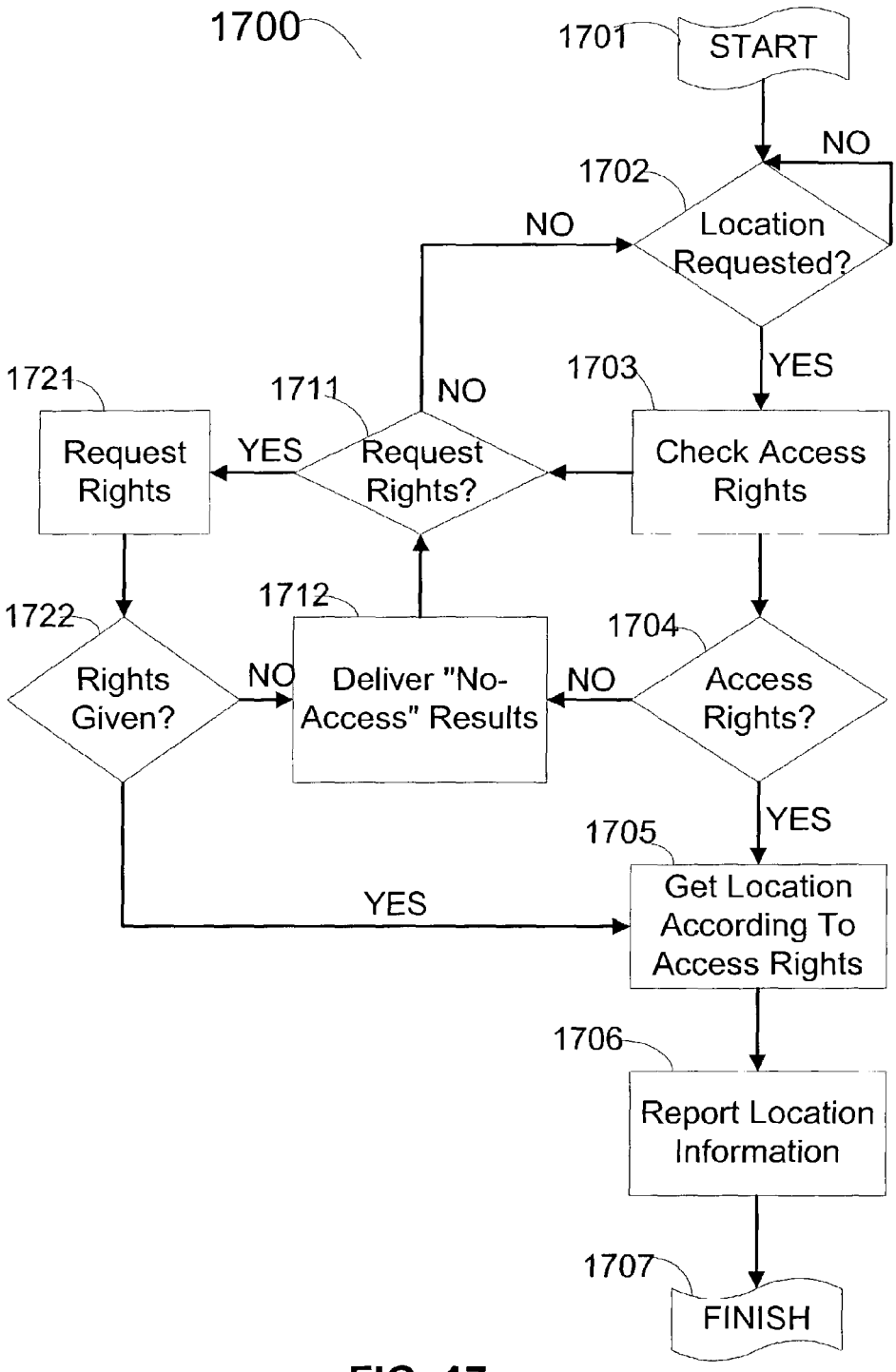

1700
1701
START
NO
1702
Location Requested?
NO
YES
1703
Check Access Rights
1711
Request Rights?
NO
YES
1721
Request Rights
1712
Deliver "No-Access" Results
NO
1704
Access Rights?
NO
1722
Rights Given?
YES
1705
Get Location According To Access Rights
YES
1706
Report Location Information
1707
FINISH

FIG. 17

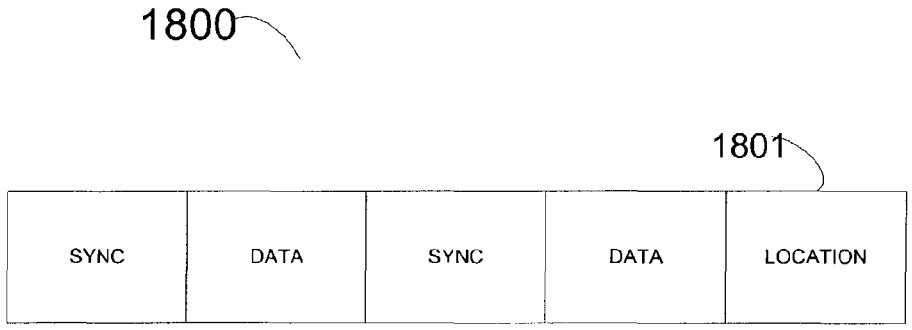


FIG. 18

SYSTEMS AND METHODS FOR LOCATING CELLULAR PHONES AND SECURITY MEASURES FOR THE SAME

CROSS-REFERENCE TO RELATED APPLICATIONS

This application is a continuation of U.S. patent application Ser. No. 10/400,296, filed on Mar. 25, 2003, which claims the benefit of U.S. Provisional Application No. 60/367,967, filed on Mar. 25, 2002, both of which are incorporated by reference herein in their entirety.

BACKGROUND OF THE INVENTION

This invention relates to systems and methods for determining a device's location. More particularly, this invention relates to systems and methods for remotely determining a device's location.

The Global Positioning System (GPS) has been developed in which a ground-based system can receive GPS signals from satellites and determine its location based on the time that it takes the GPS signals to reach the ground-based system. Generally, three satellite signals are needed to determine where in the world a receiver is located (i.e., position triangulation).

GPS systems have been integrated into cellular phones. However, these systems are deficient because the location of a device that is determined by these GPS signals are only minimally utilized. It is therefore desirable to provide systems and methods which better utilize the information about a device's location.

SUMMARY OF THE INVENTION

In accordance with the present invention, systems and methods are provided for locating cellular phones. More particularly, the present invention provides systems and methods for allowing a user of a cellular phone (e.g., a requesting user or a requester) to locate the position of a different user's cellular phone (e.g., a requested user) based upon requestor-assigned access rights.

One object of the present invention is to provide a security feature which allows a user to limit and/or deny location access to a particular user. In preferred embodiments, only the users that have been granted access to the location of a user's cellular phone can actually locate that user's cellular phone. Furthermore, different types of access levels may be provided that allow a user to filter location information to a different user. In this manner, a cell phone user may give access, through his or her cell phone, to a friend so that the friend can locate him or her dependent on the level of access that is granted to that friend.

For example, suppose that Phil tells Bill that he will be shopping in Manhattan and that Bill should locate him when Bill gets to Manhattan through their cell phones. In such an example, Phil may grant Bill access the exact location of his cell phone for a specific period of time (e.g., the next two hours). As a result, when Bill tries to access Phil's location, Bill will be told exactly where in Manhattan Phil's cell phone is located. Thus, Bill does not have to contact Phil directly to see where he is and, therefore, Phil does not have to spend any time giving Bill verbal directions; Bill can simply see what store Phil is currently in and go to it.

As mentioned previously, levels in the scope of access may be controlled by a user such that, for example, only a user's exact location, approximate location, city, state, or country can be accessed by a particular user.

Location alerts and monitoring features are also provided. For example, Phil may give Jen, a resident of Pittsburgh, city access so that when Phil travels into Pittsburgh, Jen will be alerted of Phil's presence. Such an alert may take the form of, for example, a display on Jen's cell phone that communicates to Jen "Phil is in Pittsburgh."

Locating a cellular phone may be accomplished in several ways. For example, satellite positioning systems such as the Global Positional System and the soon to be deployed Galileo system may be used to locate a user's cell phone.

User positions and security settings may be regularly or manually transmitted to a remote system, such a remote database so that requesting users can locate a requested user's position even if the requested user turns his/her cell phone OFF. Placing the security measures on a remote system (e.g., remote database, computer, or server) provides an information brokering scheme such that the system is still operable even when cell phones are added, removed, or modified from the system.

Additionally, the present invention may be configured to provide additional information about the location of a user. Such additional information may be, for example, a map, a location marker on a map, a map that changes as the user moves, a compass, coordinates of the located cell phone, directions to the located cell phone, where a user is in relation to another user, and information about the location the located user is currently positioned in or nearby locations such as landmarks. Such information may be provided by a remote information provider (e.g., a remote map information provider) and accessed by an information broker through a communications network.

Many other features are also employed that realizes advantageous locating functionality. As per an example, suppose that a wife wants to see if her husband has left work yet. She can locate her husband, without having to talk to him, and realize that he is driving home on a highway. Thus, a travel time option may be provided to the user. This option would compute the distance between the wife's location and husband's location by taking multiple location readings of the husband's location to see how fast the husband is traveling. Alternatively, because the husband's position will map to a highway, the system may assume that the user is driving and may provide the wife with an estimate on the husband's arrival time based on an assumed route. In this manner, the present invention may determine how much time it will take the husband to reach the wife and display this information to the wife.

As per other examples, a "see my friends" option may also be provided that brings up a map of a desired area. Dots or symbols may be present on the map to signify the location of all user's from which the requesting user has location information for. Similarly, a "find closest friend" option may be employed which finds the closest user with which the requesting user has location access to.

A cell phone location may by accessed by a variety of other devices. Alternatively, a cell phone may be used to access the location of a variety of other devices. For example, if the wife was at home, that wife may connect to the internet and access a remote database to either provide the most recent location information about the husband's cell phone to her or request a location update from the husband's cell phone. The wife's location may be already stored in such a database by associating the location to the IP address of the computer or by a manual input of the wife's location. The wife's identity may be determined by, for

example, a login and password on a website. Thus, the above-identified security measures are not limited to device-to-device locating rather user to user locating; the wife may only access the husband's location if the husband has granted access for the wife to do so. If, by accident, the wife's cell phone breaks, she may login on a friend's cell phone and determine the husband's location according to the device that the husband is logged into.

Security is preferably taken into account in the present invention and, therefore, location rights for a specific user may be given to a different user only by that specific user. However, a user may request location access rights from a different user. For example, a user may be provided with a request location screen on his cell phone and that user (e.g., user "X") may enter in the cell phone number of the cell phone whose location is desired. The user associated to the entered cell phone number may then receive an alert that says "user X has requested access to your location." Location access may then be given or denied on multiple levels and the requesting user notified of the decision.

The location feature of the present invention may be turned ON or OFF at any time. Users may be added, individually or in groups, to a list of users with location access rights to a specific user by that specific user. A specific user may, at any time, modify, delete, or add users allowed to access his or her location. Login and password information may be included to increase security or to create a user profile, allowing a specific user to log into any cell phone and be recognize by the present invention (and thereby be located with that cell phone or locatable device).

BRIEF DESCRIPTION OF THE DRAWINGS

The principles and advantages of the present invention can be more clearly understood from the following detailed description considered in conjunction with the following drawings, in which the same reference numerals denote the same structural elements throughout, and in which:

FIG. **1** is a network topology of a cell phone locating network in accordance with the principles of the present invention;

FIG. **2** is a flow chart of the locating feature in accordance with the principles of the present invention;

FIG. **3** is an illustration of a cell phone in accordance with the principles of the present invention;

FIG. **4** is a display screen for a locate feature in accordance with the principles of the present invention;

FIG. **5** is a display screen for a retrieving location status feature in accordance with the principles of the present invention;

FIG. **6** is a display screen for a displaying location feature in accordance with the principles of the present invention;

FIG. **7** is a display screen listing options for a locate feature in accordance with the principles of the present invention;

FIG. **8** is a display screen of a failed locate feature due to insufficient rights in accordance with the principles of the present invention;

FIG. **9** is a display screen of adding and modifying locate rights and options to a user in accordance with the principles of the present invention;

FIG. **10** is a display screen of assigning location rights to a user in accordance with the principles of the present invention;

FIG. **11** is a display screen of alert options in accordance with the principles of the present invention;

FIG. **12** is a display screen of an alert feature in accordance with the principles of the present invention;

FIG. **13** is a display screen of a login feature in accordance with the principles of the present invention;

FIG. **14** is a display screen of a login feature in accordance with the principles of the present invention;

FIG. **15** is a wireless device in accordance with the principles of the present invention;

FIG. **16** is an embodiment of a network topology in accordance with the principles of the present invention;

FIG. **17** is an embodiment of a locating feature in accordance with the principles of the present invention; and

FIG. **18** is an embodiment of a communications signal in accordance with the principles of the present invention.

DETAILED DESCRIPTION OF THE INVENTION

FIG. **1** depicts a network topology of device location network **100** incorporating principles of the present invention. Network **100** includes one or more positioning satellites **110**, **112**, and **114** that can locate the position of one or more cell phones **120**, **122**, **126**, and **124** (and other locatable devices) on Earth **101**. Positioning satellites **110**, **112**, and **114** may be, for example, the Global Positioning System (GPS) or the upcoming Galileo satellite network.

Preferably, any cell phone in network **100** may locate a different cell phone, as long as access to location information is allowed, through the utilization of positioning satellites **110**, **112**, and **114**. Persons skilled in the art will appreciate that other positioning systems and methods may be used in locating the position of a user on a cell phone of network **100**.

To route information to and from a cell phone of network **100** additional facilities and communication paths may be included. For example, a main facility (not shown in FIG. **1**) containing user location access rights may be included in network **100**. Such a main facility may retrieve location information directly from a positioning system or a cellular phone and then route this information to a cellular phone or positioning system.

Persons skilled in the art will appreciate that if the Global Positioning System (GPS) is used as the positioning system then GPS receivers will be incorporated into cellular phones of the present invention. Persons skilled in the art will also appreciate that devices other than cellular phones may include positioning features. For example, watches, clothing, laptop computers, personal digital assistants (PDAs), may all contain location systems (e.g., GPS) and utilize the security principles of the present invention to allow different user's to access these locations.

FIG. **2** shows flow chart **200** of a simplified locating feature constructed in accordance with the principles of the present invention. Step **202** initiates when a user requests the location of another user's cell phone. Step **206** evaluates if the user initiating the location request has the rights to access the location of the desired user. If no access rights for the requesting user have been granted then step **204** will preferably inform the requesting user that he/she has not been given access to the requested location. In this manner, every user may assign rights (e.g. govern the security) to whom may or may not locate him/her. In preferred embodiments, these rights will be stored in, or functionality executed from, a remote facility and accessed and utilized by a user's cell phone or other requesting device (e.g., a watch or PDA).

If access has been given by a particular user that allows for the requesting user to locate that particular user, step **208**

is initiated and the allowed location information is provided to the user in step **210**. Step **208** may optionally filter the location information such that only a portion information is passed to the requesting user. The requested user may have, for example, defined that the requesting user only can obtain the city, state, or country of his/her location. Persons skilled in the art will appreciate that only the location of the desired user needs to have a cell phone or a positioning system. The requesting user may user other means (e.g., the internet) to request the location of the desired user.

Persons skilled in the art will appreciate that the location of a user's cell phone may be retrieved, in step **208**, from a remote database, facility, distribution center, or any other system. More particularly, a remote database may periodically request the location of a cell phone user with a positioning system and store this information. This database may also keep a record of those people allowed to access that user's location, the extent to which access is allowed, and the extent to which a user has requested a user's location. A user may update, add, manipulate, or remove access at any time by doing so at this database. Thus, a requesting user only has to contact the remote database, have his/her identity recognized, have his/her access rights for the requested user location determined, and, if the requesting user has the correct access rights, be provided with the requested user's location.

Instead of a remote database periodically obtaining location information for a user, the database can obtain a user's locations when a request is made for that user's location, providing the requesting user has access to the requested user's location. However, persons skilled in the art will recognize that a remote database is utilized in the above examples that contains the locations, in most circumstances, of a multitude of users. Thus, to increase security even more, a requesting user's cell phone may directly request a user's location from the requested user's cell phone without the need for a database. In such an example a user adds, manipulates, or removes access rights locally on his/her cell phone and does not have to worry about security issues that surround placing his location on a remote database. Furthermore, in such an embodiment a user's location does not have to be saved anywhere, a positioning system can just be "read" by a requesting user with the appropriate access rights.

However, by recording a user's location on a device, e.g., a cell phone's memory or in a remote database, novel applications may be utilized. For example, whenever a user makes a credit card purchase, a credit card authorization system can record the location of a cell phone associated to the purchasing user. In this manner, a new system and method of fraud protection is introduced. The credit card authorization system may, for example, reject a purchase if the purchaser's cell phone (or watch, clothing, PDA, or other positioning enabled device) is not in the vicinity of the purchase. Alternatively, the credit card authorization system may request a second form of identification if the purchaser's cell phone location does not correlate to the location of the purchase. Additionally, the credit card authorization system may call the purchaser's cell phone and request authorization for the credit card purchase. However, such features would preferably first involve the user/purchaser giving the credit card authorization system access to the location of his/her cell phone.

As per another application, a unique dating/matching service could be embodied. For example, a user may store a number of preferences in a matching profile. These preferences may describe what type of person he is interested in meeting. Additionally, a user may store, preferably locally (for the dating/matching feature) but alternatively at a remote location, his/her own profile that has data describing similar attributes for what he/she is looking for. For example, an entry in a user's profile may be "male" and an entry in "looking for" profile may be "female." When a user comes within a certain distance of a user (determined by comparing locations of a user) that fits his/her "looking for" profile, the user may be alerted of the proximity of a matching user. Preferably, the particular user is only alerted if the "looking for" user has entered in attributes similar to the particular user's attributes and is also alerted of the particular user. The next stages of such an application could include, for example, requesting access to a form of communication. Such a form of communication could be for example, talking on the phone, instant messaging, or delivering an email address. Persons skilled in the art will therefore appreciate that many useful applications may be constructed using the principles of the present invention.

FIG. **3** depicts cell phone **300** constructed in accordance with the principles of the present invention. Cell Phone **300** preferably includes speaker **330**, antenna **310**, display screen **320**, control keys **360**, alpha-numeric keys **350**, and microphone **340**. Cell phone **300** also preferably may include, for example, a communications transmitter (not shown), communications receiver (not shown), memory (not shown), positioning device (not shown), and a microprocessor (not shown).

Cell phone **300** may also include locate button **380**. Cell phone **300** may be configured such that if locate button **380** is pressed, a locate feature is initiated (e.g., display screen **400** of FIG. **4** is initiated). Alternatively, cell phone **300** may be configured such that if locate button **380** is pressed, a location signal is sent to a remote storage area (e.g., a remote database), thus manually updating the user's location. This latter functionality may be useful when a user does not want his/her location accessed. As in another alternative embodiment, cell phone **380** may be configured such that if locate button **380** is pressed, the locating features of cell phone **300** are toggled between ON and OFF. Person skilled in the art will appreciate that locate button **380** may be configured to produce a variety of useful functionalities.

FIG. **4** depicts display screen **400** that is displaying a locate feature constructed in accordance with the principles of the present invention. The locate feature of display screen **400** may be included, for example, in cell phone **300** of FIG. **3** and displayed to the user of cell phone **300** of FIG. **3** when that user requests the location of a different user of the present invention. The programming for the feature may, for example, be stored in the memory of the cell phone and executed by the processor at a user's request. Locate Feature **400** includes identifier list **410** of alpha-numeric identifiers for users stored in the memory on cell phone **300** (FIG. **3**) or at a remote location. More particularly the user of display **410** may locate a user contained in identifier list **410** by selecting an appropriate user identifier **420**.

The user identifiers (e.g., "Susan Pracht") in identifier list **410** are selectable and may be selected by control keys **360** of FIG. **3**. Highlight window **410** may be used to prompt the user what identifier from list **410** is currently selected any may be controlled, for example, by the input keys of the cell phone (e.g., keys **350** and **360** of FIG. **3**). Identifiers may be associated to, for example, cellular telephone number, user profiles, or any other identifier that may be associated to a locatable device or user interacting with a locatable device.

Persons skilled in the art will appreciate that display screen **400** may be provided to a user of devices other than

wireless devices. For example, display screen **410** may be provided to a user of a personal computer with no positioning system. Preferably, however, the security measures in accordance with the principles of the present invention are still abided to (e.g., access has been granted to the identifier associated to the requesting user). In this manner, a user can control who can access his/her wireless device (e.g., cell phone).

Persons skilled in the art will appreciate that identifier list **410** may be configured, for example, to contain only those users in which the user of cell phone **300** (FIG. **3**) has locate access rights to or any user stored in cell phone **300**. Persons skilled in the art will also appreciate that devices other than cell phone **300** may be used to incorporate the features of the present invention. Such devices could include, for example, personal digital assistants (PDAs), laptop, GPS pagers, GPS watches, car positioning devices, or any other devices that can be located. One advantage of the present invention is that it allows a mobile device with a positioning system to locate a different mobile device with a positioning system while still retaining a high level of location security and privacy.

FIG. **5** is display screen **500** for retrieving location status feature in accordance with the principles of the present invention. The selected identifier may be incorporated into display screen **500** through location status display **510** to inform the user of the status of the location retrieval. For example, display screen **500** may display "locating user" while a request is being processed by a remote facility or database.

FIG. **6** shoes display screen **600** for a display location feature constructed in accordance with the principles of the present invention. When a location is retrieved for the requested user, the location may be displayed on Display Screen **600** through primary location information **610**. Depending on what scope the requesting user has access to primary location information **610** may include, for example, the country, state, city, exact location, or any combination thereof of location information to the user. For example, if the user requesting the location of a desired user has been given unlimited location access by the desired user, primary information **610** may include the exact location of the user.

Secondary location information **620** may be included to supplement the requested users exact location so that the requesting user may have more of an idea of where the requested user is located. For example, if the desired user is located in a mall, primary location information **610** may be the address of the mall. In such an example, secondary location information **620** may be included and display, to the requesting user, the name of the mall.

Directional information **630** may also be included on display **600** or any other display of the present invention. Directional information **630** may include a digital compass **632** so that the user of cell phone **300** (FIG. **3**) knows what direction he or she is facing in. Digital compass **632** may be connected to a direction sensitive device (e.g, mechanical compass) in order to gather directional information. Directional arrow **633** may also be included in Display **600** to indicate where the requested user's location is relative to the location and direction of cell phone **300** (FIG. **3**) (e.g, the requesting user). Persons skilled in the art will appreciate that for some directional information **630** the location of the requesting user must be obtained. This information may be obtained either from cell phone **300**, a remote facility, or by any other suitable means. If the information is gathered from a location gathering device other than the requesting user's device (e.g, cell phone **300** (FIG. **3**)), then the user's device may communicate from this other location gathering device. Once both the locations of the requesting and requested/desired users are known, this information may be utilized in a number of features incorporating the principles of the present invention.

Distance information **634** is one such feature that displays the distance between the locations of the requested and requesting users (e.g., distance between the locations of the requested and requesting devices). Directional information **630** may contain many other elements to enhance the utility of the present invention. For example, a map (not shown in FIG. **6**) may be included in display **600**. This map may be of the area surrounding either the requested, the requesting user's location or both. Information may be included on the map to show the shortest path between the location as well as information about the surrounding area (e.g, area names, store names, etc.). Other information may include, for example, time to reach the destination according to specific types of travel (e.g, subway, walking, running, driving) and the direction the requested user is traveling in.

Many uses for this information may be utilized by a user. For example, if Jane calls Bill and Bill says "I am roaming midtown manhattan shopping why don't you join me", no other call to Bill is needed. Bill simply has to give Jane access to his location and Bill can continue shopping without having to worry about meeting up with Jane at a specific location.

In some instances, it may be beneficial to find the speed and direction of a requested user. For example, if a wife wants to see how long before her husband arrives home, the wife can use this feature of the present invention. This feature may find the husbands location multiple times in a determined amount of time. Through this information the feature may determine the speed and direction that the user is traveling. Using this speed, for example, this feature may display to the wife that the husband "is 10 minutes away" in directional information **630**. In doing so, the need for a call to the husband to determine his location is eliminated.

Persons skilled in the art that the location of multiple users may be displayed on display screen **600**. For example, suppose Jeff, Susan, and Chrissy are at a concert. If all three of these users have unlimited access to the other users, principles of the present invention would allow for a map to be displayed on each of the three locating devices with locator designations for each of the users. Using such map, the group may be able to find themselves in relative location to one another and decide, if need be, on the easiest location for them to meet. Thus map **660** may be included on display screen **600** and display the locations of multiple users (e.g., user's **621** and **622**).

More region **640** designates that more options or information may be retrieved or performed using principles of the present invention. A user may use control keys **340** (FIG. **3**) on cell phone **300** (FIG. **3**) to perform the functionality associated with more region **640**.

FIG. **7** shows display screen **700** for locate listing options in accordance with the principles of the present invention. Display screen **700** includes selectable options list **710** and highlight window **720** and may be displayed to the user, for example, through the activation of functionality associated by more region **640** (FIG. **6**). Options list **710** may include any of the features of the present invention. For example, options list **710** may include options activating a display screen of a map of the requesting user's location, a map of the requested user's location, directions to the requested user's location from the requesting user's location, travel

time for the requesting user, travel time for the requested user, and options to set location alerts.

FIG. **8** shows display screen **800** of a failed locate feature due to insufficient rights in accordance with the principles of the present invention. Display screen **800** may be displayed if a requesting user attempts to located a requested user but has not been given access rights by the request user to his or her location. In such an instance insufficient rights message **801** may be prompted on display screen **800**.

FIG. **9** shows display screen **900** of adding and modifying locate rights and options to a user in accordance with the principles of the present invention. A user may give or modify access rights through display **900** to a user identifier in selectable user identifier listing **910**. Highlight window **920** may be included to enhance the selecting process.

FIG. **10** shows display screen **1000** of assigning location rights to a user in accordance with the principles of the present invention. Display screen **1000** may be displayed, for example, after a user has been selected to be given location rights. Display screen **1000** contains selectable location rights listing **1010**, in which the selecting process may be enhanced by highlight window **1020**. Possible location access rights may be, for example, by country, state, city, exact location, or any other scope of location. Other rights may be assigned such as particular times in the day or time periods at which locations may be accessed.

FIG. **11** shows display screen **1100** of alert options in accordance with the principles of the present invention. Display screen **1100** allows for a user to set up alerts depending on the location of specific users. Selectable alert listings **1110** are included and may be selectable with highlight window **1120**. Examples of alerts that may be included in display screen **1100** may occur, for example, if the requested user is in a specific city or the same city as the user of display **1100**, is within a certain distance, or if a user located the user of display **1100**.

The alerts of the present invention may realize useful functionality. For example, suppose Susan Pracht lives in Pittsburgh and rarely comes to the city of the user of display screen **1100** on cell phone **300** (FIG. **3**) which is New York City. The user of cell phone **300** (FIG. **3**) may then use display screen **1100** and set an alert such that if Susan Pracht ever enters New York City, he or she would be alerted of Susan Pracht's presence.

FIG. **12** shows display screen **1200** of an alert feature in accordance with the principles of the present invention. Display screen **1200** includes an alert message and is displayed to a user when an event occurs that is designated by the user in display screen **1100** (FIG. **11**). Continuing the example from FIG. **11**, if Susan Pracht enters New York City, alert message **1210** would prompt the user that this event has occurred.

FIG. **13** shows display screen **1300** of a login feature in accordance with the principles of the present invention. In order for users to be identified by other user's cell phones or locating devices a user profile may need to be stored remotely from such devices. In such instances user profiles would be used is as the locating identifier and the devices into which these profiles are logged into (recognized by) would allow for the user to be located. Display screen **1300** allows for a user to log into a locating device of the present invention. Logging into a device also adds a level of security to the present invention, especially when combined with a password. A user may use the controls of the device of the present invention to enter login **1310** of display **1300**.

In this manner a user may use another user's location device (e.g., cell phone) to locate a user or may use, for example, the internet to locate a user. Additionally, in this manner, a user may change the device being located. For example, a user may use his or her car GPS system or other systems in accordance with the principles of the present invention to be located instead of his or her cell phone. To further this example, a user may log into a web site on the internet and designate his or her current location as home, or any other location, thus eliminating the need for locatable device entirely.

FIG. **14** shows display screen **1400** of a login feature in accordance with the principles of the present invention. Display screen **1400** may be used by a user to enter a password associated to his profile, identity, or cell phone functionality access. A user may enter password **1410** using the controls of the device of display screen **1400** (e.g., cell phone **300** of FIG. **3**). By including a login/password scheme a user can be identified by a remote facility (e.g., a remote database) so that the user's location can be recorded/updated by multiple devices. Additionally, a login/password adds an extra level of security.

FIG. **15** shows cell phone **1500** that may be utilized to carry out the functionality in accordance with the principles of the present invention. Cell phone **1500** includes receiver/transmitter **1510**, microprocessor **1520**, positioning system **1530**, and memory **1540**.

Persons skilled in the art will appreciate that receiver/transmitter **1510** may directly communicate with memory **1540** if receiver/transmitter **1510** does not have its own memory (e.g., if receiver/transmitter **1510** are configured to utilize a buffer for capturing incoming communications bursts before demodulation and decryptions).

Positioning system **1530** may be, for example, a GPS system or a similar positioning system. Positioning system **1530** may include its own receiver for receiving particular signals utilized in positioning cell phone **1500**.

FIG. **16** shows network topology **1600**, in which all components of, or a part of the components of, may be utilized to carry out the features in accordance with the principles of the present invention. In this manner, persons skilled in the art will appreciate that multiple system configurations may be utilized. Topology **1600** introduces the diversity of systems that can be utilized to realize such configurations.

Generally, topology **1600** includes multiple mobile devices (e.g., multiple instances of mobile device **1601**), access control devices and location broker devices (e.g., database **1602** and cell phone base station **1603**), and non-mobile devices (e.g., grounded non-wireless device **1605**). Persons skilled in the art will appreciate that other devices or facilities may be included in topology **1600**. For example, one or more positioning systems **1601** may be included in topology **1600** in order to locate particular devices. For example, a positioning receiver (e.g., GPS receiver) may be included in wireless device **1601** with positing system **1601** being a positioning transmitter (e.g., GPS satellite network).

One or more wireless devices **1601** may be included in topology **1600** and may be, for example, watches, PDAs, cellular phones, radios, cars, or any other mobile device whose location can be determined.

As previously mentioned, access control and location broker devices may be included in topology **1600**. Such devices may be utilized, for example, to store user access rights for a particular user and may contain functionality to request and route a device's location. These devices may be considered information broker's such that devices may be

added, removed, or modified without creating the necessity of having to modify the other devices of topology **1600**.

Database **1602** is one such information broker. Database **1602** may, for example, be located in cell phone base station **1603** if database **1602** is utilized to assist in cell phone locating. Database **1602** may be utilized, for example, to store a history a of a device's locations, a user's list of assigned access rights to other users, a log of a user's call activity, a log of a location initiations, a user profile, login/password information, or any other sort of information. Many features may be provided that utilize such information, For example, n approximate location may be determined for a device that is turned OFF (e.g., by utilizing the device's location history). As per another example, if a cell phone is lost and a new one replaced, information such as, for example, phone books, activity logs, and assigned user access rights may be downloaded/flashed into the cell phone.

Database **1602** may be accessed either directly (e.g., manually by an user of the device) or indirectly (e.g., periodically) by a cell phone or other device. Alternatively, a device or cell phone may access database **1602** directly (e.g., manually by an administrator of the database) or indirectly (e.g., periodically) by database **1602**.

A credit card authorization system is an example of additional system **1606** that may be added to topology **1600** to realize new features. Such a credit card authorization system, as described above, could utilize a devices location in order to decrease credit card fraud. System **1600** may also be, for example, systems needed to realize the described dating functionalities or another information provider (e.g., a map information provider).

Non-wireless devices **1605** (e.g., a personal computer) may be included in topology **1600**. Such devices may have locations associated to them or contain a positioning system. These locations may then be associated to a user that is recognized as using the device. For example, if a particular user logs into a non-mobile personal computer, that user's location will be recognized as being the location associated to the personal computer.

The devices of topology **1600** communicate with each other through communications network **1610**. Communications network **1610** may include, for example, any type of communications, routing, amplification, encryption, decryption, parsing, modulation, or demodulation technologies. For example, positioning system **1601** may communicate with wireless device **1601** by sending multiple wireless positioning signals. At the same time, database **1602** may be providing non-wireless device **1605** with a device's location over conventional telephone wires.

FIG. **17** shows locating feature **1700** in accordance with the principles of the present invention. Locating feature **1701** starts at step **1701** and waits at step **1702** until a location is requested. As stated, a location can be requested in a number of instances and by a variety of different means.

For example, a location may be requested by a user of a cell phone that desires to locate a friend by locating that friend's cell phone. Alternatively, a device may be triggered to request a location of a mobile device when an event occurs. For example, a credit card authorization system may request the location of a user's cell phone and the location of a store that just used a credit card associated to the requested user.

If a location is requested, access rights to the requested location for the requesting device and/or user are obtained at step **1703**. Step **1703** may be employed for example, as a call to a database storing a list of assigned access rights for the requested device/user and finding if any access rights were assigned to the requestor's identity. As per another example, step **1703** may be employed as a direct call to the requested device/user.

Step **1704** determines if the requester has been assigned access rights to obtain the requested device/user's location. Persons skilled in the art will appreciate that some devices may always have access to a user's location regardless if a user has assigned access rights to the requesting device. In this manner, a device may be set up to always let a user access a location. For example, a mother may purchase a cell phone for a minor and may configure the cell phone to always allow her location information.

If access rights do exist for the requesting device/user at step **1704** then step **1705** may be initiated and location information may be provided to the requestor. Such location information may be filtered according to the assigned access rights. For example, if a user has only been assigned access rights to obtain the requested user's city location, only the city that the requested user/device is currently located in (or the last city location available) may be obtained. The process then finishes at step **1707** after the assigned location information has been delivered to the requester at step **1705**. Persons skilled in the art will appreciate that steps may be added to, removed, or modified from locating feature **1700**. For example, instead of finish step **1707**, step **1702** may be initiated after step **1706** has completed.

If a requester has not been assigned rights to access the requested user/device's location as determined by step **1704**, then step **1712** may be initiated. Step **1712** informs the requester that the requester does not have access rights to obtain the location of a user/device. Step **1711** may follow and provide an opportunity for the requester to obtain the access rights. More particularly, step **1711** asks the requester if the requester would like to request access rights. If the requester does not want to request access rights, locating feature **1700** may, for example, return to step **1702**. Else, access rights may be requested at step **1721**. Step **1722** follows and if access rights were given then step **1705** may be initiated. Else, step **1712** may, for example, be re-initiated.

FIG. **18** shows one embodiment of a cell phone burst that has been configured to embed a device or user's location **1801** between control signals (e.g., synchronization signals) and data signals. Persons skilled in the art will appreciate that some cell phone burst standards (e.g., TDMA and CDMA) have signal portions that are reserved for future technologies. In one embodiment, this reserved portion is utilized to house location information **1801**. A cell phone tower or base information may then strip received signals **1800** of location information **1801**, store location information **1801** into a database or other storage device, and deliver the received signals to its desired location. In this manner, a user may refresh his/her location information every time that a cell phone base station receives or routes information for the user. By stripping location information **1801** from signal **1800**, the intended receiver does not have access to the location of the device transmitting signal **1800**. A signal similar to signal **1800** may be sent to a cell phone that has requested, and has the appropriate location access rights, to location **1801**. Location **1701** may also be stored in other portions of signal **1700** that are not reserved portions. For example, a received signal **1800** may store location information in the data portions of signal **1800**. In embodiments where additional information is sent about location **1801** (e.g., a map associated with location **1801**) utilizing a main data portion of signal **1800** is preferred. Persons skilled in

the art will appreciate that signal burst **1800** may actually be any type of communication signal such as, for example, information returned from a database inquiry.

Persons skilled in the art will also appreciate that the systems and methods of the present invention may be implemented using other locating features and configurations. For example, a user may be manually requested to allow location access rights every time his/her location is requested. As per another example, a user may organize his/her user list into groups and assign access rights to that group (e.g., family member user group, close friend user group). All such modifications are within the scope of the present invention, which is limited only by the claims that follow.

What is claimed is:

1. A wireless telephone comprising:

a processor;

a positioning system for determining a location of said wireless telephone; and

memory storing programming capable of:

providing said location of said wireless telephone to a remote server;

instructing said remote server to change a list of users on said remote server for a profile associated with said wireless telephone that are allowed to access said location by way of said remote server providing said location from said remote server to at least one of said users of said list of users, wherein each user of said list of users is representative of one of a plurality of wireless telephones; and

receiving and displaying directional information to one of said plurality of wireless telephones, wherein said directional information is representative of directions between said location and a second location associated with said one of said plurality of wireless telephones.

2. The wireless telephone of claim **1**, wherein said programming capable of instructing said remote server to change a list of users comprises programming capable of instructing said remote server to add an additional user to said list of users.

3. The wireless telephone of claim **1**, wherein said programming is further capable of displaying the name of said second location.

4. The wireless telephone of claim **1**, wherein said programming is further capable of displaying the distance between said first wireless telephone and said one of said plurality of wireless telephones.

5. The wireless telephone of claim **1**, wherein said programming is further capable of instructing said remote server to allow at least one of said users to access said location of said wireless telephone for only a specific period of time.

6. The wireless telephone of claim **1**, wherein said programming is further capable of receiving an alert regarding a user of said list of users based on a location of a wireless telephone associated with said user.

7. The wireless telephone of claim **6**, wherein said programming is further capable of requesting said remote server to provide said alert.

8. The wireless telephone of claim **7**, wherein said alert is geographic area-based, said programming is further capable of specifying said geographic area, and said alert indicates that said location of said wireless telephone associated with said user of said list of users is within said geographic area.

9. The wireless telephone of claim **1**, wherein said programing is further capable of receiving an alert when a user of said list of users locates said wireless telephone.

10. The wireless telephone of claim **1**, wherein said programming is further capable of receiving and displaying a location of a watch.

11. The wireless telephone of claim **1**, wherein said programming is further capable of receiving and displaying a location of a radio.

12. The wireless telephone of claim **1**, wherein said programming is further capable of receiving and displaying a location of a car.

13. The wireless telephone of claim **1**, wherein said programming is further capable of receiving and displaying information indicating time to reach said second location from said location according to at least two types of travel selected from the types of travel consisting of subway, walking, running, and driving.

14. The wireless telephone of claim **1**, wherein said programming is further capable of downloading from a remote system associated with said remote server a phone book corresponding to a user of said wireless telephone.

15. A wireless telephone comprising:

a processor;

a positioning system for determining a location of said wireless telephone; and

memory storing programming capable of:

displaying a plurality of users, wherein each one of said plurality of users is associated to a different one of a plurality of wireless telephones;

receiving a first manual input in a form of a selection of one of said plurality of users;

receiving an input in a form of a login and a second manual input in a form of a password;

providing said login and said password to a remote server for use in determining whether to allow access of location information for said one of said plurality of wireless telephones associated to said selected one of said plurality of users, said determining including identifying a user of said wireless telephone using said login, determining said password is associated with said login, and determining whether said selected one of said plurality of users has provided access rights for said location information to said user of said wireless telephone,

assigning location access rights to said one of said plurality of wireless telephones associated with said selected one of said plurality of users for obtaining said location of said wireless telephone;

receiving said location information for said one of said plurality of wireless telephones from a server; and

displaying said location information.

16. The wireless telephone of claim **15**, wherein said programming is further capable of displaying an option to obtain directions from said first wireless telephone to said one of said plurality of wireless telephones associated to said selected one of said plurality of users.

17. The wireless telephone of claim **15**, wherein said programming is further capable of receiving a manual input for modifying said location access rights.

18. The wireless telephone of claim **15**, wherein said programming is further capable of instructing said remote server to allow at least one of said users to access said location of said wireless telephone for an indefinite period of time.

19. The wireless telephone of claim **15**, wherein said programming is further capable of instructing said remote

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server to allow at least one of said users to access said location of said wireless telephone for only a specific period of time.

20. The wireless telephone of claim **15**, wherein said programming is further capable of receiving an alert regarding a user of said plurality of users based on a location of a wireless telephone associated with said user of said plurality of users.

21. The wireless telephone of claim **20**, wherein said programming is further capable of requesting said remote server to provide said alert.

22. The wireless telephone of claim **21**, wherein said alert is geographic area-based, said programming is further capable of specifying said geographic area, and said alert indicates that said location of said wireless telephone associated with said user of said plurality of users is within said geographic area.

23. The wireless telephone of claim **15**, wherein said programing is further capable of receiving an alert when a user of said plurality of users locates said wireless telephone.

24. The wireless telephone of claim **15**, wherein said programming is further capable of receiving and displaying a location of a watch.

25. The wireless telephone of claim **15**, wherein said programming is further capable of receiving and displaying a location of a radio.

26. The wireless telephone of claim **15**, wherein said programming is further capable of receiving and displaying a location of a car.

27. The wireless telephone of claim **15**, wherein said programming is further capable of receiving and displaying information indicating time to reach said second location from said location according to at least two types of travel selected from the types of travel consisting of subway, walking, running, and driving.

28. The wireless telephone of claim **15**, wherein said programming is further capable of downloading from a remote system associated with said remote server a phone book corresponding to a user of said wireless telephone.

29. A wireless telephone comprising:

a processor;

a positioning system for determining a location of said wireless telephone; and

memory storing programming capable of:

receiving user information comprising a manually entered login associated with a user of said wireless telephone and a manually entered password associated with said login;

providing said location for recording on a remote system in association with said user information;

selecting a location-based event that is based, at least in part, on a location of a second wireless telephone, wherein said location-based event is operable to be manually pre-selected from a list of at least three types of location-based events; and

receiving a location-based event notification corresponding to said selected location-based event as a result of, at least in part, location access rights of said wireless telephone from said second wireless telephone,

wherein a first one of said at least three types of location-based events is, at least in part, region-based, and a second one of said at least three types of location-based events is, at least in part, distance-based.

30. The wireless telephone of claim **29**, wherein said first wireless device comprises a global positioning system that is operable to provide said location.

31. The wireless telephone of claim **29**, wherein said programming is further capable of displaying a display screen on said wireless telephone, after receiving said location-based event notification, that includes a first selectable option for providing a map associated with said location of said second wireless telephone.

32. The wireless telephone of claim **29**, wherein said programming is further capable of displaying after receiving said location-based event notification a travel time between a location of said wireless telephone and a location of said second wireless telephone.

33. The wireless telephone of claim **29**, wherein said programming is further capable of instructing said remote system to allow a user of said second wireless telephone to access said location of said wireless telephone for an indefinite period of time.

34. The wireless telephone of claim **29**, wherein said programming is further capable of instructing said remote system to allow a user of said second wireless telephone to access said location of said wireless telephone for only a specific period of time.

35. The wireless telephone of claim **29**, wherein said programming is further capable of specifying said region, and said region-based location-based event indicates that said location of said second wireless telephone is within said region.

36. The wireless telephone of claim **29**, wherein said programing is further capable of receiving an alert when a user of said second wireless telephone locates said wireless telephone.

37. The wireless telephone of claim **29**, wherein said programming is further capable of receiving and displaying a location of a watch.

38. The wireless telephone of claim **29**, wherein said programming is further capable of receiving and displaying a location of a radio.

39. The wireless telephone of claim **29**, wherein said programming is further capable of receiving and displaying a location of a car.

40. The wireless telephone of claim **29**, wherein said programming is further capable of receiving and displaying information indicating time to reach a second location associated with said second wireless telephone from said location according to at least two types of travel selected from the types of travel consisting of subway, walking, running, and driving.

41. The wireless telephone of claim **29**, wherein said programming is further capable of downloading from said remote system a phone book corresponding to a user of said wireless telephone.

42. A wireless telephone comprising:

a processor;

a positioning system for determining a location of said wireless telephone; and

memory storing programming capable of:

requesting a location of a second wireless device from a server located remotely from said wireless telephone and said second wireless device;

displaying on said wireless telephone an option to request location access rights from said second wireless device after it is determined that said wireless telephone does not have location access rights for said second wireless device;

transmitting a request to said server that said location access rights be assigned for said wireless telephone by said second wireless device; and

receiving said location of said second wireless device from said server dependent upon said access rights.

43. The wireless telephone of claim **42**, wherein said second wireless device is a second wireless telephone.

44. The wireless telephone of claim **42**, wherein said location access rights include the ability to obtain said location of said second wireless device, wherein said location is capable of being provided to said wireless telephone from said server even when said second wireless device is OFF.

45. The wireless telephone of claim **42**, wherein said location access rights comprise a plurality of access levels.

46. The wireless telephone of claim **42**, wherein said programming is further capable of using said location of said second wireless device to display a location marker on a map on said wireless telephone.

47. The wireless telephone of claim **42**, wherein said programming is further capable of using said location of said second wireless device to display directions from said location of said wireless telephone to said second wireless device.

48. The wireless telephone of claim **42**, wherein said programming is further capable of using said location of said second wireless device to display directions from said location of said wireless telephone to said location of said second wireless device and a travel time from said location of said wireless telephone to said location of said second wireless device.

49. The wireless telephone of claim **42**, wherein said location access rights comprise a plurality of levels of access rights, at least one of said plurality of levels of access rights comprise the exact location of said second wireless device, and another one of said plurality of levels of access rights comprise an approximate location of said second wireless device.

50. The wireless telephone of claim **42**, wherein said access rights comprise a plurality of levels of access rights, at least one of said plurality of levels of access rights comprise an approximate location of said second wireless device, and said approximate location comprises a city or state.

51. The wireless telephone of claim **42**, wherein said programming is further capable of receiving a login and password from said wireless telephone to identify said wireless telephone.

52. The wireless telephone of claim **42**, wherein said location of said second wireless device is requested by receiving input, in the form of a telephone number of said second wireless device, on said wireless telephone.

53. The wireless telephone of claim **42**, wherein said programming is further capable of displaying an option to modify rights of another wireless device to access the location of said wireless telephone.

54. The wireless telephone of claim **42**, wherein said programming is further capable of displaying an option to delete another wireless device's rights to access the location of said wireless telephone.

55. The wireless telephone of claim **42**, wherein said programming is further capable of alerting said wireless telephone when said second wireless device is within a distance of said wireless telephone.

56. The wireless telephone of claim **42**, wherein said programming is further capable of displaying an option to select said second wireless device from an identifier list.

57. The wireless telephone of claim **42**, wherein said programming is further capable of displaying an option to select said second wireless device from an identifier list wherein said identifier list comprises a list of telephone numbers.

58. The wireless telephone of claim **42**, wherein said programming is further capable of displaying an option to select said second wireless device from an identifier list wherein said identifier list comprises a list of user profiles.

59. The wireless telephone of claim **42**, wherein said positioning system comprises a global positioning system.

60. The wireless telephone of claim **42**, wherein said programming is further capable of displaying a compass.

61. The wireless telephone of claim **42**, wherein said programming is further capable of displaying a directional arrow indicative of a location of said second wireless device relative to said location of said second wireless telephone.

62. The wireless telephone of claim **42**, wherein said programming is further capable of setting location alerts associated with said second wireless device.

63. The wireless telephone of claim **42**, wherein said programming is further capable of displaying an option to modify rights of another wireless device to access the location of said wireless telephone comprising allowing a user of said wireless telephone to allow said another wireless device to access the location of said wireless telephone for a specific period of time.

64. The wireless telephone of claim **42**, wherein said programming is further capable of providing an alert on said wireless telephone when said second wireless device enters a geographic area.

65. The wireless telephone of claim **42**, wherein said programming is further capable of instructing said server to allow a user of said second wireless device to access said location of said wireless telephone for an indefinite period of time.

66. The wireless telephone of claim **42**, wherein said programming is further capable of instructing said server to allow a user of said second wireless device to access said location of said wireless telephone for only a specific period of time.

67. The wireless telephone of claim **42**, wherein said programing is further capable of receiving an alert when a user of said second wireless device locates said wireless telephone.

68. The wireless telephone of claim **42**, wherein said programming is further capable of receiving and displaying a location of a watch.

69. The wireless telephone of claim **42**, wherein said programming is further capable of receiving and displaying a location of a radio.

70. The wireless telephone of claim **42**, wherein said programming is further capable of receiving and displaying a location of a car.

71. The wireless telephone of claim **42**, wherein said programming is further capable of receiving and displaying information indicating time to reach said location from of said second wireless device from said location of said wireless telephone according to at least two types of travel selected from the types of travel consisting of subway, walking, running, and driving.

72. The wireless telephone of claim **42**, wherein said programming is further capable of downloading from a remote system associated with said server a phone book corresponding to a user of said wireless telephone.

73. A wireless telephone comprising:

a processor;

a positioning system for determining a location of said wireless telephone; and

memory storing programming capable of:

providing said location to a remote system, wherein said location is operable of being requested by a second wireless device outside of a call for communication between said wireless telephone and said second wireless device;

providing a permission for said second wireless device to access location information about said location, said permission operable of being stored in said remote system, wherein said remote system is located remotely from said wireless telephone and said second wireless device, said location information about said location is operable of being provided from said remote system to said second wireless device in accordance with said permission outside of said call, wherein said programming of said wireless telephone is further operable of providing a first map provided with respect to said location.

74. The wireless telephone of claim **73**, wherein said second wireless device comprises a wireless telephone.

75. The wireless telephone of claim **73**, wherein said programming is further capable of displaying a map with a location marker associated with a location of said second wireless device.

76. The wireless telephone of claim **73**, wherein said programming is further capable of removing said permission, by said wireless telephone, for said second wireless device to obtain said location.

77. The wireless telephone of claim **73**, wherein said positioning system is operable to receive signals from a plurality of positioning satellites, and said location is operable to be updated by said positioning system, and said programming is further capable of providing said updated location to said remote system.

78. The wireless telephone of claim **73**, wherein said programming is further capable of receiving an alert when said second wireless device is within a distance of said wireless telephone.

79. The wireless telephone of claim **73**, wherein said programming is further capable of displaying said location of said wireless telephone relative to a second location of said second wireless device.

80. The wireless telephone of claim **73**, wherein said programming is further capable of setting location alerts associated with said second wireless device.

81. The wireless telephone of claim **73**, wherein said programming is further capable of assigning said permission for a specific period of time.

82. The wireless telephone of claim **73**, wherein said programming is further capable of being alerted when said second wireless device enters a geographic region.

83. The wireless telephone of claim **73**, wherein said programming is further capable of displaying said first map from a perspective of said first wireless device, said map identifying said location of said wireless telephone and a location of said second wireless device.

84. The wireless telephone of claim **1**, wherein said programming is further capable of instructing said remote server to allow at least one of said users to access said location of said wireless telephone for an indefinite period of time.

85. The wireless telephone of claim **73**, wherein said programming is further capable of instructing said remote server to allow a user of said second wireless device to access said location of said wireless telephone for an indefinite period of time.

86. The wireless telephone of claim **73**, wherein said programming is further capable of instructing said remote server to allow a user of said second wireless device to access said location of said wireless telephone for only a specific period of time.

87. The wireless telephone of claim **73**, wherein said programing is further capable of receiving an alert when a user of said second wireless device locates said wireless telephone.

88. The wireless telephone of claim **73**, wherein said programming is further capable of receiving and displaying a location of a watch.

89. The wireless telephone of claim **73**, wherein said programming is further capable of receiving and displaying a location of a radio.

90. The wireless telephone of claim **73**, wherein said programming is further capable of receiving and displaying a location of a car.

91. The wireless telephone of claim **73**, wherein said programming is further capable of receiving and displaying information indicating time to reach a location of said second wireless device from said location of said wireless telephone according to at least two types of travel selected from the types of travel consisting of subway, walking, running, and driving.

92. The wireless telephone of claim **73**, wherein said programming is further capable of downloading from said remote system a phone book corresponding to a user of said wireless telephone.

* * * * *

EXHIBIT 2

US011190633B2

(12) **United States Patent**
Mullen

(10) **Patent No.: US 11,190,633 B2**
(45) **Date of Patent: Nov. 30, 2021**

(54) **SYSTEMS AND METHODS FOR PROVIDING REMOTE INCOMING CALL NOTIFICATION FOR CELLULAR PHONES**

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(72) Inventor: **Jeffrey David Mullen**, Pittsburgh, PA (US)

(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 0 days.

(21) Appl. No.: **14/172,884**

(22) Filed: **Feb. 4, 2014**

(65) **Prior Publication Data**

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Related U.S. Application Data

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(60) Provisional application No. 60/455,218, filed on Mar. 14, 2003.

(51) **Int. Cl.**

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H04M 1/72409	(2021.01)
H04M 19/04	(2006.01)
H04M 1/72412	(2021.01)
H04B 1/38	(2015.01)
G04G 21/04	(2013.01)

(52) **U.S. Cl.**

CPC ***H04M 1/72409*** (2021.01); ***G04G 21/04*** (2013.01); ***H04B 1/38*** (2013.01); ***H04M 1/72412*** (2021.01); ***H04M 19/04*** (2013.01); ***H04M 19/048*** (2013.01); *H04M 19/047* (2013.01)

(58) **Field of Classification Search**

CPC H04M 1/7359; H04M 1/7253; H04M 1/6041; H04M 19/047; H04M 1/72527; H04M 19/04; H04M 19/048; H04B 1/3805

USPC 455/557, 412.2, 567, 66.1, 88, 575.3, 455/41.1, 41.2, 92

See application file for complete search history.

(56) **References Cited**

U.S. PATENT DOCUMENTS

5,752,203	A	5/1998	Yamashita	
5,787,554	A *	8/1998	Hashimoto	24/68 J
5,960,367	A *	9/1999	Kita	H04B 1/38 455/567
6,160,489	A	12/2000	Perry et al.	

(Continued)

FOREIGN PATENT DOCUMENTS

GB	2367210 A *	3/2002	G08B 6/00
JP	10-155012	6/1998	

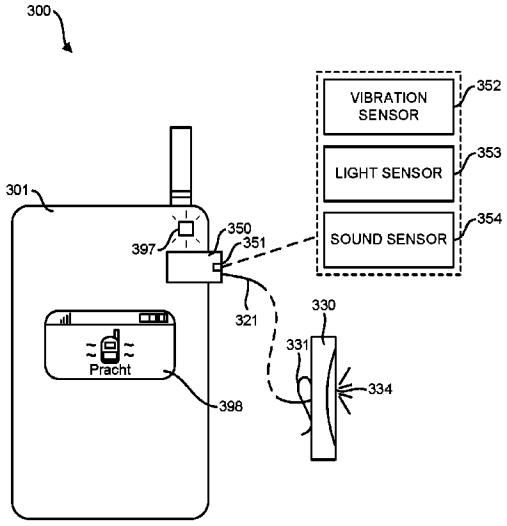
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Primary Examiner — Melur Ramakrishnaiah

(57) **ABSTRACT**

The present invention provides a remote notification to a user of a cellular, or mobile, phone as the result of a particular activity or any activity at all (e.g., an incoming call from a particular person, group, or just an incoming call). In one embodiment, a sensing device is provided on the cellular phone that communicates/routes an alert to a remote notification device. In one economical embodiment, the notification device may have a short wire-based communication channel (e.g., roughly 1 foot to 5 feet) and only have a single output device (e.g., a light-emitting device). Thus, a woman may be able to quietly receive notifications of a cell phone event when her cell phone is stored in her purse.

39 Claims, 5 Drawing Sheets



(56) **References Cited**

U.S. PATENT DOCUMENTS

6,216,017	B1 *	4/2001	Lee	H04B 1/3805 455/567
6,224,254	B1 *	5/2001	Hayek	G04B 47/00 368/10
6,226,536	B1	5/2001	Miyashita	
6,249,222	B1 *	6/2001	Gehlot	G08B 1/08 340/12.54
6,263,218	B1	7/2001	Kita	
6,697,647	B2	2/2004	Higuchi et al.	
6,906,701	B1 *	6/2005	Oueslati	G06F 3/04895 341/22
6,978,164	B2	12/2005	Vicendese	
7,202,773	B1 *	4/2007	Oba	G07C 9/00007 340/5.8
2001/0007817	A1 *	7/2001	Odagiri	H04M 1/7253 455/421
2002/0058500	A1 *	5/2002	Higuchi	H04M 19/04 455/412.2
2002/0068600	A1 *	6/2002	Chihara	H04M 1/576 455/557
2002/0115478	A1	8/2002	Fujisawa et al.	
2003/0040286	A1	2/2003	Walter	
2003/0153364	A1 *	8/2003	Osann, Jr.	H04M 1/6505 455/567
2003/0176205	A1	9/2003	Oota et al.	
2004/0058647	A1	3/2004	Zhang et al.	
2004/0137967	A1 *	7/2004	Bodley	H04M 1/05 455/575.2
2004/0204044	A1 *	10/2004	Pinsky	H04M 19/04 455/556.1

FOREIGN PATENT DOCUMENTS

JP	2001045111 A	*	2/2001
JP	2001045111 A	*	2/2001
JP	2001086202 A		3/2001
JP	2001352378 A		12/2001

* cited by examiner

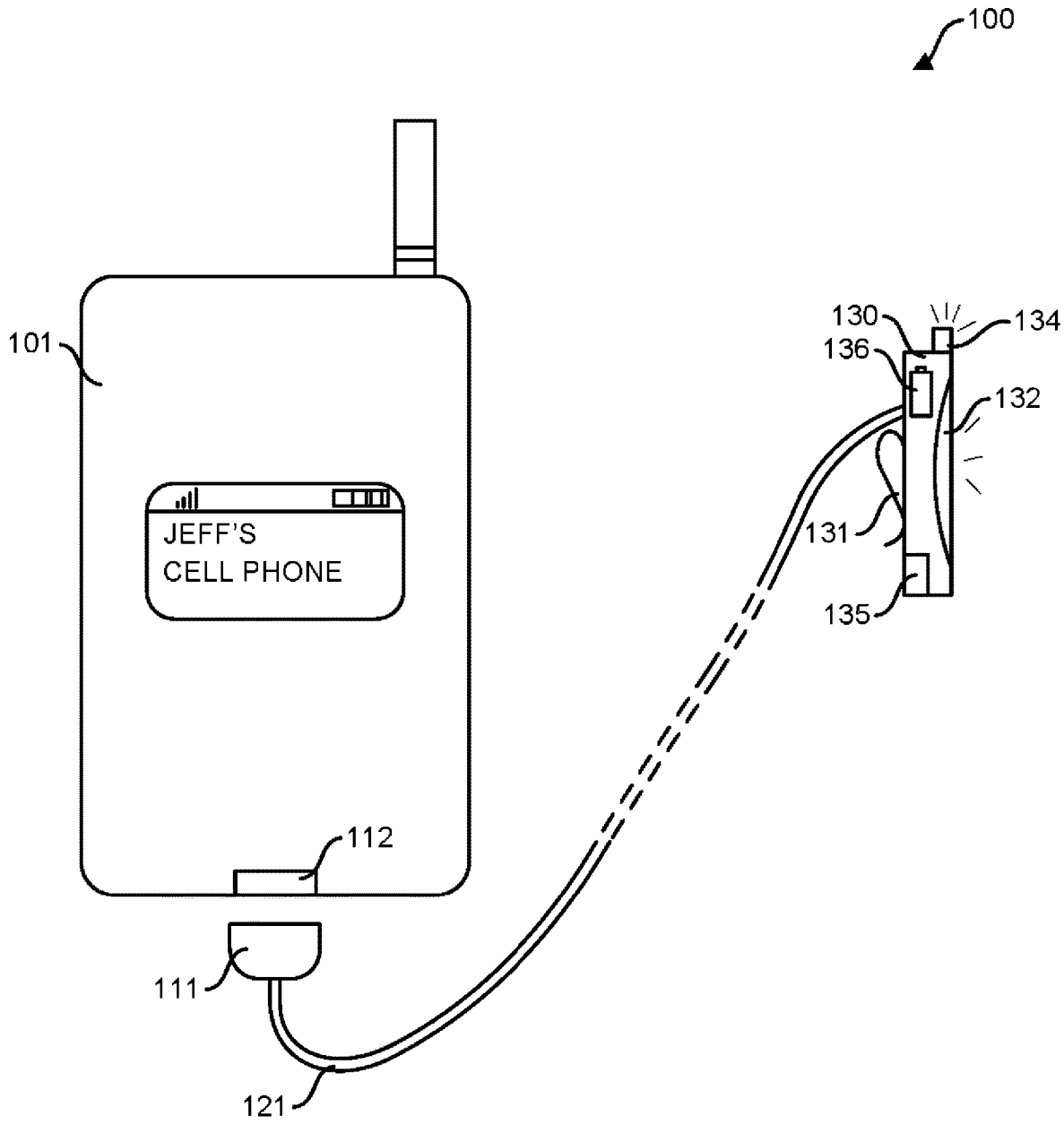


FIG. 1

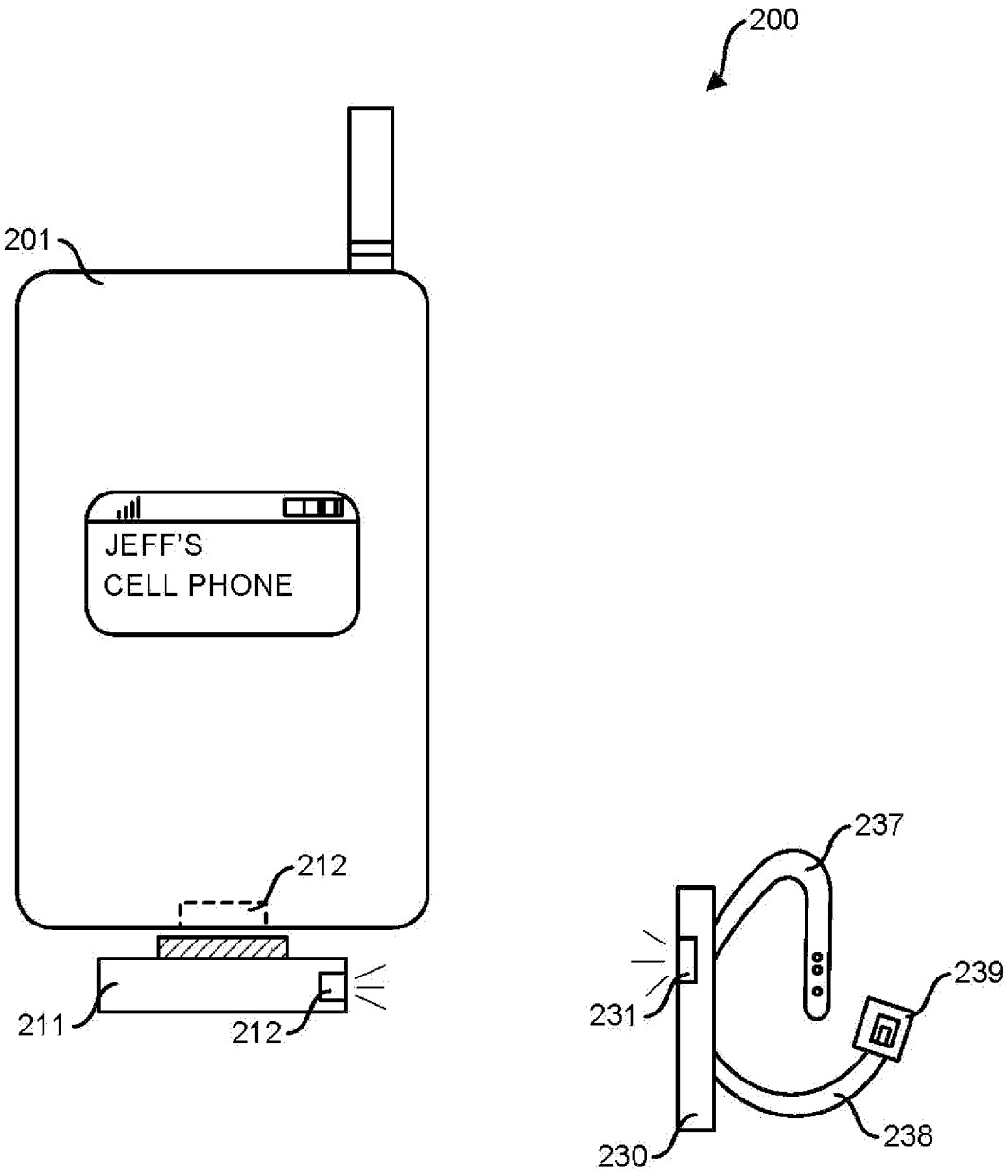


FIG. 2

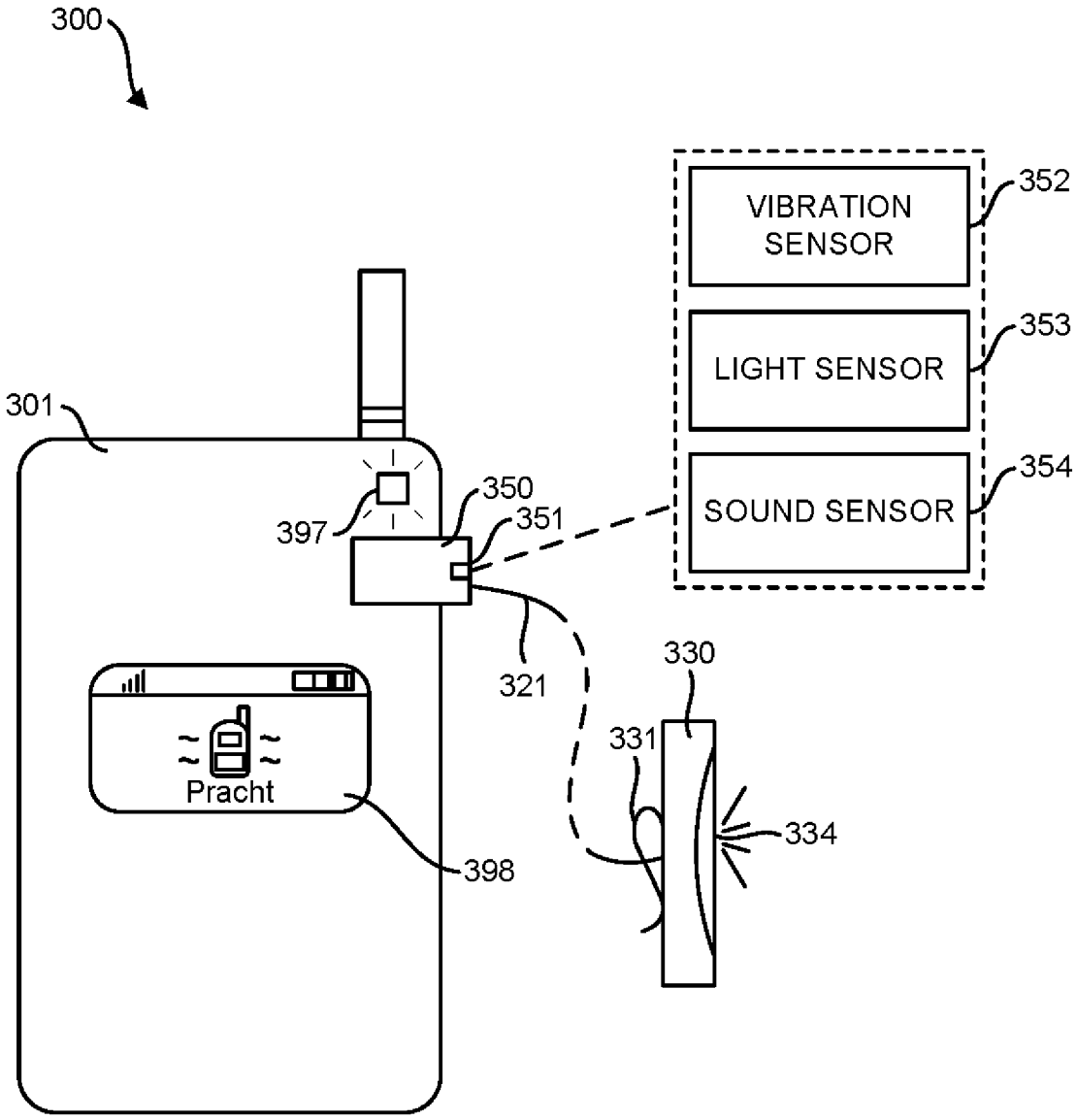

300
VIBRATION SENSOR
352
LIGHT SENSOR
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SOUND SENSOR
354
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Pracht
398

FIG. 3

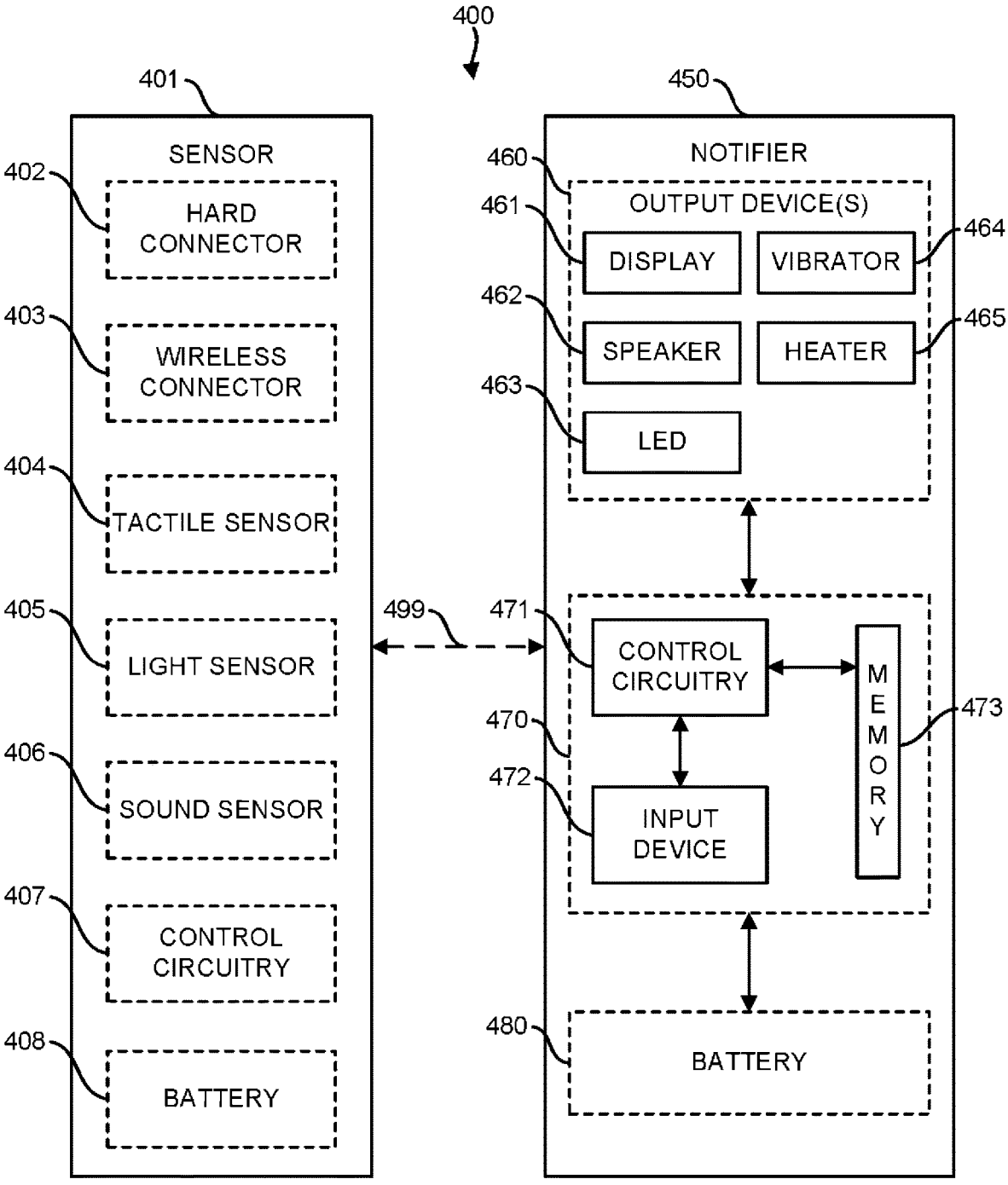

400
401
SENSOR
402
HARD CONNECTOR
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WIRELESS CONNECTOR
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TACTILE SENSOR
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LIGHT SENSOR
406
SOUND SENSOR
407
CONTROL CIRCUITRY
408
BATTERY
499
450
NOTIFIER
460
OUTPUT DEVICE(S)
461
DISPLAY
464
VIBRATOR
462
SPEAKER
465
HEATER
463
LED
471
CONTROL CIRCUITRY
MEMORY
473
470
472
INPUT DEVICE
480
BATTERY

FIG. 4

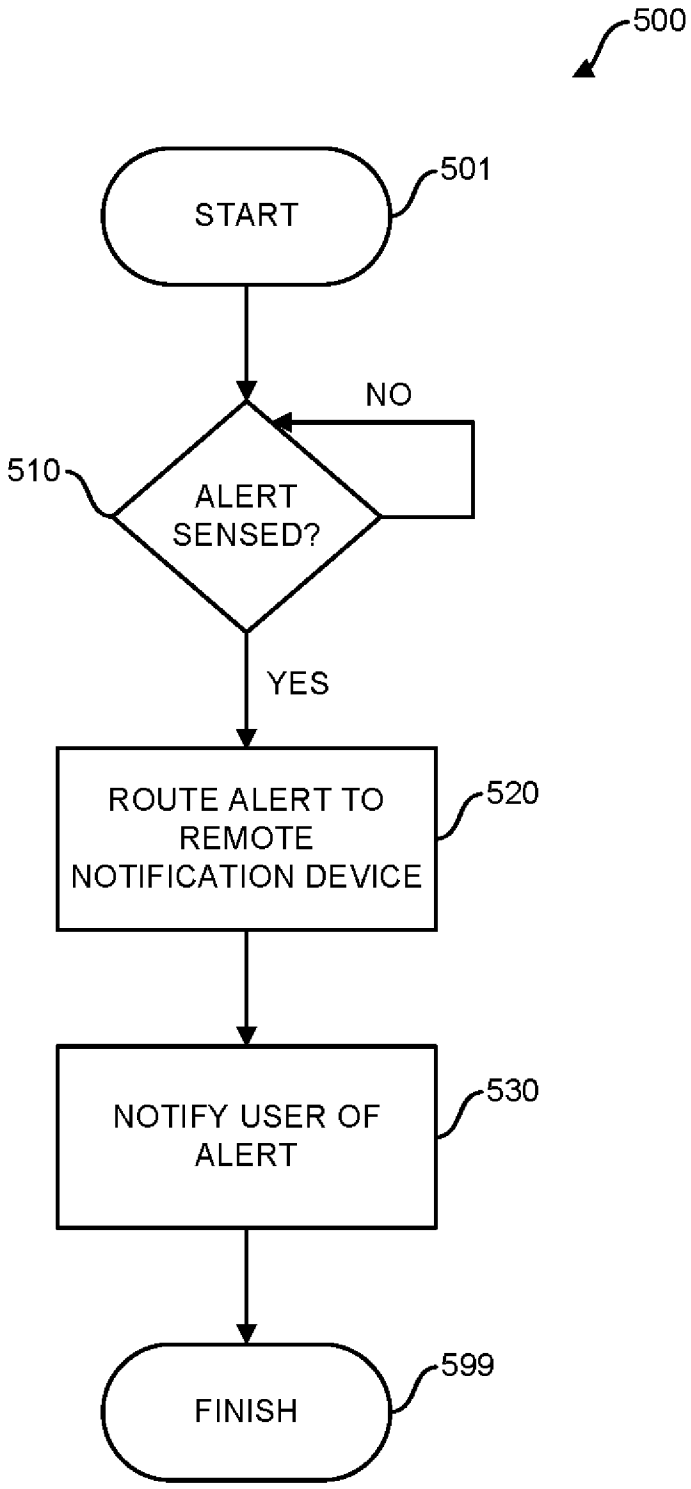

500
START
501
NO
510
ALERT SENSED?
YES
ROUTE ALERT TO REMOTE NOTIFICATION DEVICE
520
NOTIFY USER OF ALERT
530
FINISH
599

FIG. 5

SYSTEMS AND METHODS FOR PROVIDING REMOTE INCOMING CALL NOTIFICATION FOR CELLULAR PHONES

CROSS-REFERENCE TO RELATED APPLICATION

This application is a continuation of U.S. patent application Ser. No. 13/453,659, filed on Apr. 23, 2012, which is a continuation of U.S. patent application Ser. No. 10/797,801 filed on Mar. 9, 2004 which claims the benefit of U.S. Provisional Patent Application No. 60/455,218 filed on Mar. 14, 2003 which are all hereby incorporated by reference herein in their entirety.

BACKGROUND OF THE INVENTION

The present invention relates to cellular notifications. One notification in which the present invention is particularly useful is for incoming call notifications. Traditional incoming call notification devices for cellular phones are deficient because they exist physically on the cellular phone.

Currently, mobile phones, and devices cable of receiving wirelessly transmitted calls, generally have two schemes of notifying a user of incoming calls when that user has the phone stored, for example, in a user's purse. The first scheme provides signals that may be heard by the user (e.g., ring tones or beeps). The second scheme provides a tactile signal (e.g., a vibration).

However, both of these signals originate physically from the cell phone and some user's do not store his/her cell phone in a location where these signals can be recognized. For example, women usually store their cells phones in a purse. Here, when a cell phone rings, the ring can be missed by the audible dampening effects of the user's purse. Additionally, a vibrating cell phone can not be physically sensed by a user if that cell phone is in a remote storage location with a tactile dampening effect (e.g., a purse).

It is therefore desirable to provide systems and methods that allow incoming calls to be recognized by a user even when the user cannot hear or sense audio signals or vibration signals (e.g., incoming call notification signals) emanating from that user's cell phone.

SUMMARY OF THE INVENTION

It is an object of the present invention to provide systems and methods that allow incoming calls, or other cell phone events or notifications, to be recognized by a user even when the user cannot hear or sense audio signals or vibration signals physically emanating from the cellular phone.

In one embodiment, a user signaling device is provided at the end of an extension that is connectible to a user's cell phone. The device can detect when there is an incoming call, or other action that the user desires to be notified of (e.g., a calendar reminder), and provide a supplemental notification signal to the user. A clip, or other attaching device, may be included on the user signaling device so that the user may attach the signaling device in a position where that user can detect the devices incoming call notifications (e.g., on a purse strap or on a piece of clothing). Notifications can take the form of audible signals (e.g., cell phone rings), mechanical signals (e.g., vibrations, or any other type of notification signal (e.g., light pulses).

A wireless user signaling device does not need an extension. Instead, the user signaling device may be notified of incoming calls wirelessly by a notification transmitting device attached to the cellular phone. Alternatively, the user signaling device may communicate wirelessly with the cellular phone itself. The user signaling device may be set up to provide different types of signals that a user can distinguish dependant on what the cellular phone is trying to notify the user about (e.g., calendar event, incoming call, missed call, new message). A wireless user signaling device may be attached to remote areas on the user. For example, a wireless user signaling device may be attached to a user's watch, clothing, or glasses. A wireless user signaling device may be integrated into a user's glasses, contacts, or clothing.

The user signaling device may also be provided as software in a different device that the user is already in a position to receive notification signals from. For example, if the user has a beeper and a cellular phone, the user signaling software may be utilized such that the beeper vibrates whenever the cellular phone receives, for example, an incoming call signal. In another embodiment, a user's watch may vibrate whenever that users cellular phone desires to contact the user and notify the user of, for example, an incoming call.

Inexpensive systems may be constructed that may still offer a great utility to a user. For example, one notification device may consist of only a light emitting device (e.g., an LED) and related circuitry. An extension may connect the device to a cellular phone. Such a device, and similar devices that only consist of a few (e.g., one or two) types of notification with little other functionality may provide a very inexpensive, but desired, function to a user.

Another type of routing communications from a cellular phone is an autonomous recognition of a cellular phone notification. Although such a scheme may be difficult for a remote notification device that forwards multiple types of notifications, such a scheme may be very useful for routing a small number of notifications to a user. For example, a vibrational sensor may be coupled to a remote notification device via an extension. Such a sensor may be attached (e.g., velcroed) to a cellular phone such that when the phone vibrates (or vibrates in a certain manner) the remote notification device produces a notification signal (e.g., the device emits light, sound, or tactile signal). Some cellular phones vibrate differently for different alerts. For example, a cellular phone may vibrate multiple times for an incoming call but only once for a calendar event. Such a vibrational sensor may be coupled to control circuitry that may, for example, distinguish such alerts and provide a different type of remote alert to a user (e.g., different colors of light may be emitted).

BRIEF DESCRIPTION OF THE DRAWINGS

The principles and advantages of the present invention can be more clearly understood from the following detailed description considered in conjunction with the following drawings, in which the same reference numerals denote the same structural elements throughout, and in which:

FIG. **1** is an illustration of a non-wireless remote cell phone notification device and cell phone constructed in accordance with the principles of the present invention;

FIG. **2** is an illustration of a wireless remote cell phone notification device and cell phone constructed in accordance with the principles of the present invention;

FIG. **3** is an illustration of an autonomous remote cell phone notification device and cell phone constructed in accordance with the principles of the present invention;

FIG. **4** is an illustration of a remote cell phone notification device topology constructed in accordance with the principles of the present invention; and

FIG. **5** is an illustration of a process flow chart of a remote notification device constructed in accordance with the principles of the present invention.

DETAILED DESCRIPTION OF THE INVENTION

FIG. **1** depicts environment **100** that includes cell phone **101** and remote notification device **130**. Cell phone **101** includes communication device **112**. Remote notification device **130** includes communication device **111**. Generally, remote notification device **130** responds to signals from communication device **112** and alerts a user of a cell phone activity or event. For example, remote notification device **130** may alert a user when cell phone **101** receives an incoming call, a calendar notification occurs, a reminder occurs, a missed call occurs, a new voice or text message is received, or any other cell phone activity.

Communication devices **112** may be, for example, the headset (e.g. headphone) output, input/output connection, speaker, or vibrational output of cell phone **101**. For cellular phones that produce a ring in a headset when an incoming call is received, the headset output may provide a universal way for remote notification device **130** to communicate with cell phone **101**. In other words, each cell phone model, or the cell phones of a particular carrier, may have different types of input/output contacts. If, for example, the headphone jack is utilized as communication device **112**, remote notification device **130** may not need to be reconfigured with a different communication device **111** for different cell phone models.

In this manner, communication device **112** may be the speaker or vibration device of cellular phone **101**. Thus, communications device **111** may detect the audible signals or vibrations that emanate from cell phone **101**. Furthermore, utilizing the input/output communication contacts of cell phone **101** as communication device **112** allows for remote notification device **130** to not only receive communication signals from cell phone **101** but also allows remote notification device **130** to send communication signals to cell phone **101** (e.g. a signal to pick up the phone, voice signals to talk via cell phone **101**).

The microphone jack may also be connected to remote notification device **130** such that remote notification device may be utilized to receive voice signals from the headphone jack of cell phone **101** and provide voice signals to the microphone jack of cell phone **101**. In this manner, a user can recognize an incoming call, communicate to, for example, cell phone **101** that he/she wishes to have a conversation, and send/receive voice signals through remote communication device **130**.

Remote communication device **130** may include battery **136** or may be powered from the power supply of cell phone **101**. Remote communication device **130** may also include attaching device **131** which may be, for example, a clip, belt, band, chain, or any other attaching, securing, bonding, or affixing device. Remote notification device **130** may signal a user of a cell phone action (e.g., incoming call) through, for example, light emitting device **134**, speaker **132**, vibrating device **135**, and/or any other device that a user can recognize a signal from.

FIG. **2** depicts environment **200** that includes cell phone **201** and remote notification device **230**. Remote notification device **230** includes wireless communications device **231** that can communicate with a wireless communications device located on cell phone **201**. Communications device **211** may also be connected to cell phone **201** and may be utilized to transmit/receive signals wirelessly to/from

remote notification device **230** through communications port **212**. Communications device **211** may interface with cell phone **201** at cell phone communications port **212**, or have any function or attribute, similar to the interfacing of, functionality, or attributes included in communications device **111** of FIG. **1** can interface with cell phone **101** of FIG. **1**.

In simple embodiments, communications device **211** (or cell phone **201**) only sends communications signals to remote notification device **230**. As a result communications device **211** (if needed) and communications device **231** can be manufactured for a small cost.

Remote notification device **230** may be embedded into a device that is commonly used by users (e.g., a watch, glasses, clothing) and may attach to a user by a variety of devices (e.g., bands **237** and buckle **239**). Additionally, the functionality of remote notification device **230** may be embedded into a device that is commonly utilized by users. For example, if a user's watch has a wireless communications device, software may be included in the watch to provide a functionality similar to remote notification device **230**.

Persons skilled in the art will appreciate that remote notification device **230** of FIG. **2** and remote notification device **130** of FIG. **1** is not limited to use with cell phones. Such a remote notification device can provide remote user signaling for other devices such as, for example, PDA's, laptops, beepers, non-wireless phones, radios, and GPS enhanced devices.

An amplifier may also be provided in remote notification devices. Such an amplifier would allow for stronger notifications to be transmitted to a user. For example, if a notification of an incoming call is provided as a ring or beep from a remote notification device, an amplifier can increase the strength of the ring/beep.

Turning now to FIG. **3**, system **300** is illustrated that includes autonomous notification sensing device **350** attached to cellular phone **301**. Autonomous-device **350** may be affixed to cellular phone **301** by, for example, a glue or a tape. In this manner, autonomous device **350** may be sold with a covered piece of glue or tape such that a user may affix device **350** to their cellular phone **300**. Alternatively, device **350** may be attached to cellular phone **300** by, for example, velcro, clip, or other fastening device. In this manner, a user may attach device **350** to cellular phone **300** when the user is remotely located from cellular phone **300** (e.g., cellular phone **300** is in the user's purse or is in another room).

Extension **321** may be included to electrically couple notification device **330** to autonomous device **350**. Extension **321** may be provided in a variety of lengths. In one embodiment, extension **321** is between roughly a foot and five feet long such that a user may easily attach notification device **350** to the outside of a purse. Extension **321**, however, may be of any size. For example, extension **321** may be 50 feet long such that a cell phone placed in a charger may have incoming call notifications forwarded to a different room. In this manner, autonomous sensing device **350**, or any type of sensing device, may be included on a cell phone charger. Extension **321** may be connectable to autonomous device **350** and/or notification device **330**. For example, female connection port **351** may be included on autonomous device **350** that may be operable to receive a male connection port (not shown) located on extension **321**. Instead of extension **321**, communication between autonomous device **350** and notification device **330** may occur wirelessly (e.g., infrared, WiFi, bluetooth, etc.). Such a communication may

be one-way (e.g., from autonomous device **350** to notification device **330**) or two-way (e.g., to turn autonomous device **350** OFF). Persons skilled in the art will appreciate that autonomous device **350** may also electrically couple with cellular phone **300** and communicate with it. Autonomous device **350**, however, has a general benefit of being able to recognize alerts (e.g., incoming call alerts) from any model/make of cellular phone with a particular notification method like, for example, a vibrating mode.

Autonomous device **350** may sense an incoming call (or other alert) in a variety of ways. For example, autonomous device **350** may include vibration sensor **352** to determine when cellular phone **300** vibrates. Such vibration sensors are widely known and may be, for example, in a piezoelectric-based or a mechanical, ball-in-tube-based configuration. Control circuitry to determine when a cellular phone vibration occurs may be included and may be located in either autonomous device **350** or notification device **330**. Such control circuitry may, for example, be able to distinguish ambient motion (e.g., the soft-motion of somebody walking or a single hard-motion of a purse hitting a counter-top) from a vibrating cell-phone motion (e.g., a high-frequency, hard, repetitious motion). Such control circuitry may be configured for use with a particular phone and may have inputs that allow a user to adjust the sensitivity/operation of either device **350** or **330**.

Light sensor **353** may be included in autonomous device **350** any may, for example, determine when light emanates from display **398** or light-emitting notification **397**. In this manner, autonomous device **350** may be attached over either display **398** or light-emitting device **397** in order to determine when an alert occurs. Control circuitry may similarly be included to determine when such an event occurs and may be utilized to distinguish different events (e.g., when a cellular phone vibrates in different manners or emits light in different manners depending on the type of alert). Other types of autonomous sensors may also be utilized. For example, sound sensor **354** may be included to determine when an alert occurs.

Autonomous sensing device **350**, or any sensing device herein, may also be provided in a battery (e.g., a rechargeable battery) for cellular/mobile phone **300**. For example, some batteries include a vibrating means that produces vibrations when, for example, an incoming call occurs. A sensing device may, in this manner, be utilized in a cell phone battery to route a signal indicative of the incoming call (or alert) to a remote notification device or sense a notification signal in the battery (e.g., the vibrating of the battery). Such a device could also be electrically coupled between all of, or a portion of, the communication path between the cellular battery and cellular phone **300**.

Notification device **330** may be similar to any notification device described in connection with, for example, system **100** of FIG. **1** or system **200** of FIG. **2**. For inexpensive embodiments, notification device **330** may include a single way to notify the user of alerts (e.g., an incoming call, calendar event, location-based alerts). In this manner, notification device **330** may include, for example, a light-emitting device that emits light of one or more colors. Attachment device **331** may also be included such that device **330** may be attached to a variety of structures.

Next is FIG. **4** where topology **400** is shown. Topology **400** included sensing device **401** and notification device **450** that may be communicate to each other via communications channel **499**. Any component of a notification device **450** may be included in sensing device **401**. Similarly, any component of sensing device may be included in notification device **450**. Alternatively, components of a cellular phone may be included in either sensing device **401** or notification device **450**.

Sensing device **401** may include, for example, one or more connecting ports **402** and/or **403**, tactile sensor **404**, light sensor **405**, sound sensor **406**, control circuitry **407**, and battery **408**. Notification device may include, for example, one or more output devices **460**, additional circuitry **470**, and sources of electrical energy **480** (e.g., one or more batteries). Output devices **460** may include, for example, display **461**, vibrator **464**, heater/cooler **465**, speaker **462**, or light-emitting device **461** (e.g., an LED or other device that emits light). Additional circuitry **470** may include, for example, control circuitry **471**, user-input devices **472** (e.g., an ON/OFF and/or volume switch) and memory **473**.

Process flow chart **500** is depicted in FIG. **5** and may be utilized in a variety of alert sensing, routing, and notification systems. Process **500** starts at step **501** and moves to step **510**, in which the process is idle until an alert is sensed. When an alert is sensed step **520** is initiated that routes the alert (e.g., that an alert occurred or that a type of alert occurred), or a signal indicative of an alert/type of alert to step **530**. At step **530**, the user is notified that an alert, or a type of alert, occurred. Process **599** then ends at step **599**. Person skilled in the art will appreciate that many variations of process **500** may be utilized. For example, a step of determining the type of alert may be utilized. Alternatively, a step of accepting user input and configuring the system based on that user input may be utilized.

Persons skilled in the art will also appreciate that the present invention is not limited to only the embodiments described. Instead, the present invention more generally involves providing a non-cell phone based notification to a user of a cell phone activity or event (e.g., an incoming call). Persons skilled in the art will also appreciate that the apparatus of the present invention may be implemented using other control methods, notification techniques, attachment components, remote hosting devices (e.g., watch), and configurations. For example, blue tooth communication devices maybe used as the wireless communications devices. All such modifications are within the scope of the present invention, which is limited only by the claims that follow.

What is claimed is:

1. A watch for use with a mobile telephonic device that provides notification of an incoming call, said watch comprising:

a watch band;

a second watch band;

a buckle, wherein said buckle is coupled to said second watch band; and

a device operable to receive first wireless communication signals associated with a first event and second wireless communication signals associated with a second event from said mobile telephonic device, wherein said first event and second event are different, said device includes a battery, said device includes motion sensing operable to distinguish between a plurality of different types of motion, said device is operable to provide first user-perceivable notification signals that are dependent upon said received first communication signals, and said device is operable to provide second user perceivable notification signals that are dependent upon said second communication signals.

2. The watch of claim 1, further comprising an amplifier.

3. The watch of claim 1, wherein said user-perceivable notifications signals comprise audible notification signals.

4. The watch of claim 1, wherein said device further comprises a display.

5. The watch of claim 1, wherein said device further comprises a vibrator.

6. The watch of claim 1, wherein said device further comprises a speaker.

7. The watch of claim 1, wherein said device further comprises an LED.

8. The watch of claim 1, wherein said device further comprises control circuitry, an input device, and memory.

9. The watch of claim 1, wherein said device further comprises a display, a speaker, a vibrator, control circuitry, an input device, and memory.

10. The watch of claim 1, wherein said first user-perceivable signals are indicative of an incoming call.

11. The watch of claim 1, wherein said second user-perceivable signals are indicative of a calendar notification.

12. The watch of claim 1, wherein said second user-perceivable signals are indicative of a reminder.

13. The watch of claim 1, wherein said second user-perceivable signals are indicative of a missed call.

14. The watch of claim 1, wherein said first user-perceivable signals are indicative of an incoming call and said second user-perceivable signals are indicative of a calendar notification.

15. The watch of claim 1, wherein said first user-perceivable signals are indicative of an incoming call and said second user-perceivable signals are indicative of a reminder.

16. The watch of claim 1, wherein said first user-perceivable signals are indicative of an incoming call and said second user-perceivable signals are indicative of a missed call.

17. The watch of claim 1, wherein said first user-perceivable signals are indicative of an incoming call, said second user-perceivable signals are indicative of a reminder, and said device is configured to receive third wireless communication signals associated with a third event.

18. The watch of claim 1, wherein at least one of said plurality of different types of motion is a human motion.

19. The watch of claim 1, wherein said first user-perceivable signals are indicative of a voice message.

20. The watch of claim 1, wherein said first user-perceivable signals are indicative of a text message.

21. The watch of claim 1, wherein said device is operable to allow a user to select a type of user-perceivable signal for said first user-perceivable signals that is different than a type of user-perceivable signal for said second user-perceivable signals.

22. The watch of claim 1, wherein said device is operable to send wireless communication signals to said mobile telephonic device.

23. The watch of claim 22, wherein said wireless communication signals operable to be sent to said mobile telephonic device comprise wireless communication signals to answer an incoming call.

24. The watch of claim 22, wherein said wireless communication signals operable to be sent to said mobile telephonic device comprise voice signals.

25. The watch of claim 22, wherein said wireless communication signals operable to be sent to said mobile telephonic device comprise wireless communication signals to answer an incoming call and wireless communication signals comprising voice signals.

26. The watch of claim 25, wherein said wireless communication signals comprising voice signals comprise voice signals operable to be utilized by said mobile telephonic device for an active call.

27. The watch of claim 1, wherein said device is operable to receive third wireless communication signals associated with a third event, wherein each of said first event, second event, and third event is different, and said device is operable to provide third user-perceivable notification signals that are dependent upon said third wireless communication signals.

28. The watch of claim 27, wherein said device is operable to allow a user to select different types of user-perceivable signals for each of said first user-perceivable signals, said second user-perceivable signals, and said third user-perceivable signals.

29. The watch of claim 27, wherein said first user-perceivable signals are indicative of an incoming call, said second user-perceivable signals are indicative of a reminder, and said third user-perceivable signals are indicative of a missed call.

30. The watch of claim 27, wherein said first user-perceivable signals are indicative of an incoming call, said second user-perceivable signals are indicative of a reminder, and said third user-perceivable signals are indicative of a voice message.

31. The watch of claim 27, wherein said first user-perceivable signals are indicative of an incoming call, said second user-perceivable signals are indicative of a reminder, and said third user-perceivable signals are indicative of a text message.

32. The watch of claim 27, wherein said first user-perceivable signals are indicative of an incoming call, said second user-perceivable signals are indicative of a missed call, and said third user-perceivable signals are indicative of a voice message.

33. The watch of claim 27, wherein said first user-perceivable signals are indicative of an incoming call, said second user-perceivable signals are indicative of a missed call, and said third user-perceivable signals are indicative of a text message.

34. The watch of claim 27, wherein said first user-perceivable signals are indicative of an incoming call, said second user-perceivable signals are indicative of a voice message, and said third user-perceivable signals are indicative of a text message.

35. The watch of claim 27, wherein said device is operable to send wireless communication signals to said mobile telephonic device.

36. The watch of claim 35, wherein said wireless communication signals operable to be sent to said mobile telephonic device comprise wireless communication signals to answer an incoming call.

37. The watch of claim 35, wherein said wireless communication signals operable to be sent to said mobile telephonic device comprise voice signals.

38. The watch of claim 35, wherein said wireless communication signals operable to be sent to said mobile telephonic device comprise wireless communication signals to answer an incoming call and wireless communication signals comprising voice signals.

39. The watch of claim 38, wherein said wireless communication signals comprising voice signals comprise voice signals operable to be utilized by said mobile telephonic device for an active call.

* * * * *

EXHIBIT 3

US011122418B2

(12) **United States Patent**
Mullen

(10) **Patent No.: US 11,122,418 B2**
(45) **Date of Patent: Sep. 14, 2021**

(54) **SYSTEMS AND METHODS FOR LOCATING CELLULAR PHONES AND SECURITY MEASURES FOR THE SAME**

(76) Inventor: **Jeffrey D Mullen**, New York, NY (US)

(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 6 days.

(21) Appl. No.: **11/485,161**

(22) Filed: **Jul. 12, 2006**

(65) **Prior Publication Data**

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Related U.S. Application Data

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(60) Provisional application No. 60/367,967, filed on Mar. 25, 2002.

(51) **Int. Cl.**

H04M 11/00	(2006.01)
H04W 8/14	(2009.01)
H04W 64/00	(2009.01)
H04W 8/16	(2009.01)

(52) **U.S. Cl.**

CPC ***H04W 8/14*** (2013.01); ***H04W 64/00*** (2013.01); *H04W 8/16* (2013.01)

(58) **Field of Classification Search**

CPC H04W 64/006
USPC 455/404.1, 404.2, 410, 456.1–456.3, 457
See application file for complete search history.

(56) **References Cited**

U.S. PATENT DOCUMENTS

4,654,879	A	3/1987	Goldman et al.
5,043,736	A	8/1991	Darnell et al.
5,086,390	A	2/1992	Matthews
5,097,416	A	3/1992	Matthews
5,197,092	A	3/1993	Bamburak
5,305,201	A	4/1994	Matthews
5,327,144	A	7/1994	Stilp et al.
5,337,334	A	8/1994	Antero Alvesalo
5,341,410	A	8/1994	Aron et al.
5,384,824	A	1/1995	Alvesalo
5,388,147	A	2/1995	Grimes

(Continued)

FOREIGN PATENT DOCUMENTS

WO	WO 99/007170	2/1999
WO	WO 99/009775	2/1999

(Continued)

OTHER PUBLICATIONS

ETSI TS 101 513. "Digital Cellular Telecommunications System (Phase 2): Location Services (LCS)," GSM 12.71, version 8.0.1. 1999.

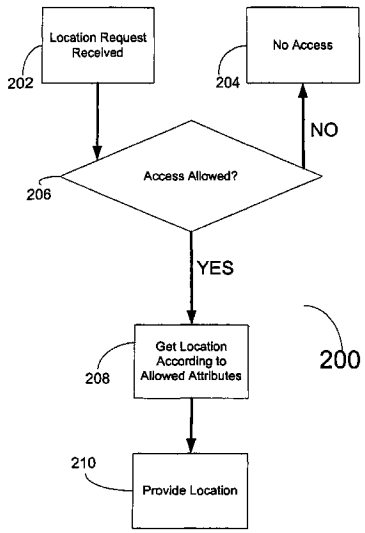
(Continued)

Primary Examiner — William J Deane, Jr.

(57) **ABSTRACT**

Systems and methods for locating a cellular phone are provided. More particularly, systems and methods for providing the location of a requested user's cellular phone from a requesting user's device (e.g., a second cellular phone) based on access rights defined by the requested user. Location descriptions may be provided at a multitude of levels. For example, if a cellular phone, or an identity associated to (e.g., logged into) a cellular phone, has been given access rights to a cell phone's exact location for an indefinite amount of time, that cell phone can receive, on command, the exact location of the approved cell phone. Other levels of location information that can be granted include, for example, proximities, states, and countries.

30 Claims, 17 Drawing Sheets



(56) **References Cited**

U.S. PATENT DOCUMENTS

5,442,805	A	8/1995	Sagars et al.	
5,479,482	A	12/1995	Grimes	
5,502,757	A	3/1996	Bales et al.	
5,519,760	A	5/1996	Borkowski et al.	
5,537,460	A	7/1996	Holliday, Jr. et al.	
5,548,816	A	8/1996	DeVaney	
5,551,058	A	8/1996	Hutcheson et al.	
5,555,286	A	9/1996	Tendler	
5,719,563	A	2/1998	Thompson	
5,767,788	A	6/1998	Ness	
5,771,280	A *	6/1998	Johnson	H04L 29/06 379/201.06
5,778,315	A	7/1998	Proietti	
5,796,634	A	8/1998	Craport et al.	
5,805,999	A	9/1998	Inoue	
5,815,538	A	9/1998	Grell et al.	
5,832,381	A	11/1998	Kauppi	
5,847,976	A	12/1998	Lescourret	
5,875,398	A	2/1999	Snapp	
5,890,062	A	3/1999	Courtney et al.	
5,920,820	A	7/1999	Qureshi et al.	
5,929,752	A	7/1999	Janky et al.	
5,946,687	A *	8/1999	Gehani	G06Q 10/10 707/919
5,950,125	A	9/1999	Buhrmann et al.	
5,961,569	A	10/1999	Craport et al.	
5,961,572	A	10/1999	Craport et al.	
5,978,747	A	11/1999	Craport et al.	
6,023,241	A	2/2000	Clapper	
6,028,537	A	2/2000	Suman et al.	
6,032,042	A	2/2000	Kauppi	
6,035,189	A	3/2000	All-Vehmas	
6,035,198	A	3/2000	Wiehe	
6,038,446	A	3/2000	Courtney et al.	
6,047,051	A	4/2000	Ginzboorg	
6,049,711	A	4/2000	Ben-Yehezkel	
6,061,561	A	5/2000	Alanara et al.	
6,091,959	A	7/2000	Souissi et al.	
6,138,003	A	10/2000	Kingdon et al.	
6,157,841	A	12/2000	Bolduc et al.	
6,166,626	A	12/2000	Janky et al.	
6,173,182	B1	1/2001	Cha	
6,201,803	B1	3/2001	Munday et al.	
6,208,866	B1	3/2001	Rouhollahzadeh et al.	
6,236,359	B1	5/2001	Watters et al.	
6,236,858	B1	5/2001	Griffith	
6,240,069	B1	5/2001	Alperovich	
6,246,376	B1	6/2001	Bork et al.	
6,246,861	B1	6/2001	Messier et al.	
6,256,543	B1	6/2001	Camp	
6,256,498	B1	7/2001	Ludwig	
6,259,923	B1	7/2001	Lim et al.	
6,275,771	B1	8/2001	Berstis et al.	
6,311,060	B1	10/2001	Evans et al.	
6,314,365	B1	11/2001	Smith	
6,317,718	B1	11/2001	Fano	
6,321,092	B1	11/2001	Fitch et al.	
6,324,404	B1	11/2001	Dennison et al.	
6,330,452	B1	12/2001	Fattouche et al.	
6,360,101	B1	3/2002	Irvin	
6,360,102	B1 *	3/2002	Havinis et al.	455/457
6,360,167	B1	3/2002	Millington et al.	
6,374,306	B1	4/2002	Tognazzini	
6,377,810	B1 *	4/2002	Geiger	H04L 63/123 342/357.4
6,393,274	B1	5/2002	Peltonen	
6,397,065	B1	5/2002	Huusko et al.	
6,400,946	B1	6/2002	Vazvan	
6,400,956	B1	6/2002	Richton	
6,408,186	B1	6/2002	Park et al.	
6,421,009	B2	7/2002	Suprunov	
6,438,376	B1	8/2002	Elliott et al.	
6,438,381	B1	8/2002	Alberth, Jr. et al.	
6,442,391	B1 *	8/2002	Johansson	H04W 12/06 455/433
6,446,118	B1	9/2002	Gottlieb	
6,449,486	B1	9/2002	Rao	
D464,033	S	10/2002	Piano Poirier	
6,532,360	B1	3/2003	Shaffer	
6,556,831	B1 *	4/2003	Buppelmann	H04M 3/42229 455/403
6,564,064	B1	5/2003	Ciganer et al.	
6,580,904	B2 *	6/2003	Cox	H04M 3/42 340/905
6,580,914	B1	6/2003	Smith	
6,580,918	B1	6/2003	Leickel	
6,584,314	B1	6/2003	Haumont	
6,603,969	B1	8/2003	Vuoristo	
6,611,687	B1	8/2003	Clark	
6,618,593	B1	9/2003	Drutman et al.	
6,618,671	B2	9/2003	Dooley et al.	
6,622,020	B1	9/2003	Seki	
6,628,938	B1	9/2003	Rachabathuni et al.	
6,662,614	B1 *	12/2003	Lim	72/186
6,677,894	B2	1/2004	Sheynblat	
6,714,791	B2	3/2004	Friedman	
6,716,101	B1 *	4/2004	Meadows et al.	455/456.1
6,725,032	B1 *	4/2004	Sheridan et al.	455/419
6,735,564	B1	5/2004	Puhakainen	
6,778,837	B2	8/2004	Bade et al.	
6,795,710	B1	9/2004	Creemer	
6,798,358	B2	9/2004	Joyce et al.	
6,799,094	B1	9/2004	Vaida et al.	
6,806,813	B1	10/2004	Cheng et al.	
6,816,735	B1	11/2004	Rayburn et al.	
6,826,398	B1	11/2004	Lagerstrom et al.	
6,836,667	B1	12/2004	Smith	
6,870,822	B2	3/2005	Balogh	
6,879,838	B2	4/2005	Rankin et al.	
6,882,837	B2	4/2005	Fernandez et al.	
6,885,874	B2 *	4/2005	Grube et al.	455/520
6,912,398	B1	6/2005	Domnitz	
6,912,545	B1	6/2005	Lundy et al.	
6,920,319	B2	7/2005	Knutsson et al.	
6,920,328	B2 *	7/2005	Wollrab	455/456.1
6,928,279	B2	8/2005	Seligmann et al.	
6,932,698	B2	8/2005	Sprogis	
6,944,447	B2	9/2005	Portman et al.	
6,975,998	B1 *	12/2005	Jones	705/8
6,999,777	B1 *	2/2006	Ganesh	455/456.1
7,009,659	B2 *	3/2006	Dew	H04N 5/44513 348/553
7,010,110	B2 *	3/2006	Jorasch et al.	379/207.04
7,171,742	B2 *	2/2007	Cromwell	H01L 23/4006 257/E23.084
7,177,651	B1 *	2/2007	Almassy	455/456.1
7,215,965	B2 *	5/2007	Fournier et al.	455/456.1
7,248,872	B2 *	7/2007	Bassett et al.	455/433
7,269,428	B1 *	9/2007	Wallenius	H04W 8/08 455/404.2
7,433,836	B1 *	10/2008	August	G06Q 10/10 705/30
7,570,958	B2 *	8/2009	Krasner et al.	455/456.1
7,913,179	B2 *	3/2011	Sheha	H04L 51/04 701/532
2002/0042277	A1	4/2002	Smith	
2002/0102989	A1 *	8/2002	Calvert et al.	455/456
2002/0115453	A1 *	8/2002	Poulin et al.	455/456
2002/0164998	A1 *	11/2002	Younis	455/456
2003/0013456	A1 *	1/2003	Bates et al.	455/456
2003/0023726	A1 *	1/2003	Rice et al.	709/225
2003/0080897	A1 *	5/2003	Tranchina	G01S 5/0009 342/357.31
2003/0119522	A1 *	6/2003	Barclay et al.	455/456
2004/0077359	A1 *	4/2004	Bernas et al.	455/456.1
2004/0127231	A1	7/2004	Dor	
2004/0180669	A1	9/2004	Kall	
2009/0029717	A1 *	1/2009	Bates et al.	455/456.1

FOREIGN PATENT DOCUMENTS

WO	WO 99/051051	3/1999
WO	WO 00/028760	5/2000

(56) **References Cited**

FOREIGN PATENT DOCUMENTS

WO	WO 00/035228	6/2000
WO	WO 00/038350	6/2000
WO	WO 00/064075	10/2000
WO	WO 00/076194	12/2000
WO	WO 00/076243	12/2000
WO	WO 01/001711	1/2001
WO	WO 01/001718	1/2001
WO	WO 01/003406	1/2001
WO	WO 01/003454	1/2001
WO	WO 01/003461	1/2001
WO	WO 01/020938	3/2001
WO	WO 01/033885	5/2001
WO	WO 01/039525	5/2001
WO	WO 01/039528	5/2001
WO	WO 01/041468	6/2001
WO	WO 01/050544	7/2001
WO	WO 01/086880	11/2001
WO	WO 01/089251	11/2001
WO	WO 02/003718	1/2002

OTHER PUBLICATIONS

ETSI TS 101 527 "Digital Cellular Telecommunications System (Phase 2+): Location Services (LCS): Mobile Station (MS): Serving Mobile Location Centre (SMLC)," Radio Resource LCS Protocol (RRLP), GSM 04.31, version 8.1.0. 1999.

* cited by examiner

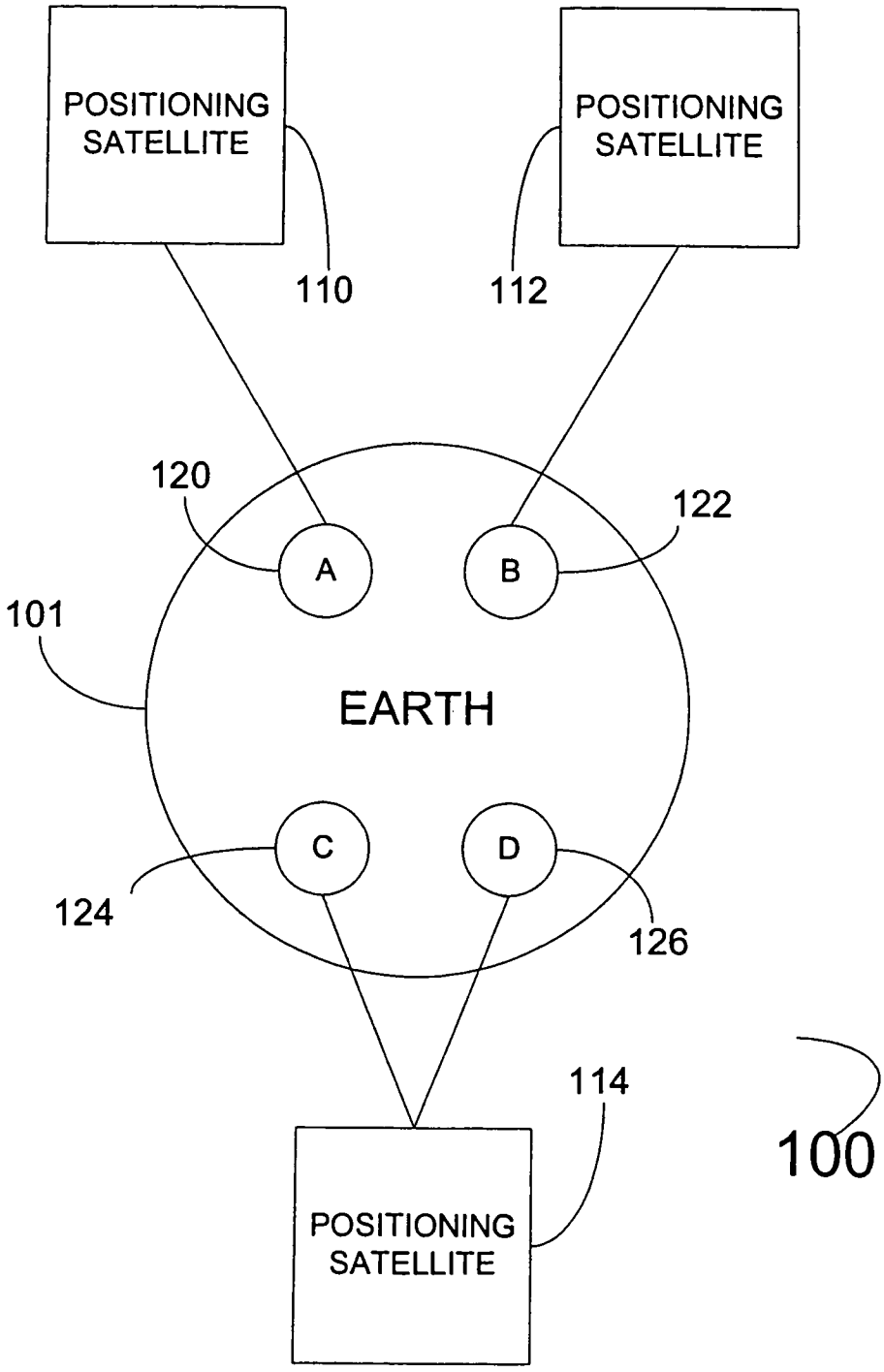

POSITIONING SATELLITE
POSITIONING SATELLITE
110
112
120
122
A
B
101
EARTH
C
D
124
126
114
100
POSITIONING SATELLITE

FIG. 1

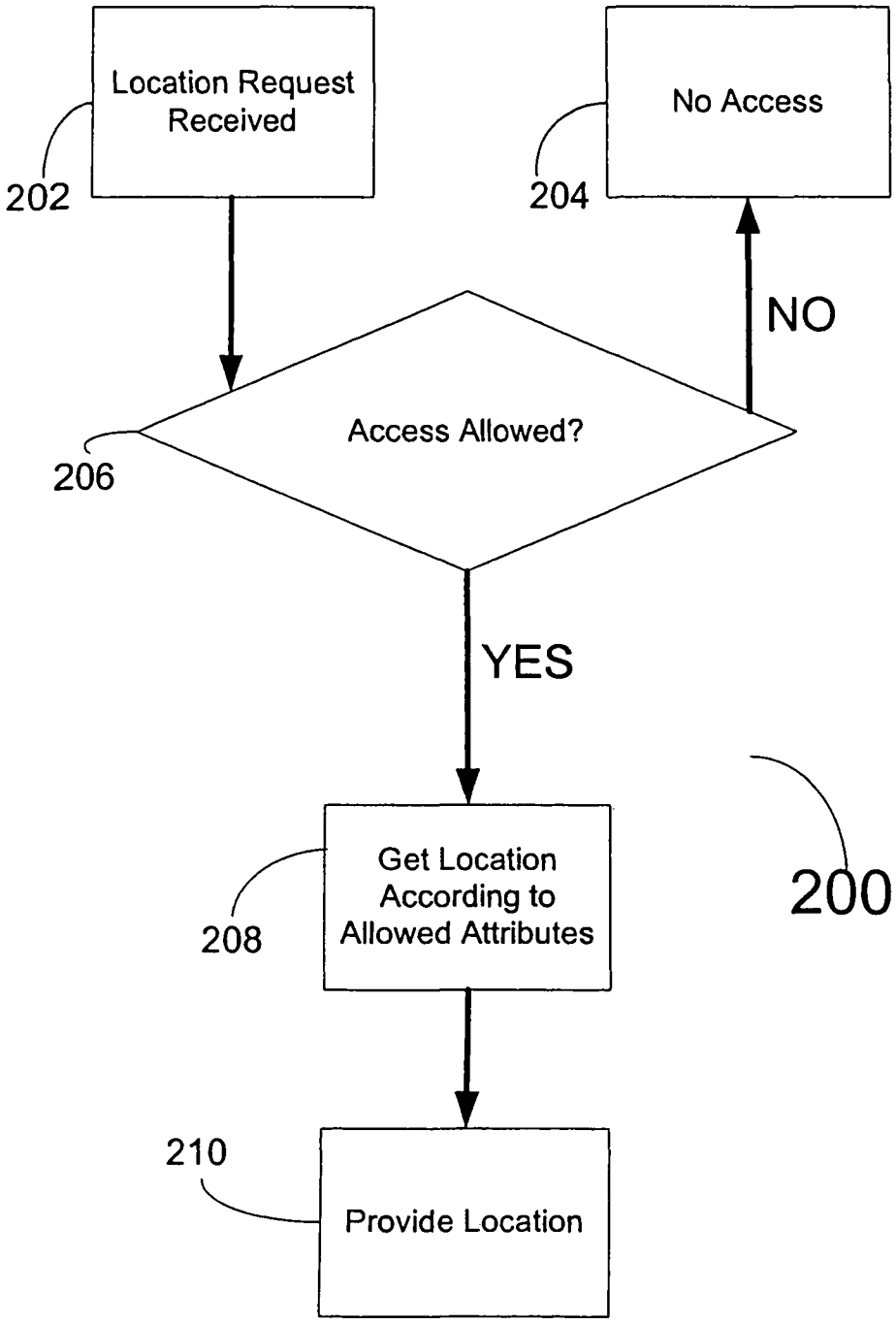

Location Request Received
202
No Access
204
NO
Access Allowed?
206
YES
Get Location According to Allowed Attributes
208
200
210
Provide Location

FIG. 2

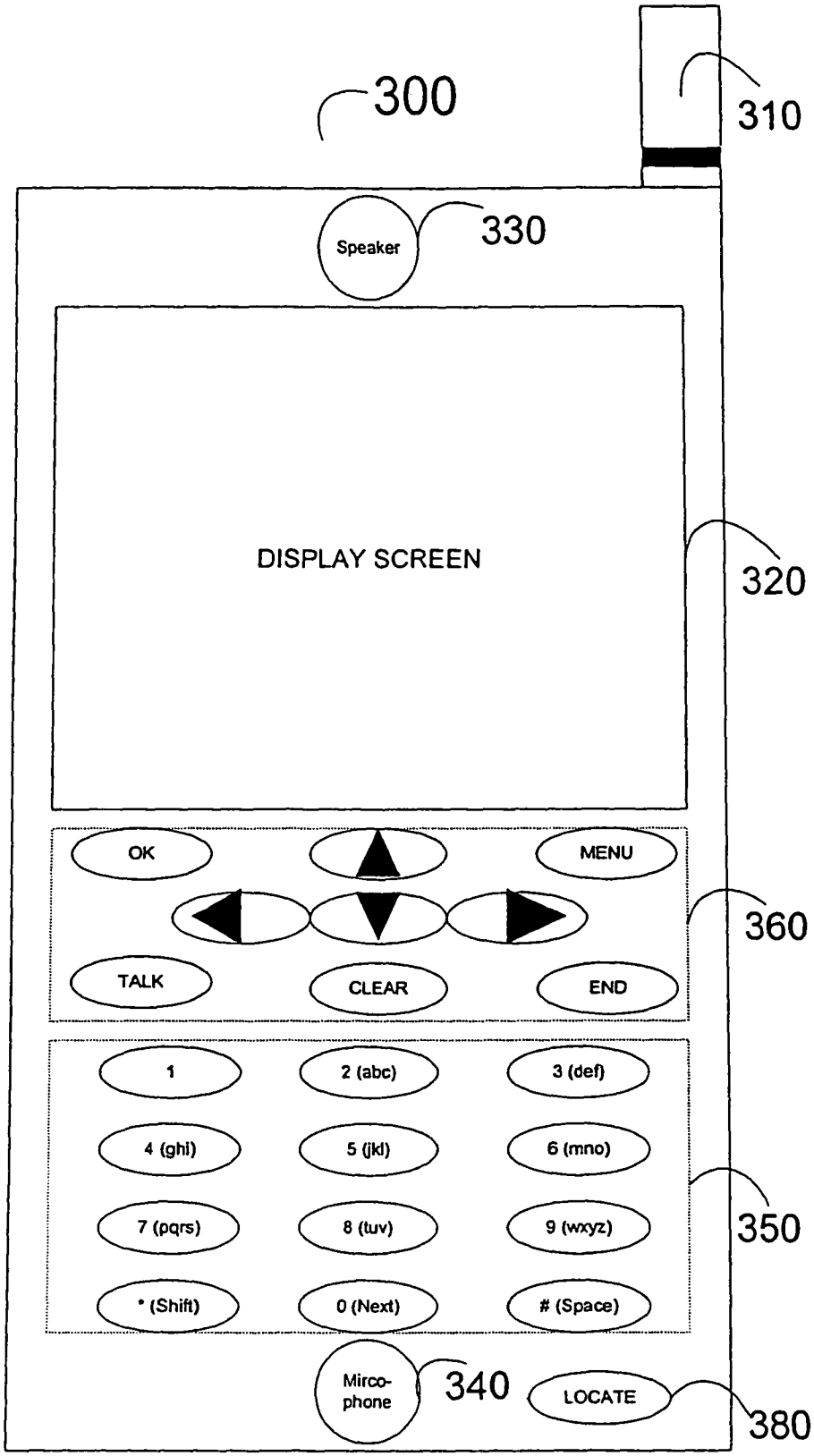

300
310
Speaker
330
DISPLAY SCREEN
320
OK
MENU
360
TALK
CLEAR
END
1
2 (abc)
3 (def)
4 (ghi)
5 (jkl)
6 (mno)
7 (pqrs)
8 (tuv)
9 (wxyz)
* (Shift)
0 (Next)
(Space)
350
Mirco-phone
340
LOCATE
380

FIG. 3

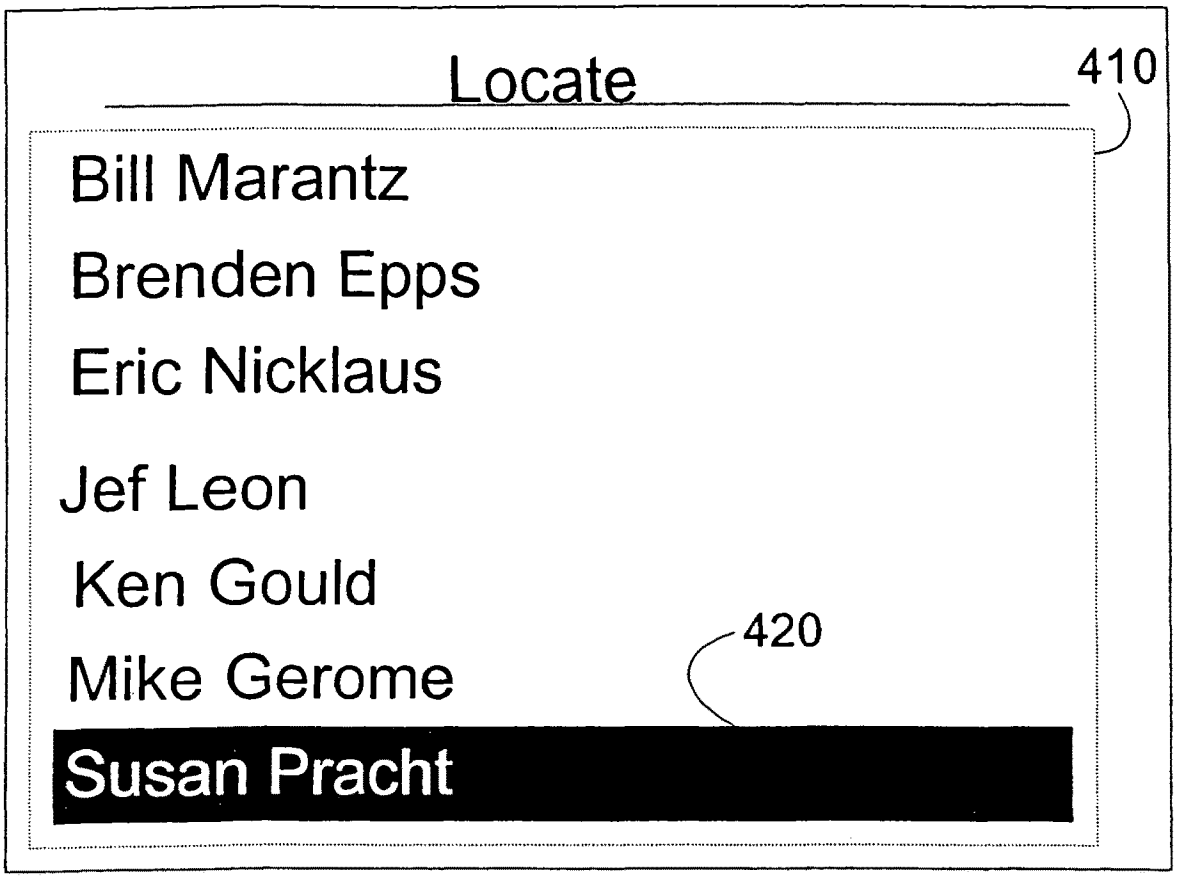

Locate
410
Bill Marantz
Brenden Epps
Eric Nicklaus
Jef Leon
Ken Gould
Mike Gerome
420
Susan Pracht

FIG. 4

400

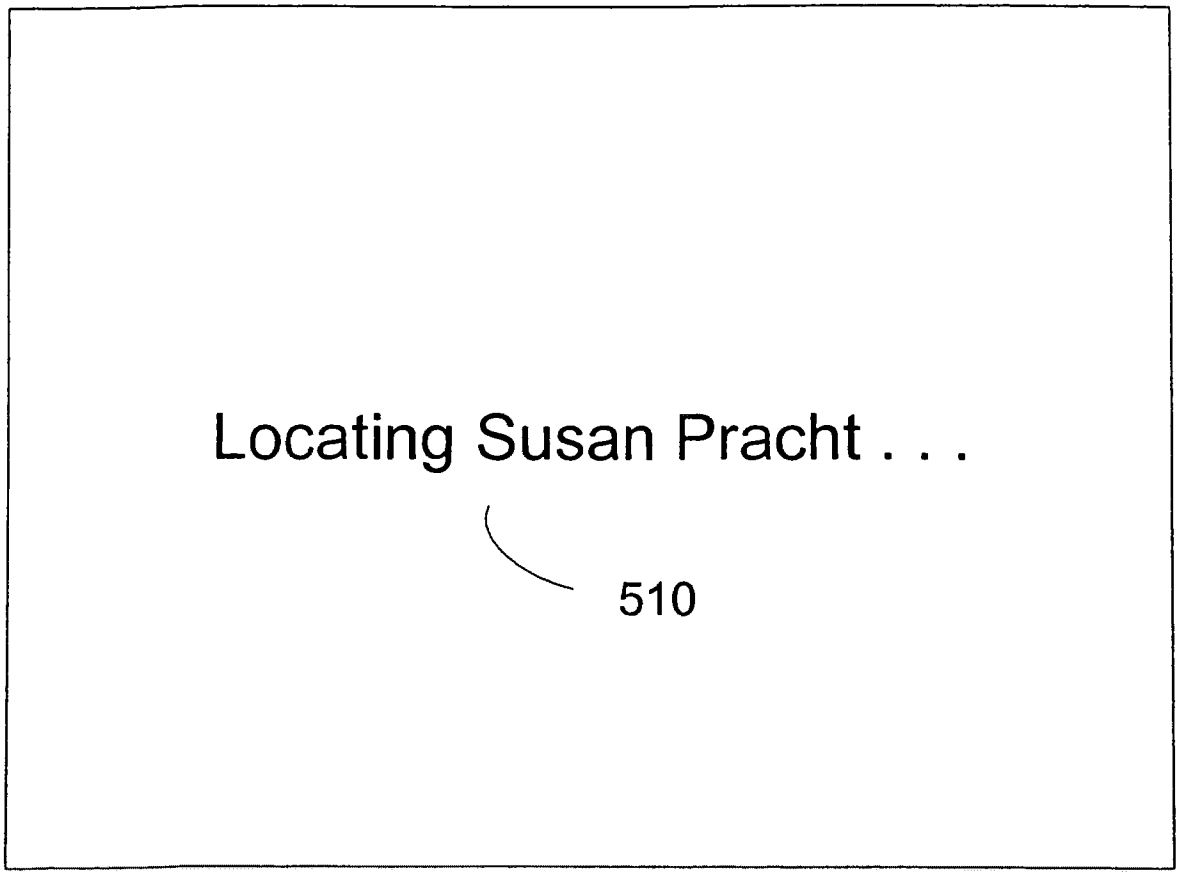


FIG. 5

500

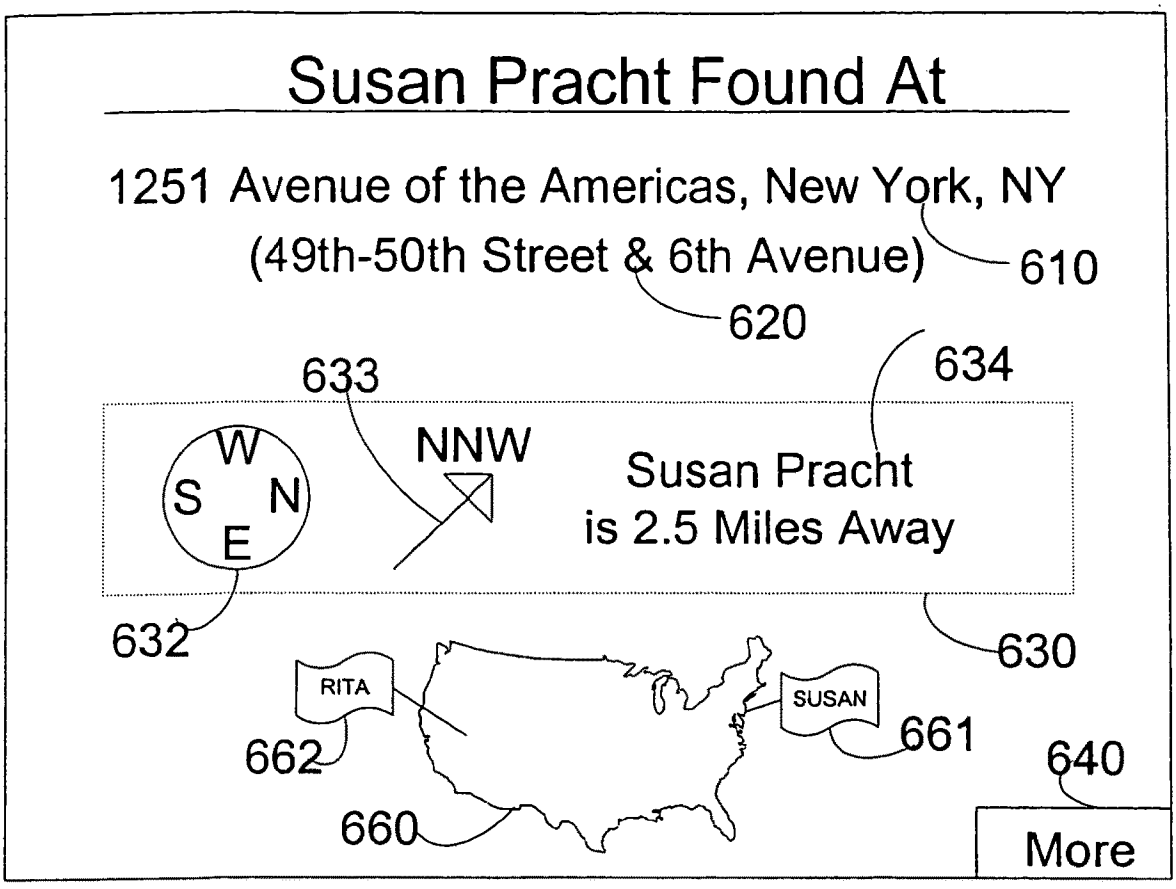

Susan Pracht Found At
1251 Avenue of the Americas, New York, NY
(49th-50th Street & 6th Avenue)
610
620
633
634
W
S
N
E
NNW
Susan Pracht
is 2.5 Miles Away
632
630
RITA
SUSAN
662
661
640
660
More
600

FIG. 6

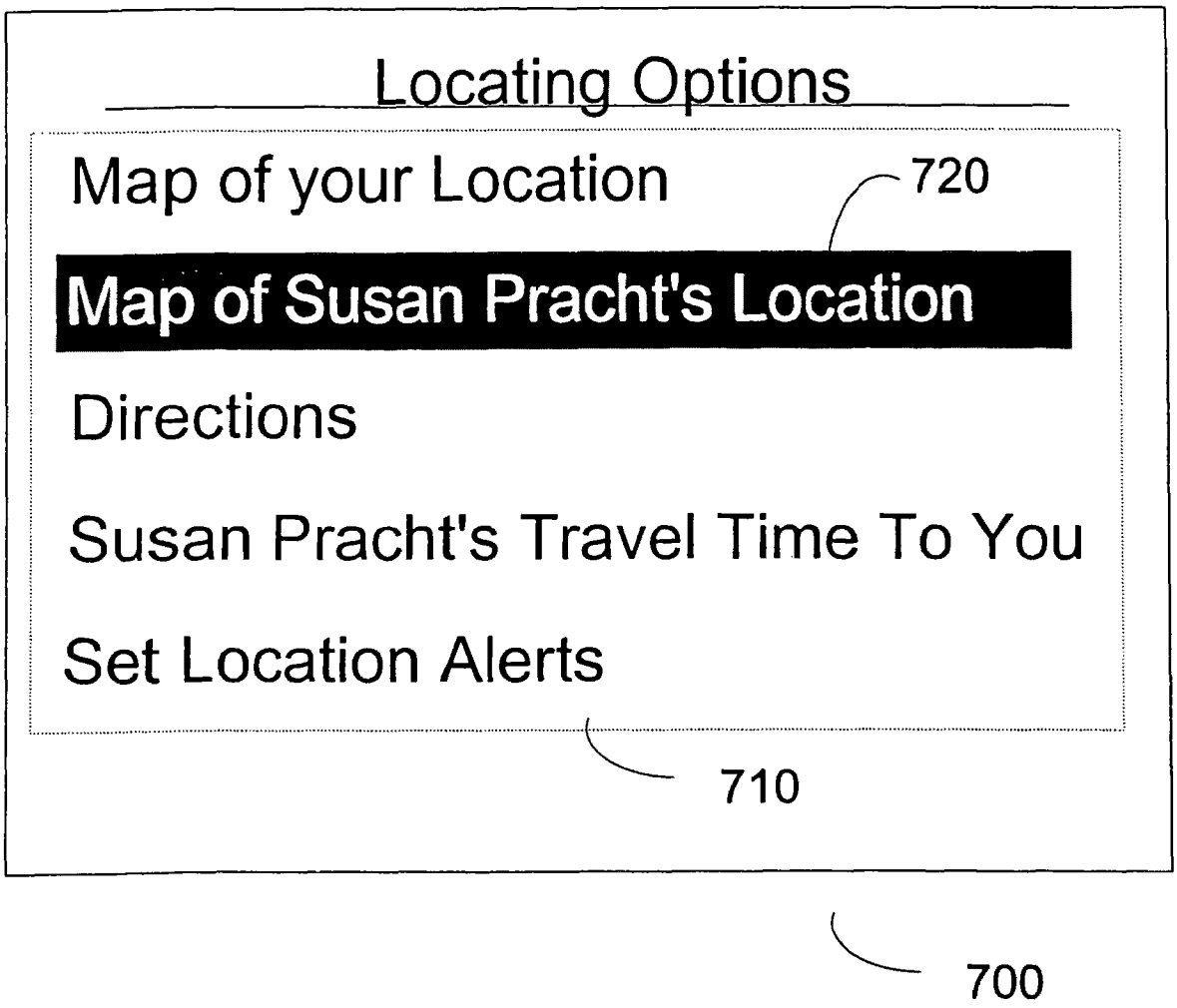

Locating Options
Map of your Location
720
Map of Susan Pracht's Location
Directions
Susan Pracht's Travel Time To You
Set Location Alerts
710
700

FIG. 7

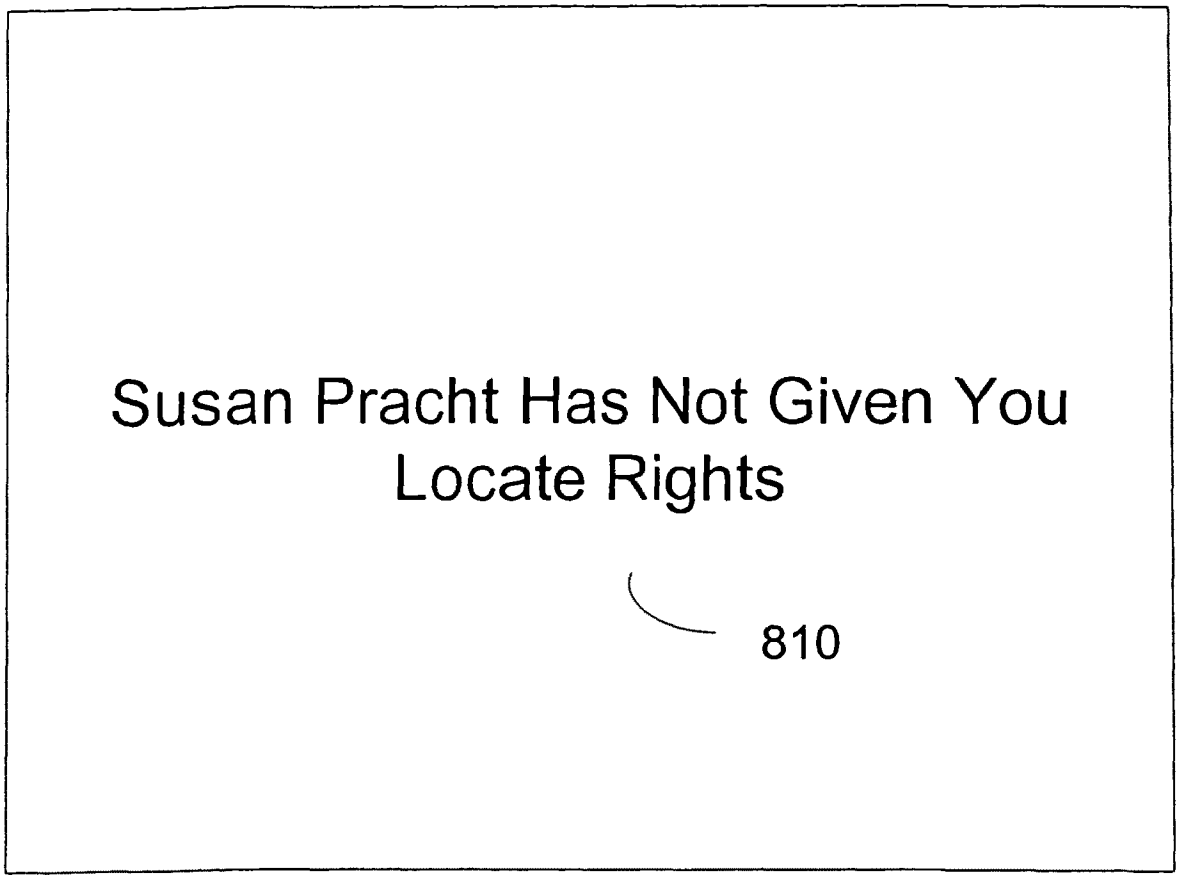


FIG. 8

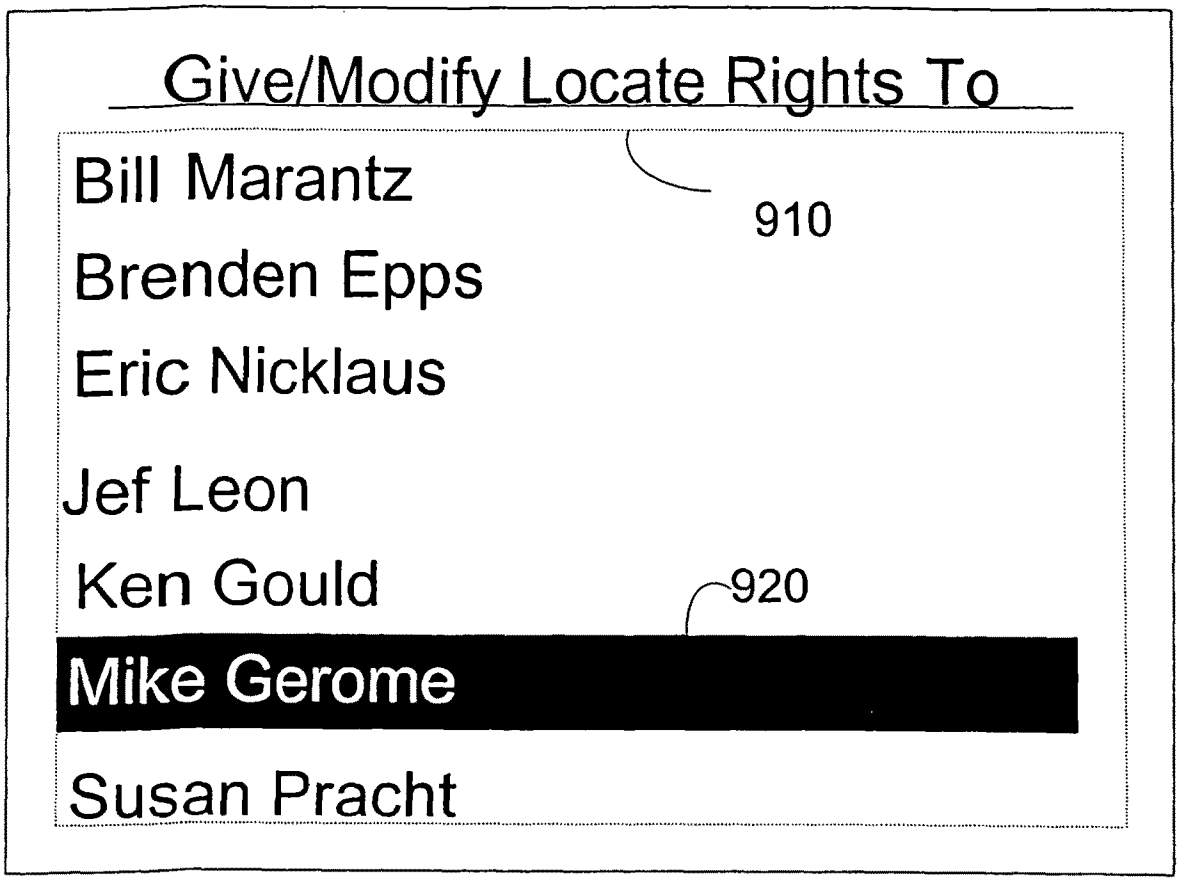

Give/Modify Locate Rights To
Bill Marantz
Brenden Epps
Eric Nicklaus
Jef Leon
Ken Gould
Mike Gerome
Susan Pracht
910
920
900

FIG. 9

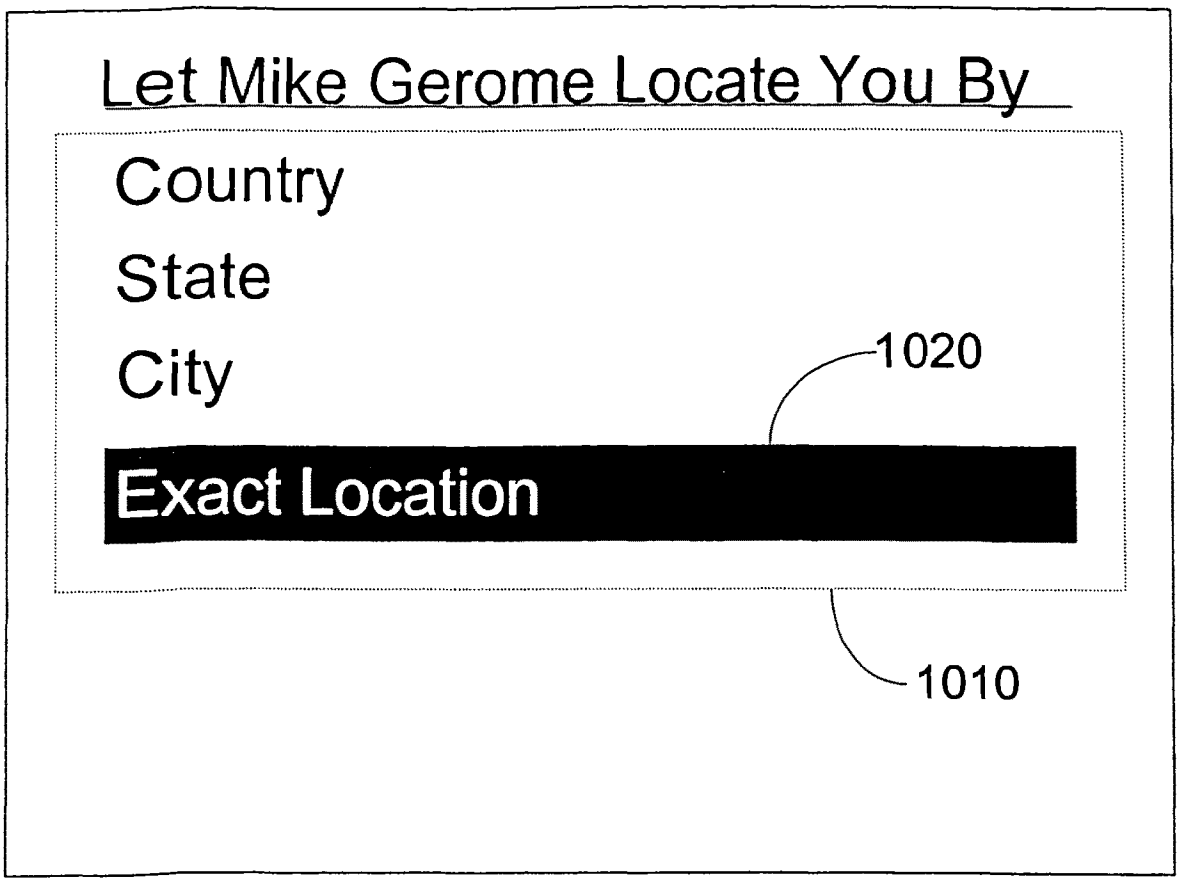

Let Mike Gerome Locate You By
Country
State
City
Exact Location
1020
1010
1000

FIG. 10

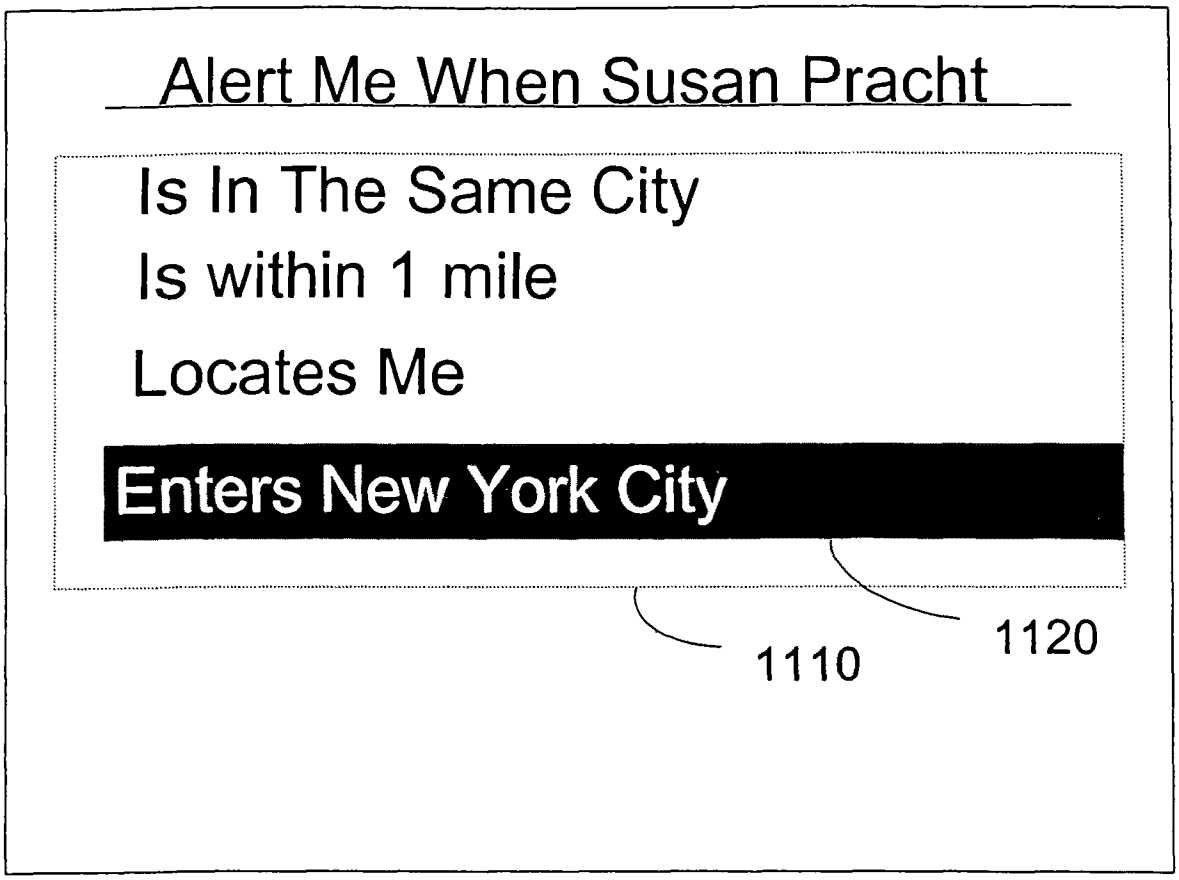

Alert Me When Susan Pracht
Is In The Same City
Is within 1 mile
Locates Me
Enters New York City
1110
1120
1100

FIG. 11

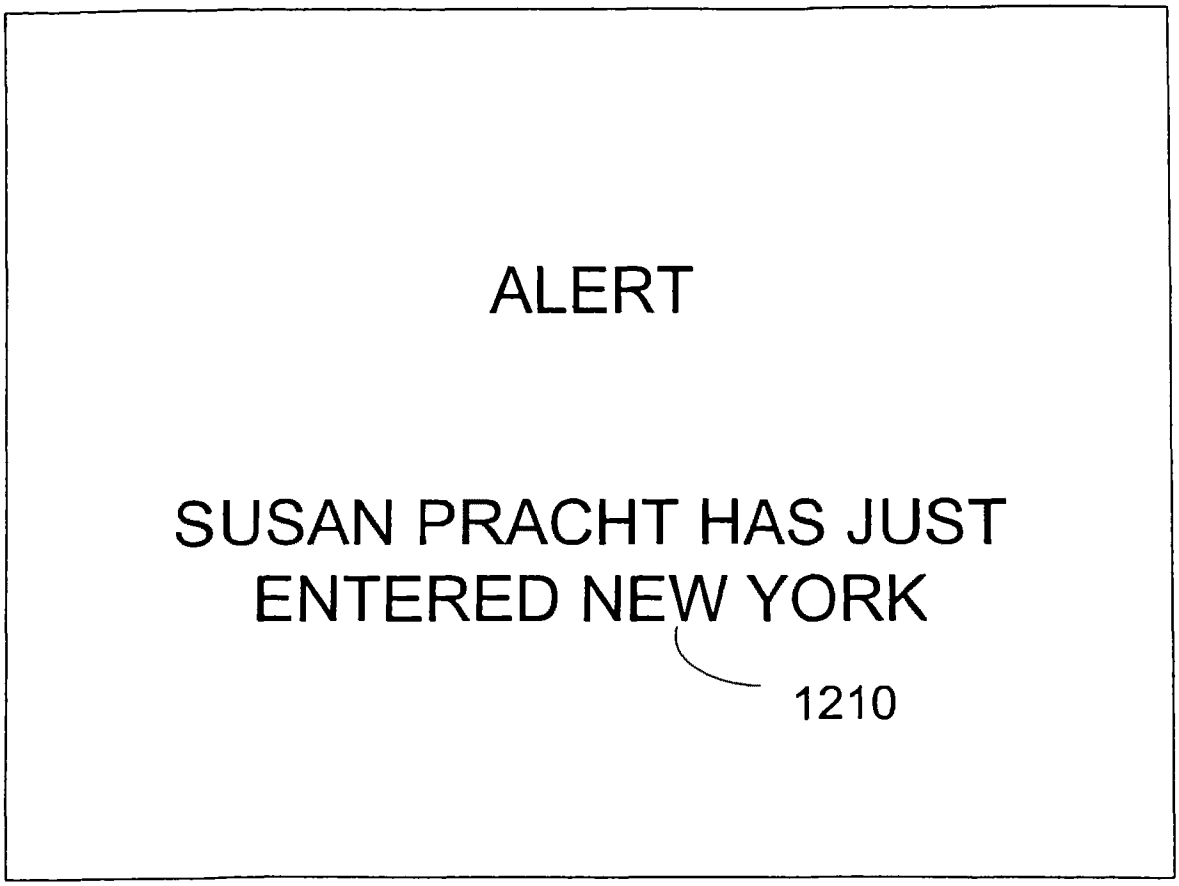


FIG. 12

1200

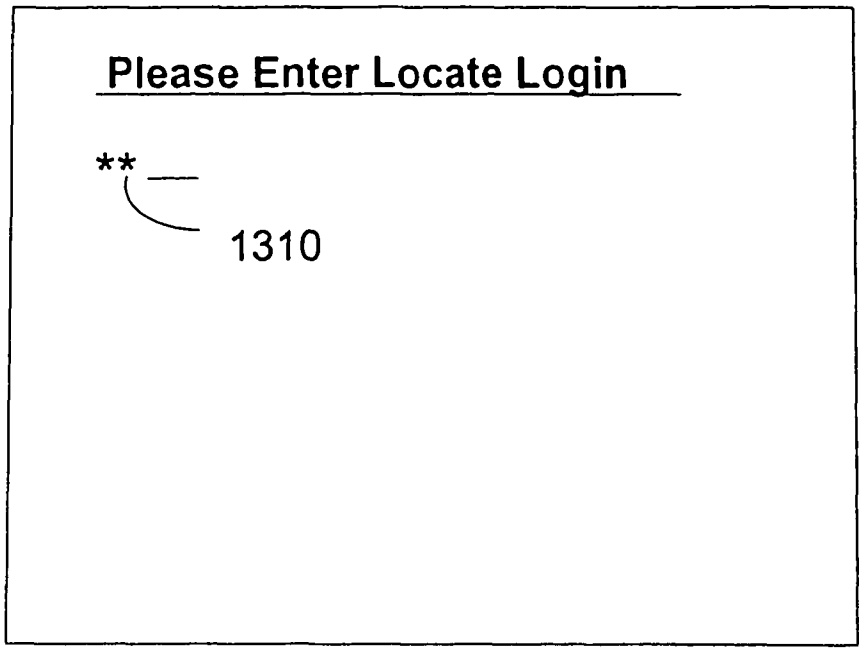

Please Enter Locate Login
**
1310
1300

FIG. 13

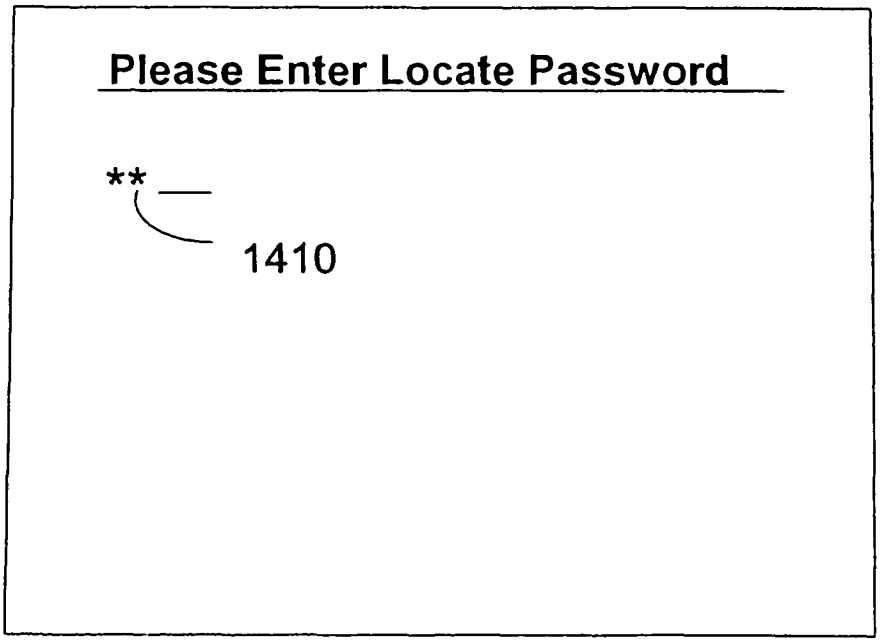

Please Enter Locate Password
**
1410
1400

FIG. 14

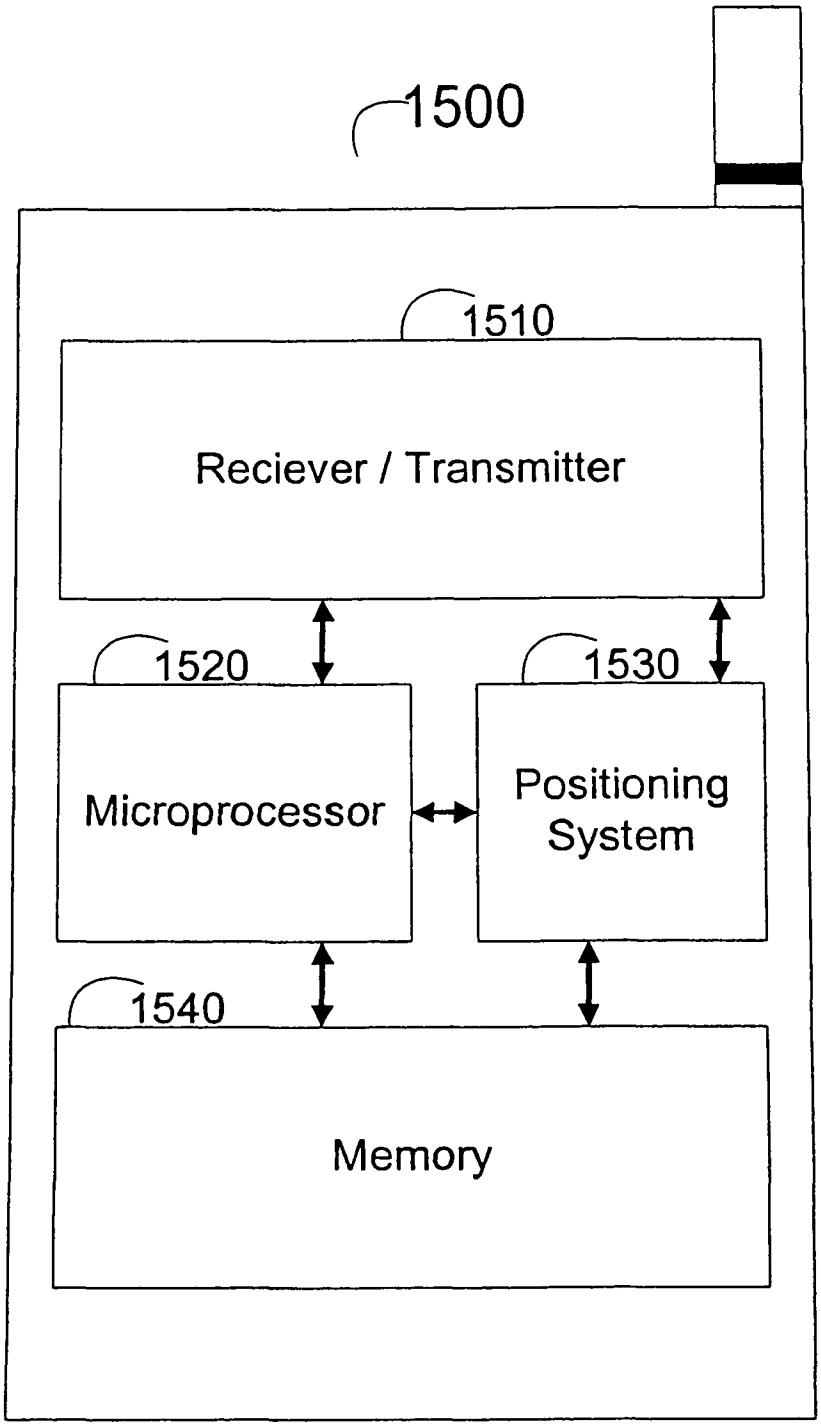

1500
1510
Reciever / Transmitter
1520
1530
Microprocessor
Positioning System
1540
Memory

FIG. 15

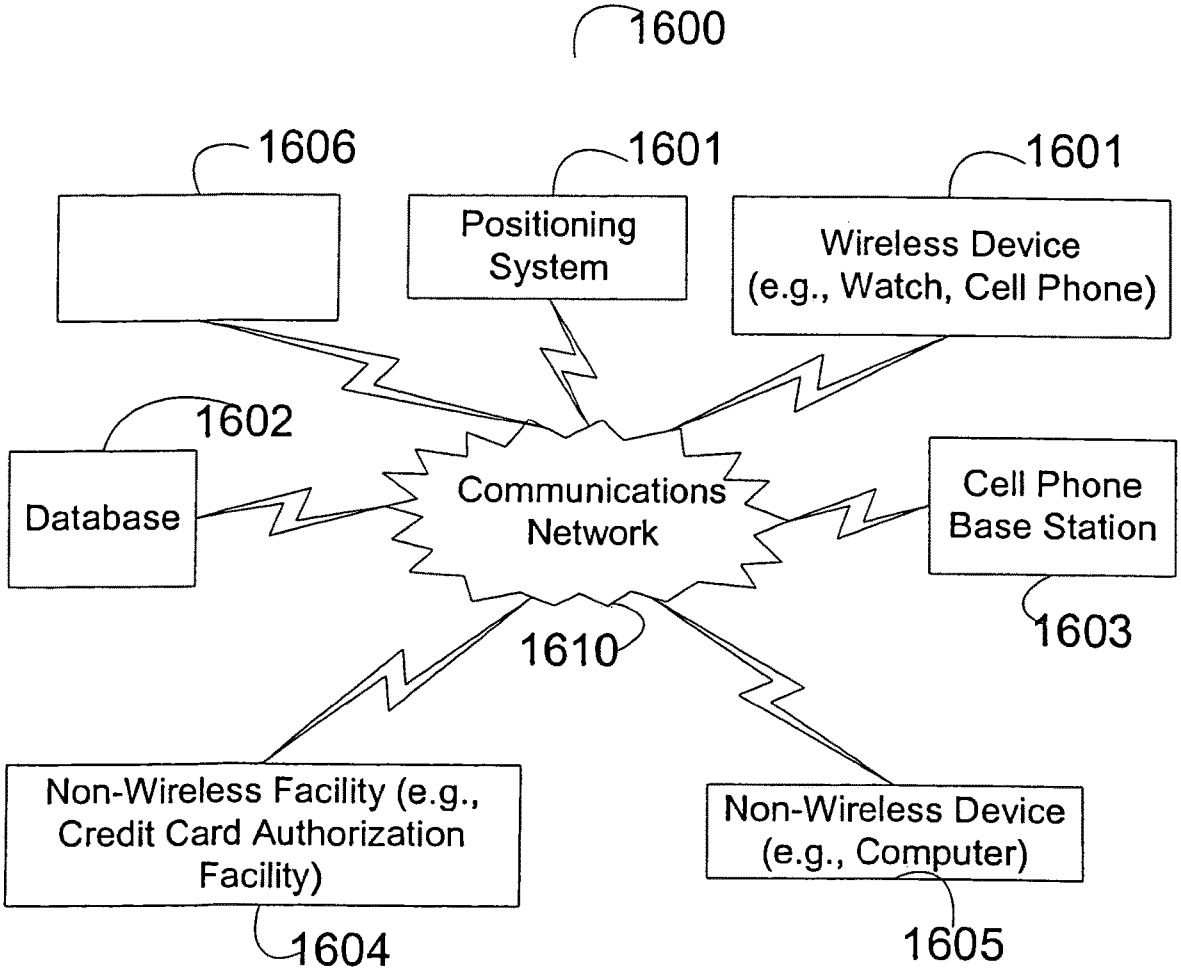

1600
1606
1601
1601
Positioning System
Wireless Device (e.g., Watch, Cell Phone)
1602
Database
Communications Network
Cell Phone Base Station
1603
1610
Non-Wireless Facility (e.g., Credit Card Authorization Facility)
Non-Wireless Device (e.g., Computer)
1604
1605

FIG. 16

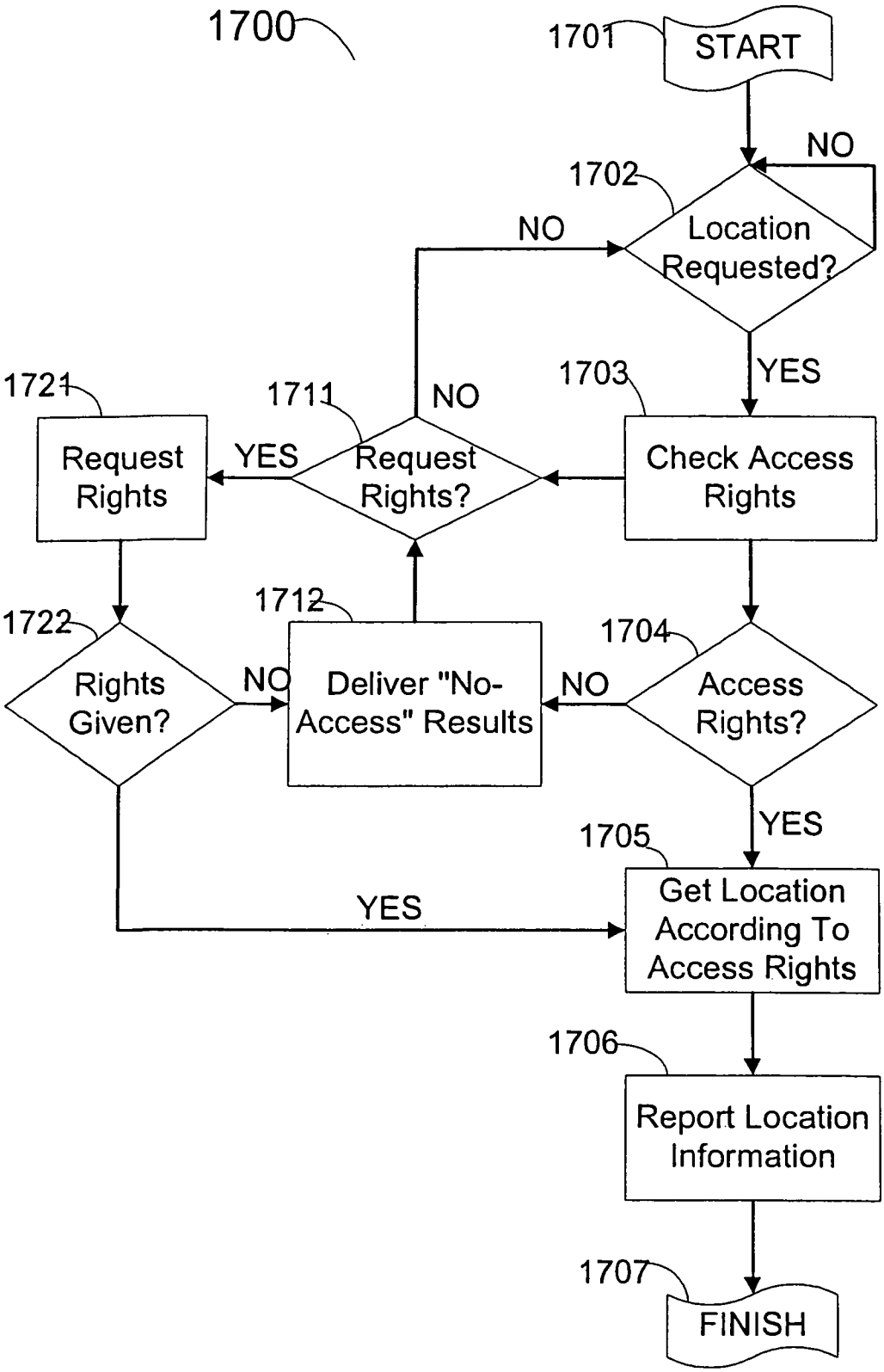

1700
1701
START
1702
Location Requested?
NO
NO
YES
1703
Check Access Rights
1711
Request Rights?
NO
YES
1721
Request Rights
1712
Deliver "No-Access" Results
NO
1704
Access Rights?
NO
1722
Rights Given?
YES
1705
Get Location According To Access Rights
YES
1706
Report Location Information
1707
FINISH

FIG. 17

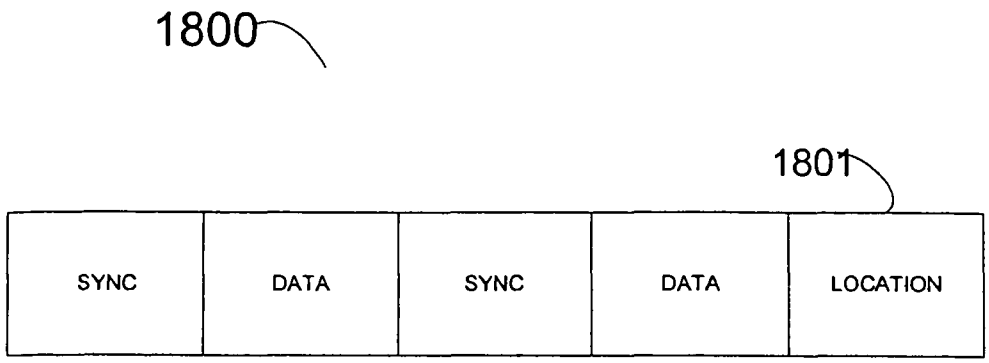


FIG. 18

SYSTEMS AND METHODS FOR LOCATING CELLULAR PHONES AND SECURITY MEASURES FOR THE SAME

CROSS-REFERENCE TO RELATED APPLICATIONS

This application is a continuation of U.S. patent application Ser. No. 10/400,296, filed on Mar. 25, 2003, which claims the benefit of U.S. Provisional Application No. 60/367,967, filed on Mar. 25, 2002, both of which are incorporated by reference herein in their entirety.

BACKGROUND OF THE INVENTION

This invention relates to systems and methods for determining a device's location. More particularly, this invention relates to systems and methods for remotely determining a device's location.

The Global Positioning System (GPS) has been developed in which a ground-based system can receive GPS signals from satellites and determine its location based on the time that it takes the GPS signals to reach the ground-based system. Generally, three satellite signals are needed to determine where in the world a receiver is located (i.e., position triangulation).

GPS systems have been integrated into cellular phones. However, these systems are deficient because the location of a device that is determined by these GPS signals are only minimally utilized. It is therefore desirable to provide systems and methods which better utilize the information about a device's location.

SUMMARY OF THE INVENTION

In accordance with the present invention, systems and methods are provided for locating cellular phones. More particularly, the present invention provides systems and methods for allowing a user of a cellular phone (e.g., a requesting user or a requestor) to locate the position of a different user's cellular phone (e.g., a requested user) based upon requestor-assigned access rights.

One object of the present invention is to provide a security feature which allows a user to limit and/or deny location access to a particular user. In preferred embodiments, only the users that have been granted access to the location of a user's cellular phone can actually locate that user's cellular phone. Furthermore, different types of access levels may be provided that allow a user to filter location information to a different user. In this manner, a cell phone user may give access, through his or her cell phone, to a friend so that the friend can locate him or her dependent on the level of access that is granted to that friend.

For example, suppose that Phil tells Bill that he will be shopping in Manhattan and that Bill should locate him when Bill gets to Manhattan through their cell phones. In such an example, Phil may grant Bill access the exact location of his cell phone for a specific period of time (e.g., the next two hours). As a result, when Bill tries to access Phil's location, Bill will be told exactly where in Manhattan Phil's cell phone is located. Thus, Bill does not have to contact Phil directly to see where he is and, therefore, Phil does not have to spend any time giving Bill verbal directions; Bill can simply see what store Phil is currently in and go to it.

As mentioned previously, levels in the scope of access may be controlled by a user such that, for example; only a user's exact location, approximate location, city, state, or country can be accessed by a particular user.

Location alerts and monitoring features are also provided. For example, Phil may give Jen, a resident of Pittsburgh, city access so that when Phil travels into Pittsburgh, Jen will be alerted of Phil's presence. Such an alert may take the form of, for example, a display on Jen's cell phone that communicates to Jen "Phil is in Pittsburgh."

Locating a cellular phone may be accomplished in several ways. For example, satellite positioning systems such as the Global Positional System and the soon to be deployed Galileo system may be used to locate a user's cell phone.

User positions and security settings may be regularly or manually transmitted to a remote system, such a remote database so that requesting users can locate a requested user's position even if the requested user turns his/her cell phone OFF. Placing the security measures on a remote system (e.g., remote database, computer, or server) provides an information brokering scheme such that the system is still operable even when cell phones are added, removed, or modified from the system.

Additionally, the present invention may be configured to provide additional information about the location of a user. Such additional information may be, for example, a map, a location marker on a map, a map that changes as the user moves, a compass, coordinates of the located cell phone, directions to the located cell phone, where a user is in relation to another user, and information about the location the located user is currently positioned in or nearby locations such as landmarks. Such information may be provided by a remote information provider (e.g., a remote map information provider) and accessed by an information broker through a communications network.

Many other features are also employed that realizes advantageous locating functionality. As per an example, suppose that a wife wants to see if her husband has left work yet. She can locate her husband, without having to talk to him, and realize that he is driving home on a highway. Thus, a travel time option may be provided to the user. This option would compute the distance between the wife's location and husband's location by taking multiple location readings of the husband's location to see how fast the husband is traveling. Alternatively, because the husband's position will map to a highway, the system may assume that the user is driving and may provide the wife with an estimate on the husband's arrival time based on an assumed route. In this manner, the present invention may determine how much time it will take the husband to reach the wife and display this information to the wife.

As per other examples, a "see my friends" option may also be provided that brings up a map of a desired area. Dots or symbols may be present on the map to signify the location of all user's from which the requesting user has location information for. Similarly, a "find closest friend" option may be employed which finds the closest user with which the requesting user has location access to.

A cell phone location may by accessed by a variety of other devices. Alternatively, a cell phone may be used to access the location of a variety of other devices. For example, if the wife was at home, that wife may connect to the internet and access a remote database to either provide the most recent location information about the husband's cell phone to her or request a location update from the husband's cell phone. The wife's location may be already stored in such a database by associating the location to the IP address of the computer or by a manual input of the wife's location. The wife's identity may be determined by, for

example, a login and password on a website. Thus, the above-identified security measures are not limited to device-to-device locating rather user to user locating; the wife may only access the husband's location if the husband has granted access for the wife to do so. If, by accident, the wife's cell phone breaks, she may login on a friend's cell phone and determine the husband's location according to the device that the husband is logged into.

Security is preferably taken into account in the present invention and, therefore, location rights for a specific user may be given to a different user only by that specific user. However, a user may request location access rights from a different user. For example, a user may be provided with a request location screen on his cell phone and that user (e.g., user "X") may enter in the cell phone number of the cell phone whose location is desired. The user associated to the entered cell phone number may then receive an alert that says "user X has requested access to your location." Location access may then be given or denied on multiple levels and the requesting user notified of the decision.

The location feature of the present invention may be turned ON or OFF at any time. Users may be added, individually or in groups, to a list of users with location access rights to a specific user by that specific user. A specific user may, at any time, modify, delete, or add users allowed to access his or her location. Login and password information may be included to increase security or to create a user profile, allowing a specific user to log into any cell phone and be recognize by the present invention (and thereby be located with that cell phone or locatable device).

BRIEF DESCRIPTION OF THE DRAWINGS

The principles and advantages of the present invention can be more clearly understood from the following detailed description considered in conjunction with the following drawings, in which the same reference numerals denote the same structural elements throughout, and in which:

FIG. **1** is a network topology of a cell phone locating network in accordance with the principles of the present invention;

FIG. **2** is a flow chart of the locating feature in accordance with the principles of the present invention;

FIG. **3** is an illustration of a cell phone in accordance with the principles of the present invention;

FIG. **4** is a display screen for a locate feature in accordance with with the principles of the present invention;

FIG. **5** is a display screen for a retrieving location status feature in accordance with the principles of the present invention;

FIG. **6** is a display screen for a displaying location feature in accordance with the principles of the present invention;

FIG. **7** is a display screen listing options for a locate feature in accordance with the principles of the present invention;

FIG. **8** is a display screen of a failed locate feature due to insufficient rights in accordance with the principles of the present invention;

FIG. **9** is a display screen of adding and modifying locate rights and options to a user in accordance with the principles of the present invention;

FIG. **10** is a display screen of assigning location rights to a user in accordance with the principles of the present invention;

FIG. **11** is a display screen of alert options in accordance with the principles of the present invention;

FIG. **12** is a display screen of an alert feature in accordance with the principles of the present invention;

FIG. **13** is a display screen of a login feature in accordance with the principles of the present invention;

FIG. **14** is a display screen of a login feature in accordance with the principles of the present invention;

FIG. **15** is a wireless device in accordance with the principles of the present invention;

FIG. **16** is an embodiment of a network topology in accordance with the principles of the present invention;

FIG. **17** is an embodiment of a locating feature in accordance with the principles of the present invention; and

FIG. **18** is an embodiment of a communications signal in accordance with the principles of the present invention.

DETAILED DESCRIPTION OF THE INVENTION

FIG. **1** depicts a network topology of device location network **100** incorporating principles of the present invention. Network **100** includes one or more positioning satellites **110**, **112**, and **114** that can locate the position of one or more cell phones **120**, **122**, **126**, and **124** (and other locatable devices) on Earth **101**. Positioning satellites **110**, **112**, and **114** may be, for example, the Global Positioning System (GPS) or the upcoming Galileo satellite network.

Preferably, any cell phone in network **100** may locate a different cell phone, as long as access to location information is allowed, through the utilization of positioning satellites **110**, **112**, and **114**. Persons skilled in the art will appreciate that other positioning systems and methods may be used in locating the position of a user on a cell phone of network **100**.

To route information to and from a cell phone of network **100** additional facilities and communication paths may be included. For example, a main facility (not shown in FIG. **1**) containing user location access rights may be included in network **100**. Such a main facility may retrieve location information directly from a positioning system or a cellular phone and then route this information to a cellular phone or positioning system.

Persons skilled in the art will appreciate that if the Global Positioning System (GPS) is used as the positioning system then GPS receivers will be incorporated into cellular phones of the present invention. Persons skilled in the art will also appreciate that devices other than cellular phones may include positioning features. For example, watches, clothing, laptop computers, personal digital assistants (PDAs), may all contain location systems (e.g., GPS) and utilize the security principles of the present invention to allow different user's to access these locations.

FIG. **2** shows flow chart **200** of a simplified locating feature constructed in accordance with the principles of the present invention. Step **202** initiates when a user requests the location of another user's cell phone. Step **206** evaluates if the user initiating the location request has the rights to access the location of the desired user. If no access rights for the requesting user have been granted then step **204** will preferably inform the requesting user that he/she has not been given access to the requested location. In this manner, every user may assign rights (e.g. govern the security) to whom may or may not locate him/her. In preferred embodiments, these rights will be stored in, or functionality executed from, a remote facility and accessed and utilized by a user's cell phone or other requesting device (e.g., a watch or PDA).

If access has been given by a particular user that allows for the requesting user to locate that particular user, step **208**

is initiated and the allowed location information is provided to the user in step **210**. Step **208** may optionally filter the location information such that only a portion information is passed to the requesting user. The requested user may have, for example, defined that the requesting user only can obtain the city, state, or country of his/her location. Persons skilled in the art will appreciate that only the location of the desired user needs to have a cell phone or a positioning system. The requesting user may user other means (e.g., the internet) to request the location of the desired user.

Persons skilled in the art will appreciate that the location of a user's cell phone may be retrieved, in step **208**, from a remote database, facility, distribution center, or any other system. More particularly, a remote database may periodically request the location of a cell phone user with a positioning system and store this information. This database may also keep a record of those people allowed to access that user's location, the extent to which access is allowed, and the extent to which a user has requested a user's location. A user may update, add, manipulate, or remove access at any time by doing so at this database. Thus, a requesting user only has to contact the remote database, have his/her identity recognized, have his/her access rights for the requested user location determined, and, if the requesting user has the correct access rights, be provided with the requested user's location.

Instead of a remote database periodically obtaining location information for a user, the database can obtain a user's locations when a request is made for that user's location, providing the requesting user has access to the requested user's location. However, persons skilled in the art will recognize that a remote database is utilized in the above examples that contains the locations, in most circumstances, of a multitude of users. Thus, to increase security even more, a requesting user's cell phone may directly request a user's location from the requested user's cell phone without the need for a database. In such an example a user adds, manipulates, or removes access rights locally on his/her cell phone and does not have to worry about security issues that surround placing his location on a remote database. Furthermore, in such an embodiment a user's location does not have to be saved anywhere, a positioning system can just be "read" by a requesting user with the appropriate access rights.

However, by recording a user's location on a device, e.g., a cell phone's memory or in a remote database, novel applications may be utilized. For example, whenever a user makes a credit card purchase, a credit card authorization system can record the location of a cell phone associated to the purchasing user. In this manner, a new system and method of fraud protection is introduced. The credit card authorization system may, for example, reject a purchase if the purchaser's cell phone (or watch, clothing, PDA, or other positioning enabled device) is not in the vicinity of the purchase. Alternatively, the credit card authorization system may request a second form of identification if the purchaser's cell phone location does not correlate to the location of the purchase. Additionally, the credit card authorization system may call the purchaser's cell phone and request authorization for the credit card purchase. However, such features would preferably first involve the user/purchaser giving the credit card authorization system access to the location of his/her cell phone.

As per another application, a unique dating/matching service could be embodied. For example, a user may store a number of preferences in a matching profile. These preferences may describe what type of person he is interested in meeting. Additionally, a user may store, preferably locally (for the dating/matching feature) but alternatively at a remote location, his/her own profile that has data describing similar attributes for what he/she is looking for. For example, an entry in a user's profile may be "male" and an entry in "looking for" profile may be "female." When a user comes within a certain distance of a user (determined by comparing locations of a user) that fits his/her "looking for" profile, the user may be alerted of the proximity of a matching user. Preferably, the particular user is only alerted if the "looking for" user has entered in attributes similar to the particular user's attributes and is also alerted of the particular user. The next stages of such an application could include, for example, requesting access to a form of communication. Such a form of communication could be for example, talking on the phone, instant messaging, or delivering an email address. Persons skilled in the art will therefore appreciate that many useful applications may be constructed using the principles of the present invention.

FIG. **3** depicts cell phone **300** constructed in accordance with the principles of the present invention. Cell Phone **300** preferably includes speaker **330**, antenna **310**, display screen **320**, control keys **360**, alpha-numeric keys **350**, and microphone **340**. Cell phone **300** also preferably may include, for example, a communications transmitter (not shown), communications receiver (not shown), memory (not shown), positioning device (not shown), and a microprocessor (not shown).

Cell phone **300** may also include locate button **380**. Cell phone **300** may be configured such that if locate button **380** is pressed, a locate feature is initiated (e.g., display screen **400** of FIG. **4** is initiated). Alternatively, cell phone **300** may be configured such that if locate button **380** is pressed, a location signal is sent to a remote storage area (e.g., a remote database), thus manually updating the user's location. This latter functionality may be useful when a user does not want his/her location accessed. As in another alternative embodiment, cell phone **380** may be configured such that if locate button **380** is pressed, the locating features of cell phone **300** are toggled between ON and OFF. Person skilled in the art will appreciate that locate button **380** may be configured to produce a variety of useful functionalities.

FIG. **4** depicts display screen **400** that is displaying a locate feature constructed in accordance with the principles of the present invention. The locate feature of display screen **400** may be included, for example, in cell phone **300** of FIG. **3** and displayed to the user of cell phone **300** of FIG. **3** when that user requests the location of a different user of the present invention. The programming for the feature may, for example, be stored in the memory of the cell phone and executed by the processor at a user's request. Locate Feature **400** includes identifier list **410** of alpha-numeric identifiers for users stored in the memory on cell phone **300** (FIG. **3**) or at a remote location. More particularly the user of display **410** may locate a user contained in identifier list **410** by selecting an appropriate user identifier **420**.

The user identifiers (e.g., "Susan Pracht") in identifier list **410** are selectable and may be selected by control keys **360** of FIG. **3**. Highlight window **410** may be used to prompt the user what identifier from list **410** is currently selected any may be controlled, for example, by the input keys of the cell phone (e.g., keys **350** and **360** of FIG. **3**). Identifiers may be associated to, for example, cellular telephone number, user profiles, or any other identifier that may be associated to a locatable device or user interacting with a locatable device.

Persons skilled in the art will appreciate that display screen **400** may be provided to a user of devices other than

wireless devices. For example, display screen **410** may be provided to a user of a personal computer with no positioning system. Preferably, however, the security measures in accordance with the principles of the present invention are still abided to (e.g., access has been granted to the identifier associated to the requesting user). In this manner, a user can control who can access his/her wireless device (e.g., cell phone).

Persons skilled in the art will appreciate that identifier list **410** may be configured, for example, to contain only those users in which the user of cell phone **300** (FIG. **3**) has locate access rights to or any user stored in cell phone **300**. Persons skilled in the art will also appreciate that devices other than cell phone **300** may be used to incorporate the features of the present invention. Such devices could include, for example, personal digital assistants (PDAs), laptop, GPS pagers, GPS watches, car positioning devices, or any other devices that can be located. One advantage of the present invention is that it allows a mobile device with a positioning system to locate a different mobile device with a positioning system while still retaining a high level of location security and privacy.

FIG. **5** is display screen **500** for retrieving location status feature in accordance with the principles of the present invention. The selected identifier may be incorporated into display screen **500** through location status display **510** to inform the user of the status of the location retrieval. For example, display screen **500** may display "locating user" while a request is being processed by a remote facility or database.

FIG. **6** shoes display screen **600** for a display location feature constructed in accordance with the principles of the present invention. When a location is retrieved for the requested user, the location may be displayed on Display Screen **600** through primary location information **610**. Depending on what scope the requesting user has access to primary location information **610** may include, for example, the country, state, city, exact location, or any combination thereof of location information to the user. For example, if the user requesting the location of a desired user has been given unlimited location access by the desired user, primary information **610** may include the exact location of the user.

Secondary location information **620** may be included to supplement the requested users exact location so that the requesting user may have more of an idea of where the requested user is located. For example, if the desired user is located in a mall, primary location information **610** may be the address of the mall. In such an example, secondary location information **620** may be included and display, to the requesting user, the name of the mall.

Directional information **630** may also be included on display **600** or any other display of the present invention. Directional information **630** may include a digital compass **632** so that the user of cell phone **300** (FIG. **3**) knows what direction he or she is facing in. Digital compass **632** may be connected to a direction sensitive device (e.g, mechanical compass) in order to gather directional information. Directional arrow **633** may also be included in Display **600** to indicate where the requested user's location is relative to the location and direction of cell phone **300** (FIG. **3**) (e.g, the requesting user). Persons skilled in the art will appreciate that for some directional information **630** the location of the requesting user must be obtained. This information may be obtained either from cell phone **300**, a remote facility, or by any other suitable means. If the information is gathered from a location gathering device other than the requesting user's device (e.g, cell phone **300** (FIG. **3**)), then the user's device may communicate from this other location gathering device. Once both the locations of the requesting and requested/desired users are known, this information may be utilized in a number of features incorporating the principles of the present invention.

Distance information **634** is one such feature that displays the distance between the locations of the requested and requesting users (e.g., distance between the locations of the requested and requesting devices). Directional information **630** may contain many other elements to enhance the utility of the present invention. For example, a map (not shown in FIG. **6**) may be included in display **600**. This map may be of the area surrounding either the requested, the requesting user's location or both. Information may be included on the map to show the shortest path between the location as well as information about the surrounding area (e.g, area names, store names, etc.). Other information may include, for example, time to reach the destination according to specific types of travel (e.g, subway, walking, running, driving) and the direction the requested user is traveling in.

Many uses for this information may be utilized by a user. For example, if Jane calls Bill and Bill says "I am roaming midtown manhattan shopping why don't you join me", no other call to Bill is needed. Bill simply has to give Jane access to his location and Bill can continue shopping without having to worry about meeting up with Jane at a specific location.

In some instances, it may be beneficial to find the speed and direction of a requested user. For example, if a wife wants to see how long before her husband arrives home, the wife can use this feature of the present invention. This feature may find the husbands location multiple times in a determined amount of time. Through this information the feature may determine the speed and direction that the user is traveling. Using this speed, for example, this feature may display to the wife that the husband "is 10 minutes away" in directional information **630**. In doing so, the need for a call to the husband to determine his location is eliminated.

Persons skilled in the art that the location of multiple users may be displayed on display screen **600**. For example, suppose Jeff, Susan, and Chrissy are at a concert. If all three of these users have unlimited access to the other users, principles of the present invention would allow for a map to be displayed on each of the three locating devices with locator designations for each of the users. Using such map, the group may be able to find themselves in relative location to one another and decide, if need be, on the easiest location for them to meet. Thus map **660** may be included on display screen **600** and display the locations of multiple users (e.g., user's **621** and **622**).

More region **640** designates that more options or information may be retrieved or performed using principles of the present invention. A user may use control keys **340** (FIG. **3**) on cell phone **300** (FIG. **3**) to perform the functionality associated with more region **640**.

FIG. **7** shows display screen **700** for locate listing options in accordance with the principles of the present invention. Display screen **700** includes selectable options list **710** and highlight window **720** and may be displayed to the user, for example, through the activation of functionality associated by more region **640** (FIG. **6**). Options list **710** may include any of the features of the present invention. For example, options list **710** may include options activating a display screen of a map of the requesting user's location, a map of the requested user's location, directions to the requested user's location from the requesting user's location, travel

time for the requesting user, travel time for the requested user, and options to set location alerts.

FIG. **8** shows display screen **800** of a failed locate feature due to insufficient rights in accordance with the principles of the present invention. Display scree **800** may be displayed if a requesting user attempts to located a requested user but has not been given access rights by the request user to his or her location. In such an instance insufficient rights message **801** may be prompted on display screen **800**.

FIG. **9** shows display screen **900** of adding and modifying locate rights and options to a user in accordance with the principles of the present invention. A user may give or modify access rights through display **900** to a user identifier in selectable user identifier listing **910**. Highlight window **920** may be included to enhance the selecting process.

FIG. **10** shows display screen **1000** of assigning location rights to a user in accordance with the principles of the present invention. Display screen **1000** may be displayed, for example, after a user has been selected to be given location rights. Display screen **1000** contains selectable location rights listing **1010**, in which the selecting process may be enhanced by highlight window **1020**. Possible location access rights may be, for example, by country, state, city, exact location, or any other scope of location. Other rights may be assigned such as particular times in the day or time periods at which locations may be accessed.

FIG. **11** shows display screen **1100** of alert options in accordance with the principles of the present invention. Display screen **1100** allows for a user to set up alerts depending on the location of specific users. Selectable alert listings **1110** are included and may be selectable with highlight window **1120**. Examples of alerts that may be included in display screen **1100** may occur, for example, if the requested user is in a specific city or the same city as the user of display **1100**, is within a certain distance, or if a user located the user of display **1100**.

The alerts of the present invention may realize useful functionality. For example, suppose Susan Pracht lives in Pittsburgh and rarely comes to the city of the user of display screen **1100** on cell phone **300** (FIG. **3**) which is New York City. The user of cell phone **300** (FIG. **3**) may then use display screen **1100** and set an alert such that if Susan Pracht ever enters New York City, he or she would be alerted of Susan Pracht's presence.

FIG. **12** shows display screen **1200** of an alert feature in accordance with the principles of the present invention. Display screen **1200** includes an alert message and is displayed to a user when an event occurs that is designated by the user in display screen **1100** (FIG. **11**). Continuing the example from FIG. **11**, if Susan Pracht enters New York City, alert message **1210** would prompt the user that this event has occured.

FIG. **13** shows display screen **1300** of a login feature in accordance with the principles of the present invention. In order for users to be identified by other user's cell phones or locating devices a user profile may need to be stored remotely from such devices. In such instances user profiles would be used as the locating identifier and the devices into which these profiles are logged into (recognized by) would allow for the user to be located. Display screen **1300** allows for a user to log into a locating device of the present invention. Logging into a device also adds a level of security to the present invention, especially when combined with a password. A user may use the controls of the device of the present invention to enter login **1310** of display **1300**.

In this manner a user may use another user's location device (e.g., cell phone) to locate a user or may use, for example, the internet to locate a user. Additionally, in this manner, a user may change the device being located. For example, a user may use his or her car GPS system or other systems in accordance with the principles of the present invention to be located instead of his or her cell phone. To further this example, a user may log into a web site on the internet and designate his or her current location as home, or any other location, thus eliminating the need for locatable device entirely.

FIG. **14** shows display screen **1400** of a login feature in accordance with the principles of the present invention. Display screen **1400** may be used by a user to enter a password associated to his profile, identity, or cell phone functionality access. A user may enter password **1410** using the controls of the device of display screen **1400** (e.g., cell phone **300** of FIG. **3**). By including a login/password scheme a user can be identified by a remote facility (e.g., a remote database) so that the user's location can be recorded/updated by multiple devices. Additionally, a login/password adds an extra level of security.

FIG. **15** shows cell phone **1500** that may be utilized to carry out the functionality in accordance with the principles of the present invention. Cell phone **1500** includes receiver/transmitter **1510**, microprocessor **1520**, positioning system **1530**, and memory **1540**.

Persons skilled in the art will appreciate that receiver/transmitter **1510** may directly communicate with memory **1540** if receiver/transmitter **1510** does not have its own memory (e.g., if receiver/transmitter **1510** are configured to utilize a buffer for capturing incoming communications bursts before demodulation and decryptions).

Positioning system **1530** may be, for example, a GPS system or a similar positioning system. Positioning system **1530** may include its own receiver for receiving particular signals utilized in positioning cell phone **1500**.

FIG. **16** shows network topology **1600**, in which all components of, or a part of the components of, may be utilized to carry out the features in accordance with the principles of the present invention. In this manner, persons skilled in the art will appreciate that multiple system configurations may be utilized. Topology **1600** introduces the diversity of systems that can be utilized to realize such configurations.

Generally, topology **1600** includes multiple mobile devices (e.g., multiple instances of mobile device **1601**), access control devices and location broker devices (e.g., database **1602** and cell phone base station **1603**), and non-mobile devices (e.g., grounded non-wireless device **1605**). Persons skilled in the art will appreciate that other devices or facilities may be included in topology **1600**. For example, one or more positioning systems **1601** may be included in topology **1600** in order to locate particular devices. For example, a positioning receiver (e.g., GPS receiver) may be included in wireless device **1601** with positing system **1601** being a positioning transmitter (e.g., GPS satellite network).

One or more wireless devices **1601** may be included in topology **1600** and may be, for example, watches, PDAs, cellular phones, radios, cars, or any other mobile device whose location can be determined.

As previously mentioned, access control and location broker devices may be included in topology **1600**. Such devices may be utilized, for example, to store user access rights for a particular user and may contain functionality to request and route a device's location. These devices may be considered information broker's such that devices may be

added, removed, or modified without creating the necessity of having to modify the other devices of topology **1600**.

Database **1602** is one such information broker. Database **1602** may, for example, be located in cell phone base station **1603** if database **1602** is utilized to assist in cell phone locating. Database **1602** may be utilized, for example, to store a history a of a device's locations, a user's list of assigned access rights to other users, a log of a user's call activity, a log of a location initiations, a user profile, login/password information, or any other sort of information. Many features may be provided that utilize such information, For example, n approximate location may be determined for a device that is turned OFF (e.g., by utilizing the device's location history). As per another example, if a cell phone is lost and a new one replaced, information such as, for example, phone books, activity logs, and assigned user access rights may be downloaded/flashed into the cell phone.

Database **1602** may be accessed either directly (e.g., manually by an user of the device) or indirectly (e.g., periodically) by a cell phone or other device. Alternatively, a device or cell phone may access database **1602** directly (e.g., manually by an administrator of the database) or indirectly (e.g., periodically) by database **1602**.

A credit card authorization system is an example of additional system **1606** that may be added to topology **1600** to realize new features. Such a credit card authorization system, as described above, could utilize a devices location in order to decrease credit card fraud. System **1600** may also be, for example, systems needed to realize the described dating functionalities or another information provider (e.g., a map information provider).

Non-wireless devices **1605** (e.g., a personal computer) may be included in topology **1600**. Such devices may have locations associated to them or contain a positioning system. These locations may then be associated to a user that is recognized as using the device. For example, if a particular user logs into a non-mobile personal computer, that user's location will be recognized as being the location associated to the personal computer.

The devices of topology **1600** communicate with each other through communications network **1610**. Communications network **1610** may include, for example, any type of communications, routing, amplification, encryption, decryption, parsing, modulation, or demodulation technologies. For example, positioning system **1601** may communicate with wireless device **1601** by sending multiple wireless positioning signals. At the same time, database **1602** may be providing non-wireless device **1605** with a device's location over conventional telephone wires.

FIG. **17** shows locating feature **1700** in accordance with the principles of the present invention. Locating feature **1701** starts at step **1701** and waits at step **1702** until a location is requested. As stated, a location can be requested in a number of instances and by a variety of different means.

For example, a location may be requested by a user of a cell phone that desires to locate a friend by locating that friend's cell phone. Alternatively, a device may be triggered to request a location of a mobile device when an event occurs. For example, a credit card authorization system may request the location of a user's cell phone and the location of a store that just used a credit card associated to the requested user.

If a location is requested, access rights to the requested location for the requesting device and/or user are obtained at step **1703**. Step **1703** may be employed for example, as a call to a database storing a list of assigned access rights for the requested device/user and finding if any access rights were assigned to the requestor's identity. As per another example, step **1703** may be employed as a direct call to the requested device/user.

Step **1704** determines if the requestor has been assigned access rights to obtain the requested device/user's location. Persons skilled in the art will appreciate that some devices may always have access to a user's location regardless if a user has assigned access rights to the requesting device. In this manner, a device may be set up to always let a user access a location. For example, a mother may purchase a cell phone for a minor and may configure the cell phone to always allow her location information.

If access rights do exist for the requesting device/user at step **1704** then step **1705** may be initiated and location information may be provided to the requestor. Such location information may be filtered according to the assigned access rights. For example, if a user has only been assigned access rights to obtain the requested user's city location, only the city that the requested user/device is currently located in (or the last city location available) may be obtained. The process then finishes at step **1707** after the assigned location information has been delivered to the requestor at step **1705**. Persons skilled in the art will appreciate that steps may be added to, removed, or modified from locating feature **1700**. For example, instead of finish step **1707**, step **1702** may be initiated after step **1706** has completed.

If a requestor has not been assigned rights to access the requested user/device's location as determined by step **1704**, then step **1712** may be initiated. Step **1712** informs the requestor that the requestor does not have access rights to obtain the location of a user/device. Step **1711** may follow and provide an opportunity for the requestor to obtain the access rights. More particularly, step **1711** asks the requestor if the requestor would like to request access rights. If the requestor does not want to request access rights, locating feature **1700** may, for example, return to step **1702**. Else, access rights may be requested at step **1721**. Step **1722** follows and if access rights were given then step **1705** may be initiated. Else, step **1712** may, for example, be re-initiated.

FIG. **18** shows one embodiment of a cell phone burst that has been configured to embed a device or user's location **1801** between control signals (e.g., synchronization signals) and data signals. Persons skilled in the art will appreciate that some cell phone burst standards (e.g., TDMA and CDMA) have signal portions that are reserved for future technologies. In one embodiment, this reserved portion is utilized to house location information **1801**. A cell phone tower or base information may then strip received signals **1800** of location information **1801**, store location information **1801** into a database or other storage device, and deliver the received signals to its desired location. In this manner, a user may refresh his/her location information every time that a cell phone base station receives or routes information for the user. By stripping location information **1801** from signal **1800**, the intended receiver does not have access to the location of the device transmitting signal **1800**. A signal similar to signal **1800** may be sent to a cell phone that has requested, and has the appropriate location access rights, to location **1801**. Location **1701** may also be stored in other portions of signal **1700** that are not reserved portions. For example, a received signal **1800** may store location information in the data portions of signal **1800**. In embodiments where additional information is sent about location **1801** (e.g., a map associated with location **1801**) utilizing a main data portion of signal **1800** is preferred. Persons skilled in

the art will appreciate that signal burst **1800** may actually be any type of communication signal such as, for example, information returned from a database inquiry.

Persons skilled in the art will also appreciate that the systems and methods of the present invention may be implemented using other locating features and configurations. For example, a user may be manually requested to allow location access rights every time his/her location is requested. As per another example, a user may organize his/her user list into groups and assign access rights to that group (e.g., family member user group, close friend user group). All such modifications are within the scope of the present invention, which is limited only by the claims that follow.

What is claimed is:

1. A system comprising:

a first wireless device, wherein a location of said first wireless device is operable of being determined and provided to a remote system,

said location of said first wireless device is operable of being requested by a second wireless device outside of a call for communication between said first wireless device and said second wireless device,

a permission is operable of being provided by said first wireless device for said second wireless device to access location information about said location,

said permission is operable of being stored in said remote system, wherein said remote system is located remotely from said first and second wireless devices,

said location information about said location is operable of being provided from said remote system to said second wireless device in accordance with said permission outside of said call, wherein said first wireless device is operable of providing a first map provided with respect to said location.

2. The system of claim **1**, wherein said first and second wireless devices are wireless telephones.

3. The system of claim **1**, wherein said second wireless device displays a map with a location marker associated with said location.

4. The system of claim **1**, wherein a speed said first wireless device is traveling is operable of being determined.

5. The system of claim **1**, wherein a direction said first wireless device is traveling is operable of being determined.

6. The system of claim **1**, wherein said permission is operable of being removed, by said first wireless device, for said second wireless device to obtain said location.

7. The system of claim **1**, wherein said location is determined by a positioning system that receives signals from a plurality of positioning satellites, said location is updated by said positioning system, and said updated location is provided to said facility.

8. The system of claim **1**, wherein said second wireless device is operable of being alerted when said first wireless device is within a distance of said second wireless device.

9. The system of claim **1**, wherein:

a first dating matching profile is operable of being provided by said first wireless device;

a second dating matching profile is operable of being provided by said second wireless device;

a second location is operable of being obtained, wherein said second location is the location of said second wireless device; and

said location, said second location, said first dating matching profile, and said second dating matching profile is operable of being utilized to provide an alert.

10. The system of claim **1**, wherein a second location is associated with said second wireless device and said location of said first wireless device is displayed relative to said second location of said second wireless device.

11. The system of claim **1**, wherein a direction that said second wireless device is traveling in is operable of being displayed.

12. The system of claim **1**, wherein said second wireless device is operable of being allowed to set location alerts associated with said first wireless device.

13. The system of claim **1**, wherein said permission is assigned for a period of time.

14. The system of claim **1**, wherein said second wireless device is operable of being alerted when said first wireless device enters a geographic region.

15. The system of claim **1**, wherein said facility stores a history of locations for said first wireless device.

16. The system of claim **1**, wherein said server stores a history of locations for said first wireless device and said history is utilized to provide an approximate location of said first wireless device.

17. The system of claim **1**, wherein said first wireless device is OFF when said location is provided to said second wireless device.

18. A system comprising:

a first wireless device, wherein a first location of said first wireless device is operable of being determined,

a second location of a second wireless device is operable of being determined,

said first and second locations are operable of being provided to a server, wherein said server is located remotely from said first and second wireless devices,

said first location is operable of being requested by said second wireless device outside of a call for communication between said first wireless device and said second wireless device,

said second location is operable of being requested by said first wireless device

a first permission is operable of being provided by said first wireless device for said second wireless device to obtain said first location

a second permission is operable of being provided by said second wireless device for said first wireless device to obtain said second location

said first and second permissions are operable of being stored on said server,

said first location from said server is operable of being provided to said second wireless device as a result of said first permission outside of said call, and

said second location is operable of being provided from said server to said first wireless device as a result of said second permission, wherein said first wireless device is operable of providing a first map from a perspective of said first wireless device.

19. A system comprising:

a first wireless device operable of determining a first location of said first wireless device,

a second location of a second wireless device, is operable of being determined,

said first and second locations are operable of being provided to a server, said server is located remotely from said first and second wireless devices,

said first location is operable of being requested by said second wireless device outside of a call for communication between said first wireless device and said second wireless device,

said second location is operable of being requested by said first wireless device,

a first permission is operable of being provided by said first wireless device for said second wireless device to obtain said first location,

a second permission is operable of being provided by said second wireless device for said first wireless device to obtain said second location,

said first and second permissions are operable of being stored on said server,

said first location is operable of being provided from said server to said second wireless device as a result of said first permission outside of said call,

said second location is operable of being provided from said server to said first wireless device as a result of said second permission,

updates of said first location are operable of being provided to said second wireless device as a result of said first permission, and

updates of said second location are operable of being provided to said first wireless device as a result of said second permission, wherein said first wireless device is operable of providing a first map from a perspective of said first location.

20. The system of claim **18**, wherein said first and second wireless devices are wireless telephones.

21. The system of claim **18**, wherein said second wireless device displays a map with a location marker associated with said first location.

22. The system of claim **18**, wherein a speed of said first wireless device is traveling is operable of being determined.

23. The system of claim **18**, wherein the direction said first wireless device is traveling is operable of being determined.

24. The system of claim **18**, wherein said first permission is operable of being removed, by said first wireless device, for said second wireless device to obtain said first location.

25. The system of claim **18**, wherein said second wireless device is operable of being alerted when said first wireless device is within a distance of said second wireless device.

26. The system of claim **19**, wherein said first and second wireless devices are wireless telephones.

27. The system of claim **19**, wherein said second wireless device displays a map with a location marker associated with said first location.

28. The system of claim **19**, wherein a speed said first wireless device is traveling is operable of being determined.

29. The system of claim **19**, wherein the direction said first wireless device is traveling is operable of being determined.

30. The system of claim **19**, wherein said first permission is operable of being removed, by said first wireless device, for said second wireless device to obtain said first location.

* * * * *

UNITED STATES PATENT AND TRADEMARK OFFICE

CERTIFICATE OF CORRECTION

PATENT NO. : 11,122,418 B2
APPLICATION NO. : 11/485161
DATED : September 14, 2021
INVENTOR(S) : Jeffrey D. Mullen

It is certified that error appears in the above-identified patent and that said Letters Patent is hereby corrected as shown below:

In the Claims

Claim 7, Column 13, Line 53: “said facility” should read --said remote system--.

Signed and Sealed this
Seventh Day of December, 2021

Drew Hirshfeld
Performing the Functions and Duties of the
Under Secretary of Commerce for Intellectual Property and
Director of the United States Patent and Trademark Office

EXHIBIT 4

US011109218B2

(12) United States Patent
Mullen

(10) **Patent No.: US 11,109,218 B2**
(45) **Date of Patent: Aug. 31, 2021**

(54) **SYSTEMS AND METHODS FOR LOCATING CELLULAR PHONES AND SECURITY MEASURES FOR THE SAME**

(76) Inventor: **Jeffrey David Mullen**, Pittsburgh, PA (US)

(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 423 days.

(21) Appl. No.: **11/841,734**

(22) Filed: **Aug. 20, 2007**

(65) **Prior Publication Data**

US 2008/0287112 A1 Nov. 20, 2008

Related U.S. Application Data

(63) Continuation of application No. 10/400,296, filed on Mar. 25, 2003, now Pat. No. 9,635,540.

(60) Provisional application No. 60/367,967, filed on Mar. 25, 2002.

(51) **Int. Cl.**

H04W 24/00	(2009.01)
H04M 3/42	(2006.01)
H04W 8/14	(2009.01)
H04W 64/00	(2009.01)
H04W 8/16	(2009.01)

(52) **U.S. Cl.**

CPC ***H04W 8/14*** (2013.01); ***H04W 64/00*** (2013.01); *H04W 8/16* (2013.01)

(58) **Field of Classification Search**

CPC H04W 8/14; H04W 64/00; H04W 8/16

USPC 455/414.3, 425, 404.1, 404.2, 410, 455/456.1–456.3, 457

See application file for complete search history.

(56) **References Cited**

U.S. PATENT DOCUMENTS

5,155,689	A *	10/1992	Wortham	G01D 4/004 340/990
5,889,474	A	3/1999	LaDue	
5,933,100	A *	8/1999	Golding	G01C 21/3492 340/988
5,987,019	A	11/1999	Raith	
5,999,124	A	12/1999	Sheynblat	
5,999,777	A	12/1999	Masuda et al.	
6,078,578	A	6/2000	Matsumoto	

(Continued)

FOREIGN PATENT DOCUMENTS

JP	1340961	*	9/2003	G01C 21/26
WO	WO 01/001718		1/2001	

OTHER PUBLICATIONS

Wrolstad, Jay, "Sprint Claims First With E911-Capable Phone," newsfactor.com (as viewed at http://www.newsfactor.com/perl/story/13952.html on Jan. 22, 2007), Oct. 4, 2001).

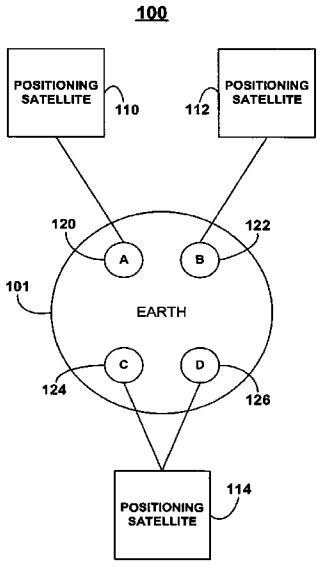
(Continued)

Primary Examiner — William J Deane, Jr.

(57) **ABSTRACT**

Systems and methods for locating a cellular phone are provided. More particularly, systems and methods for providing the location of a requested user's cellular phone from a requesting user's device (e.g., a second cellular phone) based on access rights defined by the requested user. Location descriptions may be provided at a multitude of levels. For example, if a cellular phone, or an identity associated to (e.g., logged into) a cellular phone, has been given access rights to a cell phone's exact location for an indefinite amount of time, that cell phone can receive, on command, the exact location of the approved cell phone. Other levels of location information that can be granted include, for example, proximities, states, and countries.

19 Claims, 17 Drawing Sheets



(56) **References Cited**

U.S. PATENT DOCUMENTS

6,088,586	A	7/2000	Haverty	
6,144,336	A	11/2000	Preston et al.	
6,215,863	B1	4/2001	Bennett et al.	
6,246,376	B1 *	6/2001	Bork	G01S 1/047 342/357.34
6,275,554	B1	8/2001	Aiello	
6,360,102	B1 *	3/2002	Havinis et al.	455/457
6,377,565	B1	4/2002	Puckette	
6,456,854	B1	9/2002	Chern	
6,466,788	B1	10/2002	Carlssen	
6,564,064	B1	5/2003	Ciganer	
6,587,691	B1	7/2003	Granstam	
6,603,977	B1	8/2003	Walsh et al.	
6,618,593	B1 *	9/2003	Drutman	G08B 21/0222 342/357.31
6,647,257	B2	11/2003	Owensby	
6,662,014	B1	12/2003	Walsh et al.	
6,662,614	B1	12/2003	Lim	
6,665,389	B1	12/2003	Haste, III	
6,716,101	B1 *	4/2004	Meadows et al.	455/456.1
6,725,032	B1 *	4/2004	Sheridan et al.	455/419
6,765,528	B2 *	7/2004	Tranchina	G01S 5/0009 342/357.31
6,885,874	B2 *	4/2005	Grube	H04W 84/08 455/404.2
6,920,328	B2 *	7/2005	Wollrab	455/456.1
6,968,179	B1	11/2005	De Vries	
6,975,998	B1 *	12/2005	Jones	705/8
6,999,777	B1 *	2/2006	Ganesh	455/456.1
7,010,110	B2 *	3/2006	Jorasch et al.	379/207.04
7,013,148	B1 *	3/2006	Ganesh	455/456.1
7,072,956	B2 *	7/2006	Parupudi et al.	709/223
7,136,631	B1 *	11/2006	Jiang	H04M 3/4938 455/403
7,177,651	B1 *	2/2007	Almassy	455/456.1
7,184,779	B2 *	2/2007	Alger	G01S 19/42 342/357.31
7,203,674	B2	4/2007	Cohen	
7,215,965	B2 *	5/2007	Fournier et al.	455/456.1
7,248,872	B2	7/2007	Bassett et al.	
7,269,426	B2	9/2007	Kokkonen et al.	
7,269,428	B1 *	9/2007	Wallenius et al.	455/456.2
7,272,220	B1	9/2007	Zhang	
7,284,779	B2 *	10/2007	Muramatsu	B25B 9/00 294/100
7,333,776	B1 *	2/2008	York	455/90.1
7,570,958	B2	8/2009	Krasner	
7,983,947	B2	7/2011	Kaiwa et al.	
8,073,087	B2	12/2011	Casaccia et al.	
2001/0048364	A1 *	12/2001	Kalthoff	G01S 5/0009 340/573.1
2001/0055328	A1	12/2001	Dowling	
2001/9948364		12/2001	Kaithoff et al.	
2002/0003470	A1	1/2002	Auerbach	
2002/0086683	A1	7/2002	Kohar et al.	
2002/0102989	A1 *	8/2002	Calvert et al.	455/456
2002/0115453	A1 *	8/2002	Poulin et al.	455/456
2002/0164998	A1 *	11/2002	Younis	455/456
2003/0004743	A1	1/2003	Callegari	
2003/0013456	A1 *	1/2003	Bates et al.	455/456
2003/0013461	A1 *	1/2003	Mizune	H04M 1/72572 455/456.1
2003/0023726	A1	1/2003	Rice et al.	
2003/0051128	A1 *	3/2003	Rodriguez	G06F 8/63 713/100
2003/0069692	A1 *	4/2003	Krasner	H04W 4/02 701/469
2003/0119522	A1 *	6/2003	Barclay et al.	455/456
2004/0033795	A1	2/2004	Walsh et al.	
2004/0038706	A1 *	2/2004	Wasser	455/551
2004/0054428	A1	3/2004	Sheha	
2004/0077359	A1	4/2004	Bernas et al.	
2005/0097595	A1	5/2005	Lipsanen et al.	
2008/0287143	A1 *	11/2008	Banks	H04W 64/00 455/456.5
2008/0299355	A1	11/2008	Rosen	
2009/0029717	A1 *	1/2009	Bates et al.	455/456.1
2009/0197612	A1	8/2009	Kiiskinen	

OTHER PUBLICATIONS

Wrolstad, Jay, "Sprint Rolls Out E911 Services," newsfactor.com (as viewed at http://www.newsfactor.com/perl/story/15506.html on Jan. 22, 2007), Dec. 26, 2001).

"Sprint PCS First Quarterly E911 Implementation Report," Before the Federal Communications Commission, In the Matter of Revision of the Commission's Rules to Ensure Compatibility With Enhanced 911 Emergency Calling Systems , Feb. 1, 2002.

"Who is Integrated Data Communications?," presented at the FCC E-911 Automatic Location Identification Round Table, Jun. 28, 1999.

"Wireless Telecommunications Bureau Seeks Comment on Request to Commence Rulemaking to Establish Fair Location Information Practices," (as viewed at http://www.fcc.gov.Bureaus/Wireless/PublicNotices/9001/da010696.html on Jan. 22, 2007), Mar. 16, 2001.

"Go2 Systems & Integrated Data Communications to Deliver Location Services Automatically to Wireless Phones; Alliance Enables Automatic Recognition of Wireless Caller's Location," Business Wire (as viewed at http://www.findarticles.com/p/articles/mi_m0EIN/is_2000_Feb_28/ai/59621222 on Jan. 22, 2007), Feb. 28, 2000.

"Before the Federal Communications Commission: In the Matter of: E-911 Automatic Location Identification Round Table," Transcript, Jun. 28, 1999.

"Pulver.com's Location Based Services Report," pulver.com (as visited at http://pulver.com/lbareport/lastlbareport.16jan01.txt on Jan. 22, 2007), Jan. 2001.

"Pulver.com's Location Based Services Report," pulver.com (as visited at http://pulver.com/lbareport/lastlbareport.26feb01.txt on Jan. 22, 2007), Feb. 2001.

"Pulver.com's Location Based Services Report," pulver.com (as visited at http://pulver.com/lbareport/lastlbareport.26mar01.txt on Jan. 22, 2007), Mar. 2001.

"Pulver.com's Location Based Services Report," pulver.com (as visited at http://pulver.com/lbareport/lastlbareport.05apr01.txt on Jan. 22, 2007), Apr. 2001.

"Pulver.com's Location Based Services Report," pulver.com (as visited at http://pulver.com/lbareport/lastlbareport.01may01.bd on Jan. 22, 2007), May 2001.

"Pulver.com's Location Based Services Report," pulver.com (as visited at http://pulver.com/lbareport/lastlbareport.10jun01.txt on Jan. 22, 2007), Jun. 2001.

"Pulver.com's Location Based Services Report," pulver.com (as visited at http://pulver.com/lbareport/lastlbareport.05jul01.txt on Jan. 22, 2007), Jul. 2001.

"Pulver.com's Location Based Services Report," pulver.com (as visited at http://pulver.com/lbareport/lastlbareport.01aug01.txt on Jan. 22, 2007), Aug. 2001.

"Pulver.com's Location Based Services Report," pulver.com (as visited at http://pulver.com/lbareport/lastlbareport.04sep01.txt on Jan. 22, 2007), Sep. 2001.

"Pulver.com's Location Based Services Report," pulver.com (as visited at http://pulver.com/lbareport/lastlbareport.02oct01.txt on Jan. 22, 2007), Oct. 2001.

"Pulver.com's Location Based Services Report," pulver.com (as visited at http://pulver.com/lbareport/lastlbareport.02nov01.txt on Jan. 22, 2007), Nov. 2001.

"Pulver.com's Location Based Services Report," pulver.com (as visited at http://pulver.com/lbareport/lastlbareport.03dec01.txt on Jan. 22, 2007), Dec. 2001.

"Pulver.com's Location Based Services Report," pulver.com (as visited at http://pulver.com/lbareport/lastlbareport.07jan02.txt on Jan. 22, 2007), Jan. 2002.

(56) **References Cited**

OTHER PUBLICATIONS

"Pulver.com's Location Based Services Report," pulver.com (as visited at http://pulver.com/lbareport/lastlbareport.04feb02.txt on Jan. 22, 2007), Feb. 2002.
"Pulver.com's Location Based Services Report," pulver.com (as visited at http://pulver.com/lbareport/lastlbareport.04mar02.txt on Jan. 22, 2007), Mar. 2002.

* cited by examiner

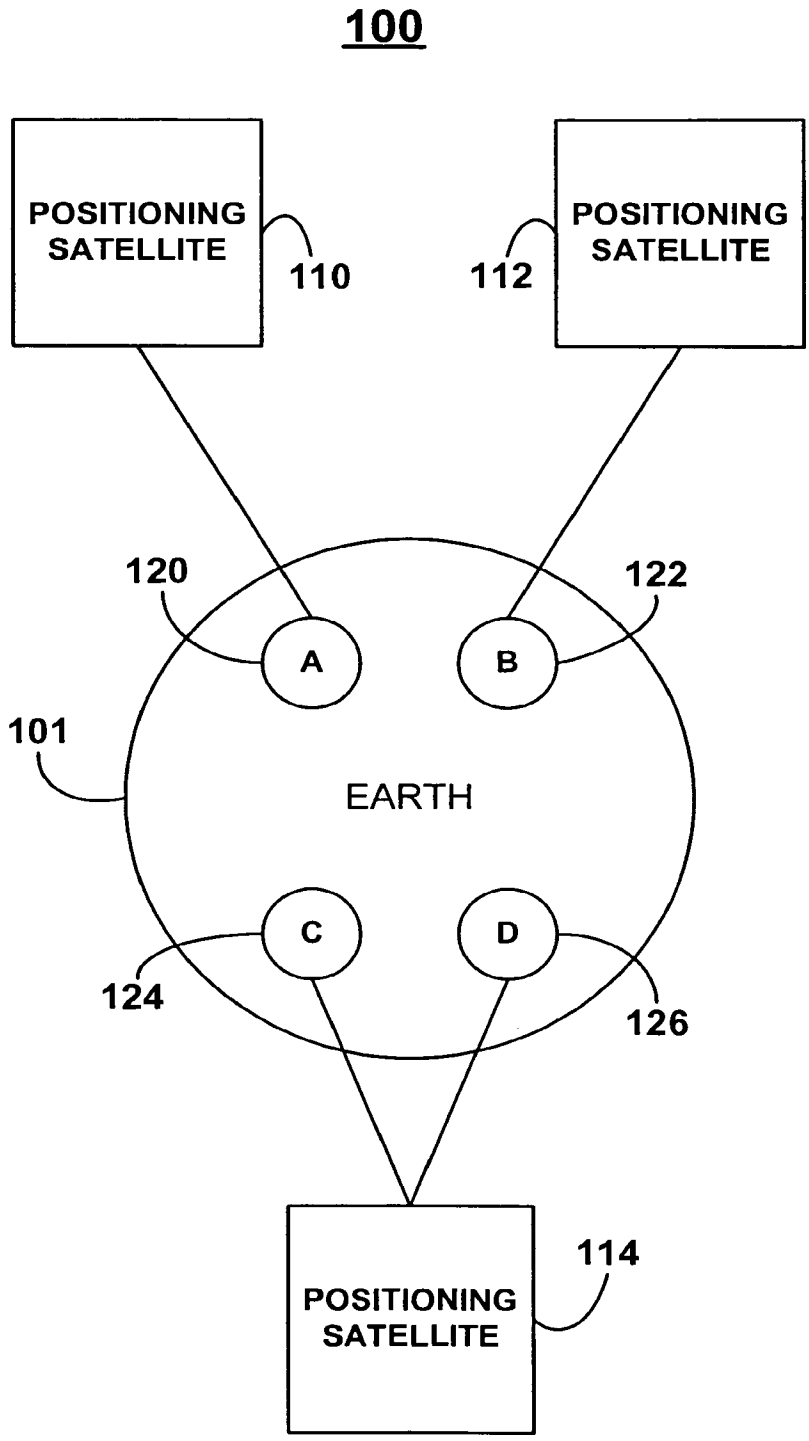

100
POSITIONING SATELLITE
110
112
POSITIONING SATELLITE
120
122
A
B
101
EARTH
C
D
124
126
POSITIONING SATELLITE
114

FIG. 1

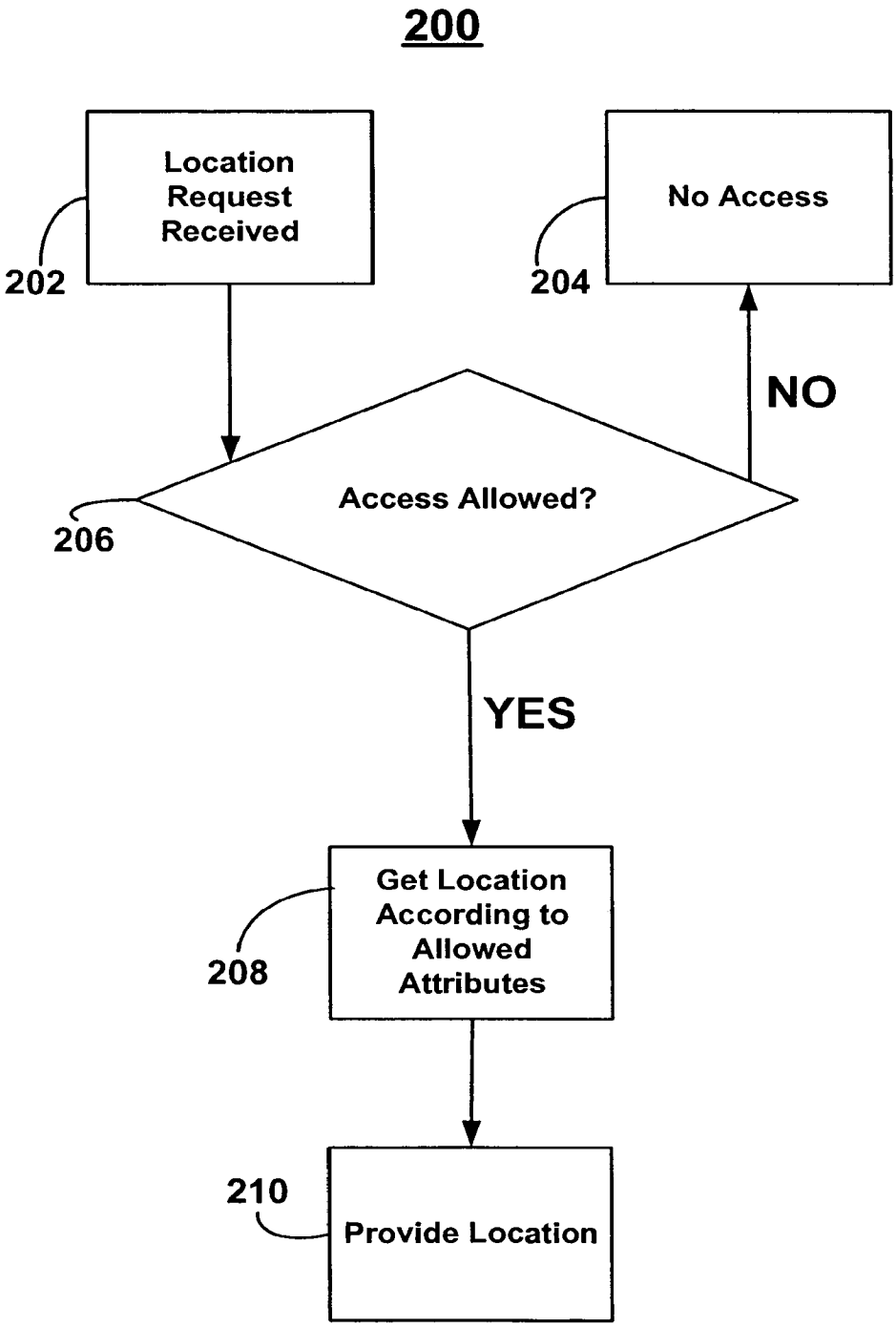

200
Location Request Received
202
No Access
204
NO
Access Allowed?
206
YES
Get Location According to Allowed Attributes
208
210
Provide Location

FIG. 2

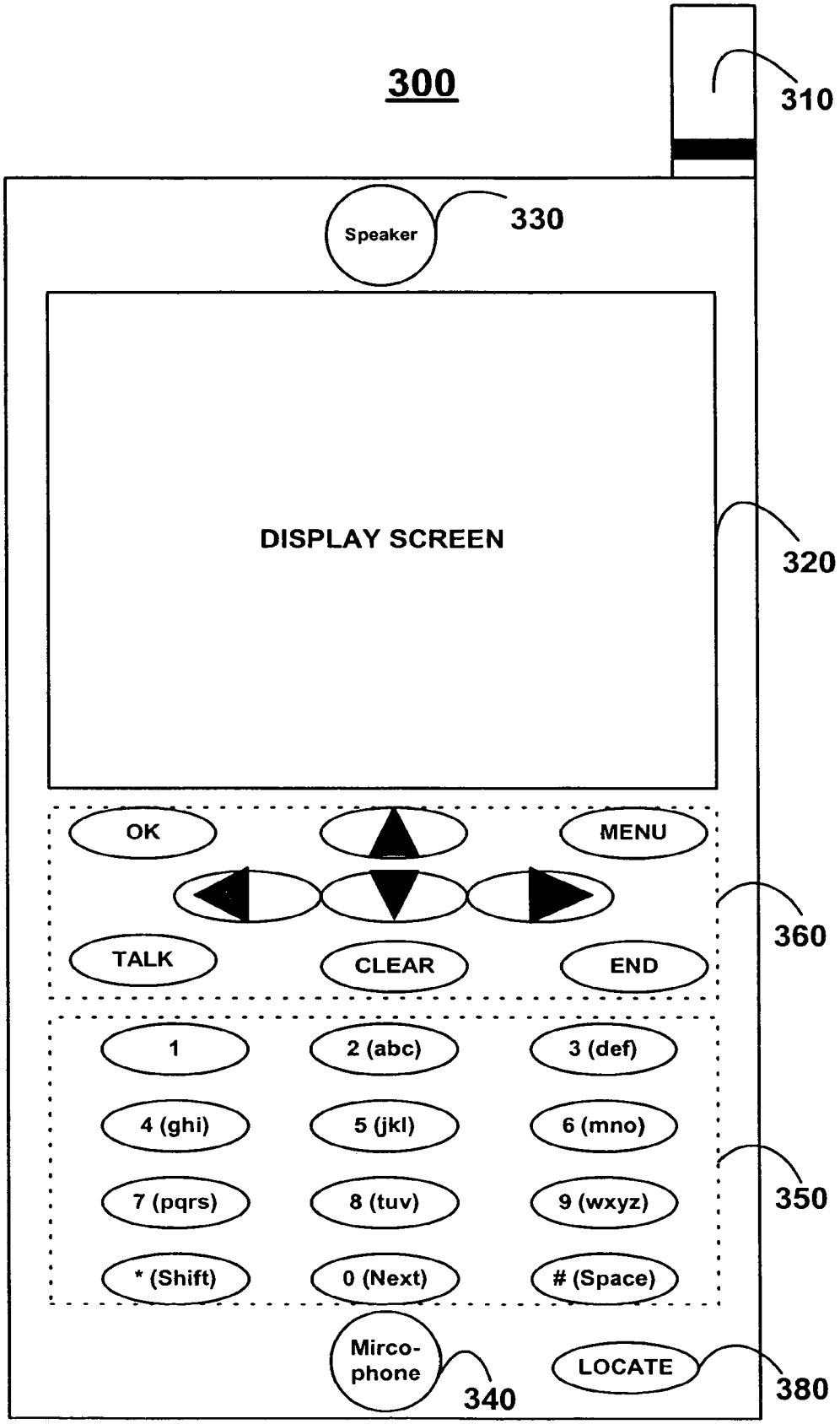

300
310
Speaker
330
DISPLAY SCREEN
320
OK
MENU
TALK
CLEAR
END
360
1
2 (abc)
3 (def)
4 (ghi)
5 (jkl)
6 (mno)
7 (pqrs)
8 (tuv)
9 (wxyz)
* (Shift)
0 (Next)
(Space)
350
Mirco-phone
340
LOCATE
380

FIG. 3

400

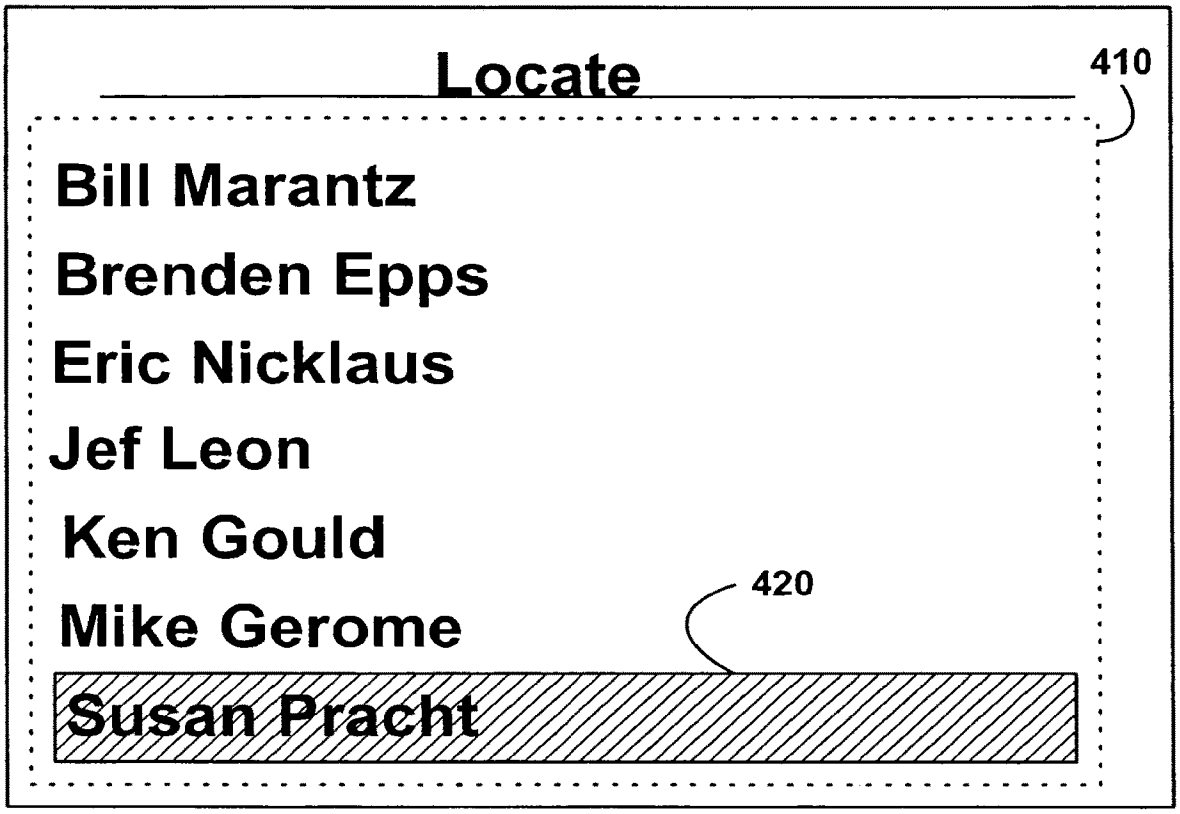

Locate
410
Bill Marantz
Brenden Epps
Eric Nicklaus
Jef Leon
Ken Gould
Mike Gerome
420
Susan Pracht

FIG. 4

500

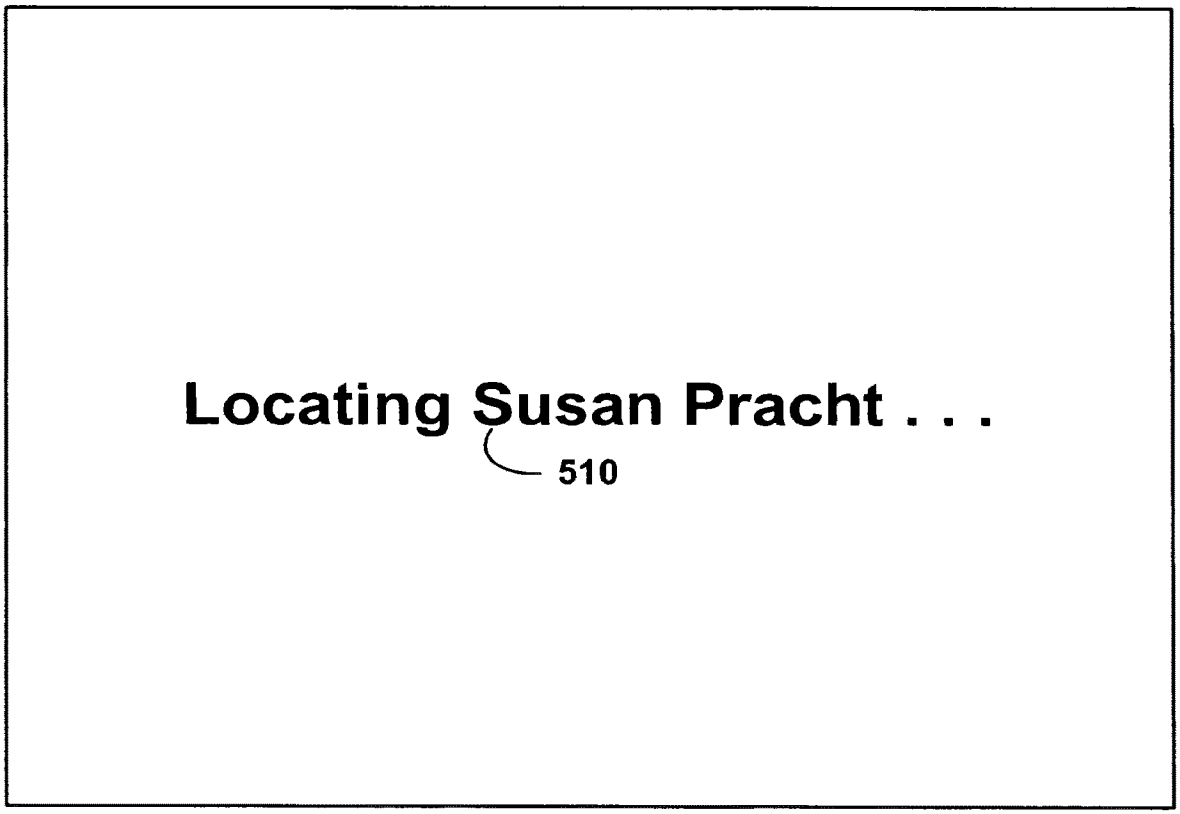


FIG. 5

600

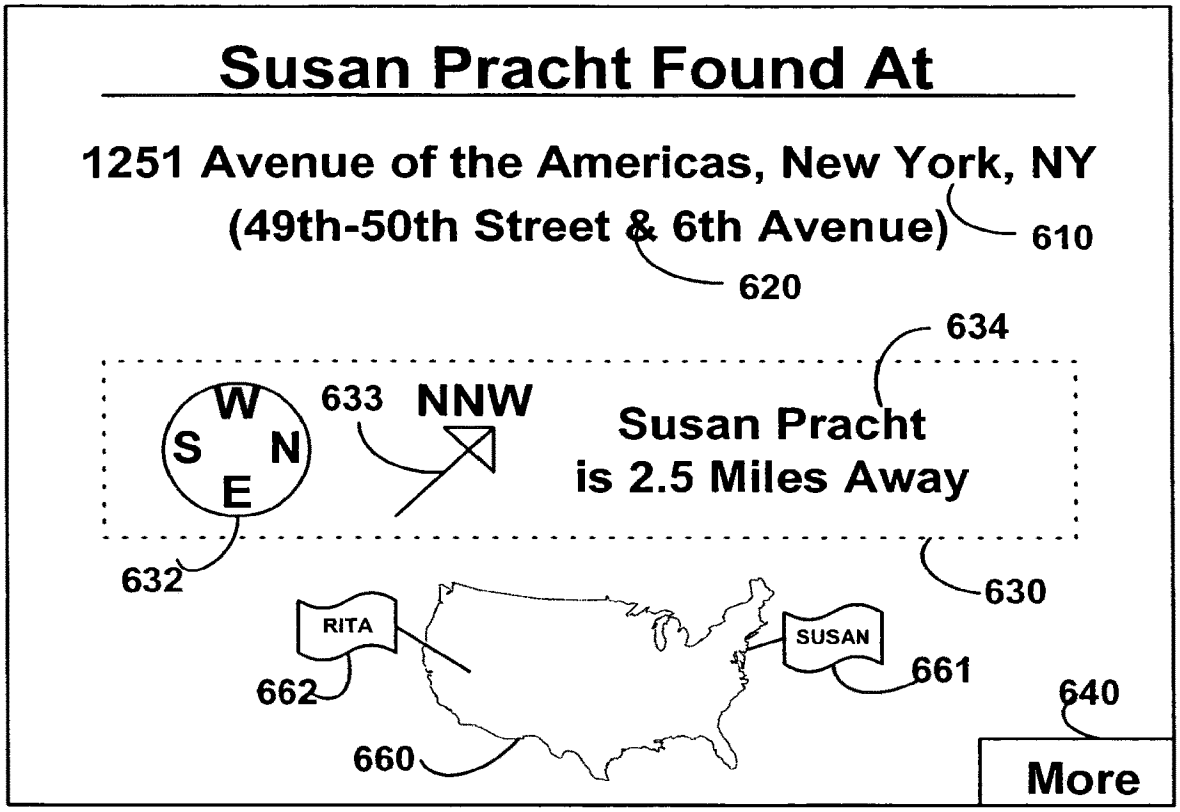

Susan Pracht Found At
1251 Avenue of the Americas, New York, NY
(49th-50th Street & 6th Avenue)
610
620
634
W
S
N
E
633
NNW
Susan Pracht
is 2.5 Miles Away
632
630
RITA
SUSAN
662
661
640
660
More

FIG. 6

700

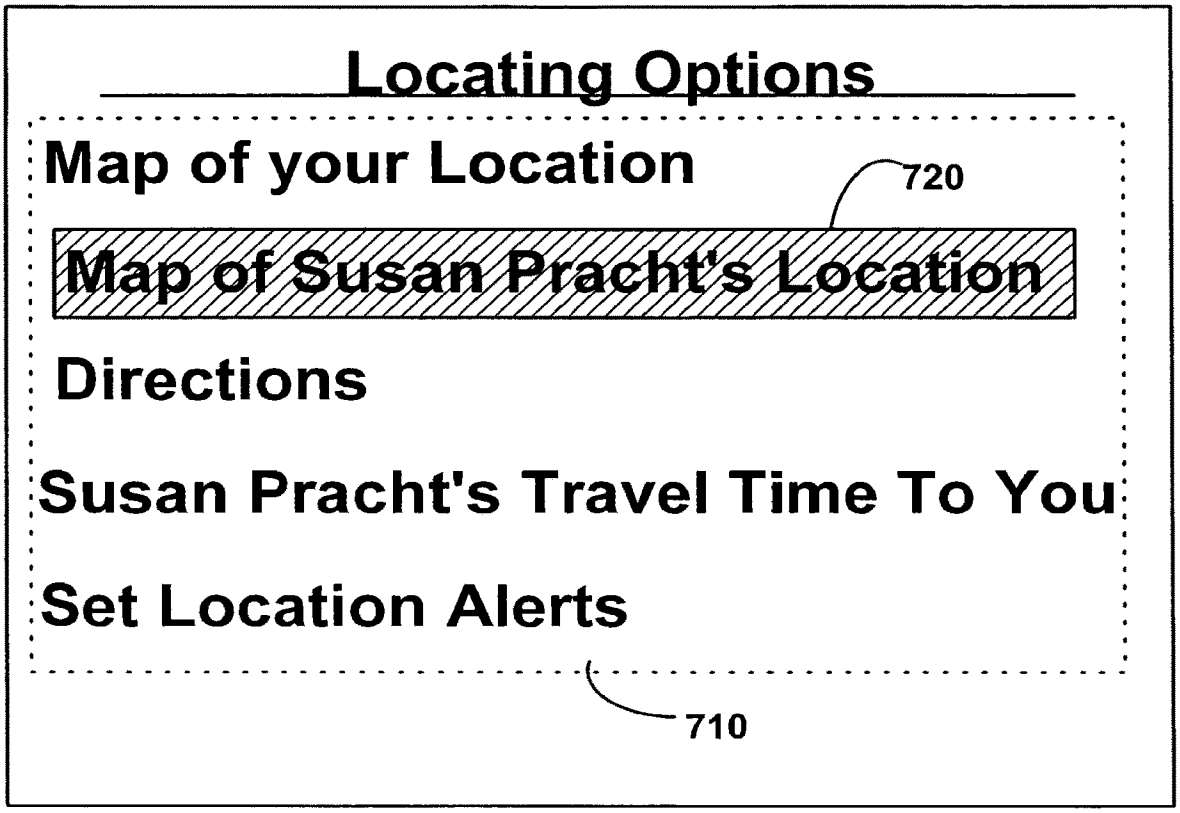

Locating Options
Map of your Location
720
Map of Susan Pracht's Location
Directions
Susan Pracht's Travel Time To You
Set Location Alerts
710

FIG. 7

800

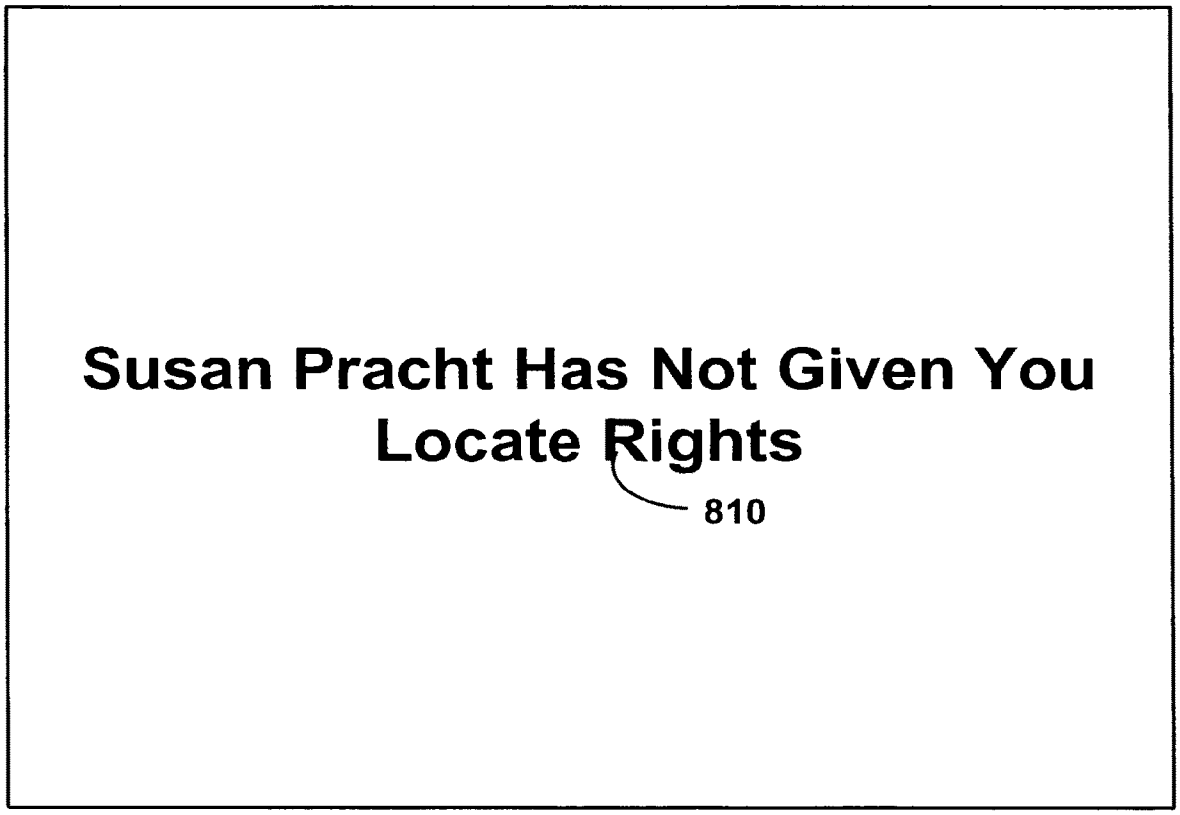


FIG. 8

900

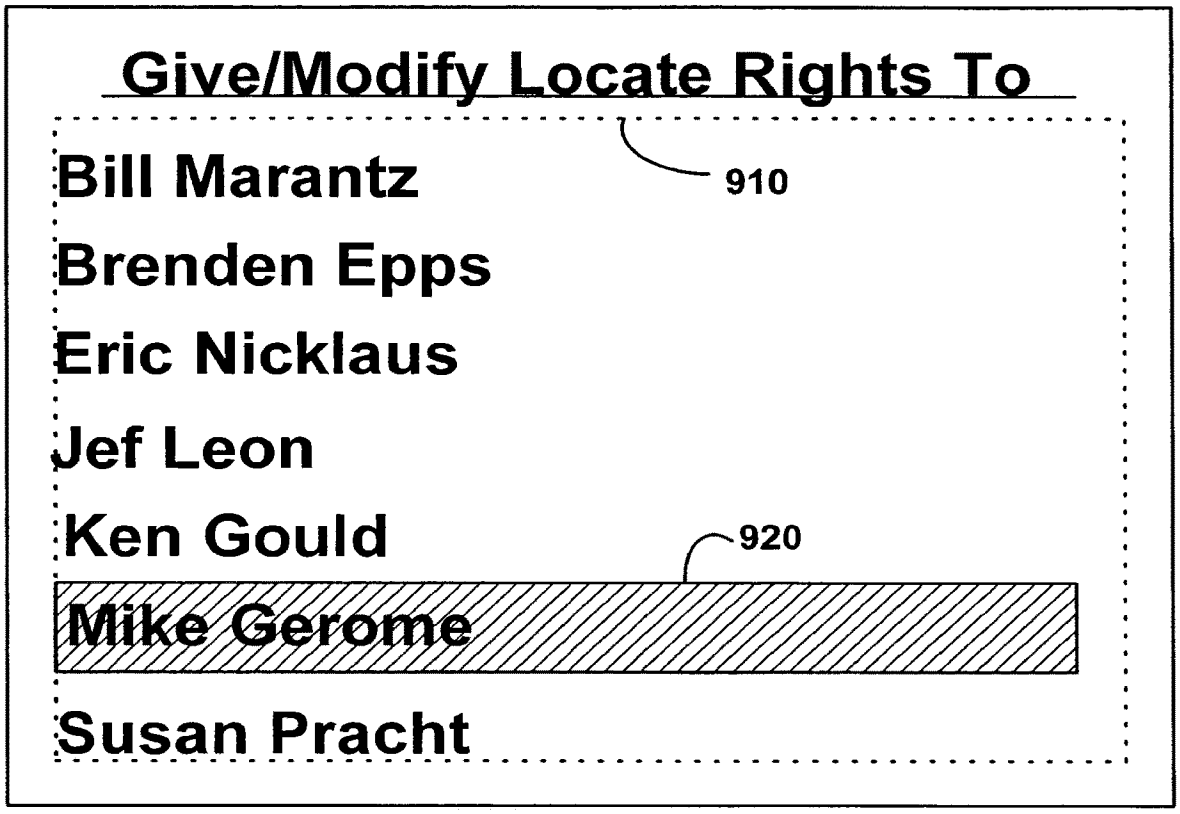

Give/Modify Locate Rights To
Bill Marantz
910
Brenden Epps
Eric Nicklaus
Jef Leon
Ken Gould
920
Mike Gerome
Susan Pracht

FIG. 9

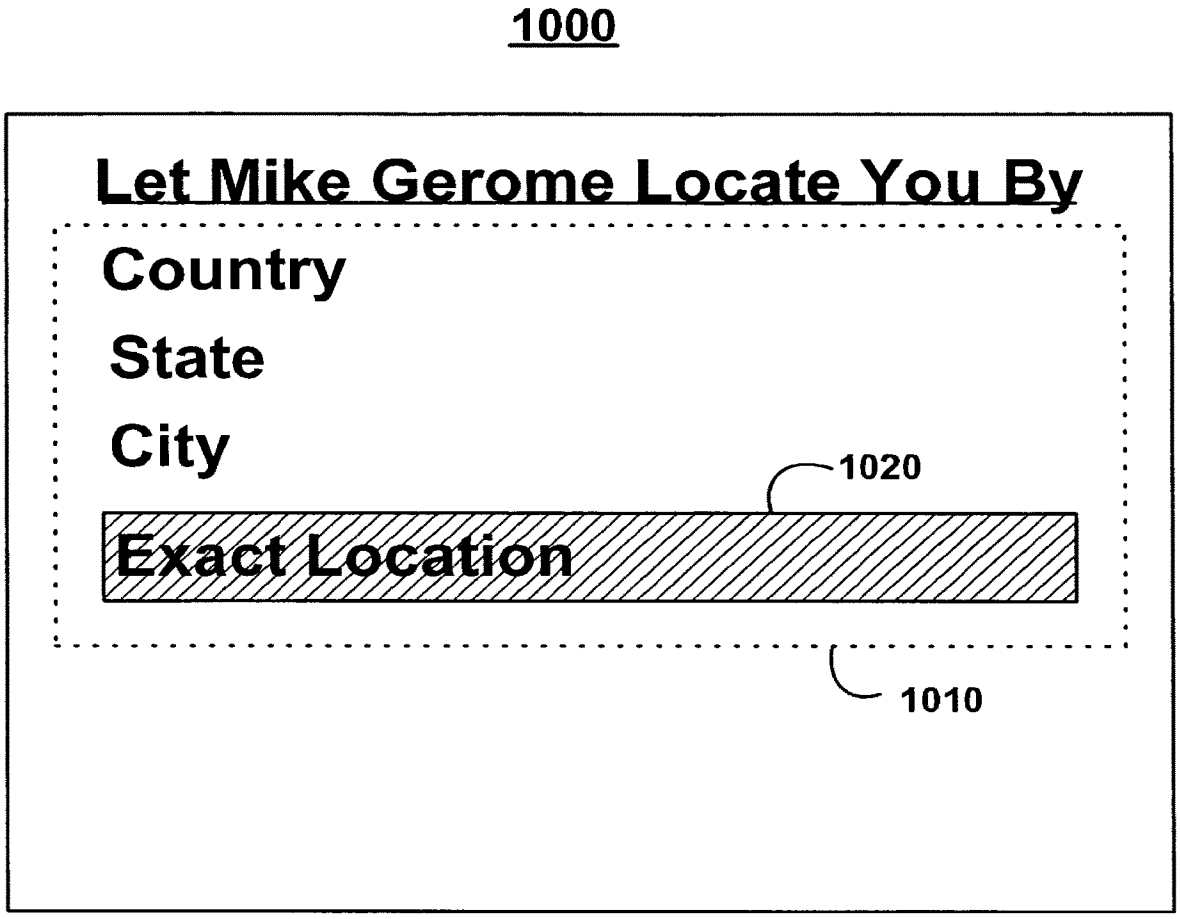

1000
Let Mike Gerome Locate You By
Country
State
City
1020
Exact Location
1010

FIG. 10

1100

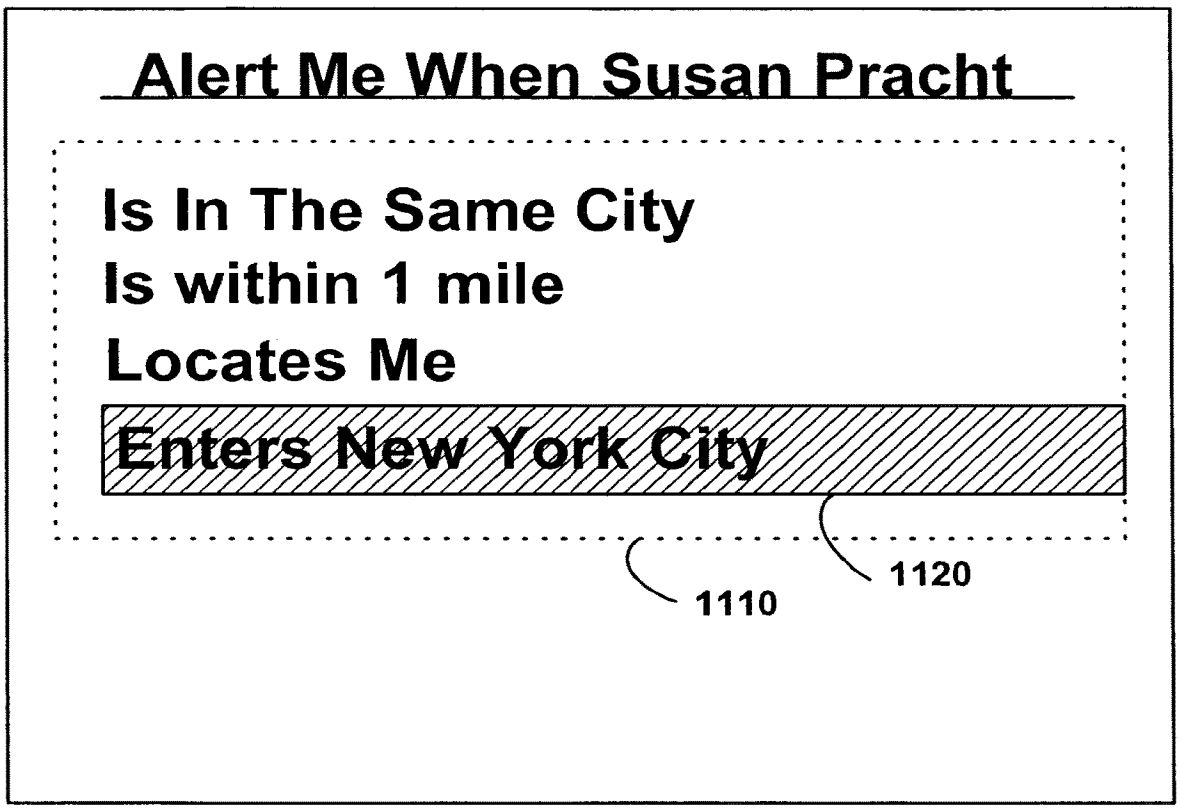

Alert Me When Susan Pracht
Is In The Same City
Is within 1 mile
Locates Me
Enters New York City
1110
1120

FIG. 11

1200

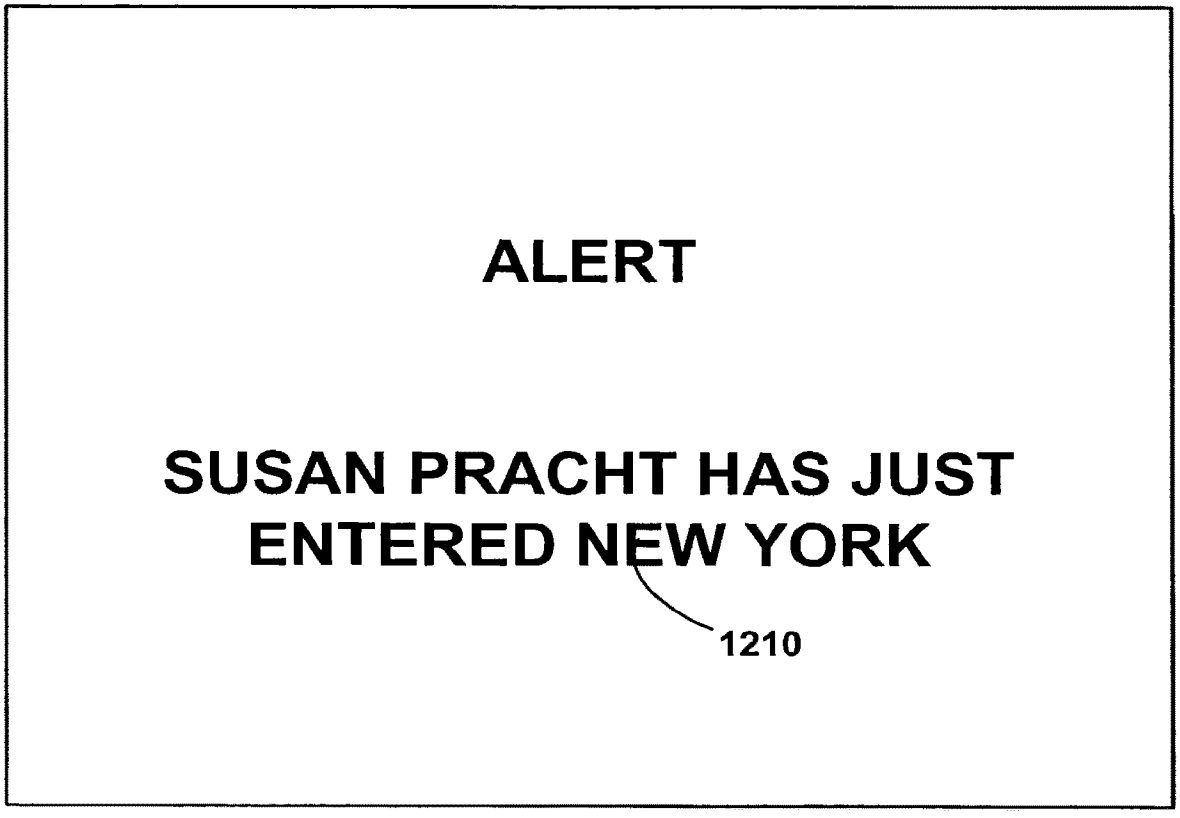


FIG. 12

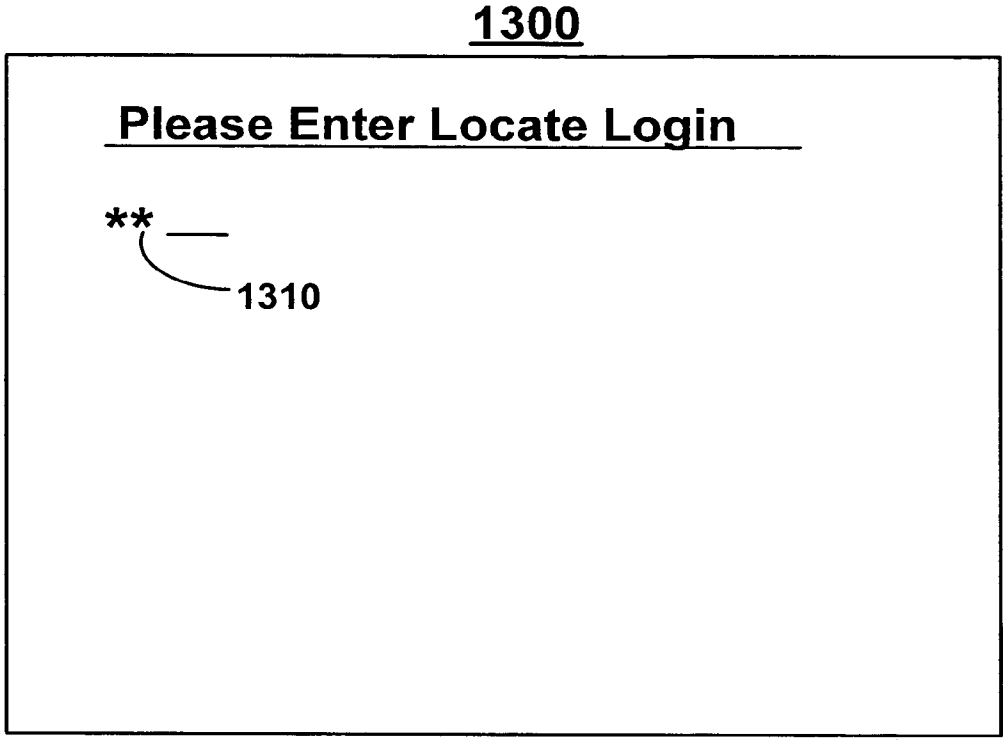

1300
Please Enter Locate Login
**
1310

FIG. 13

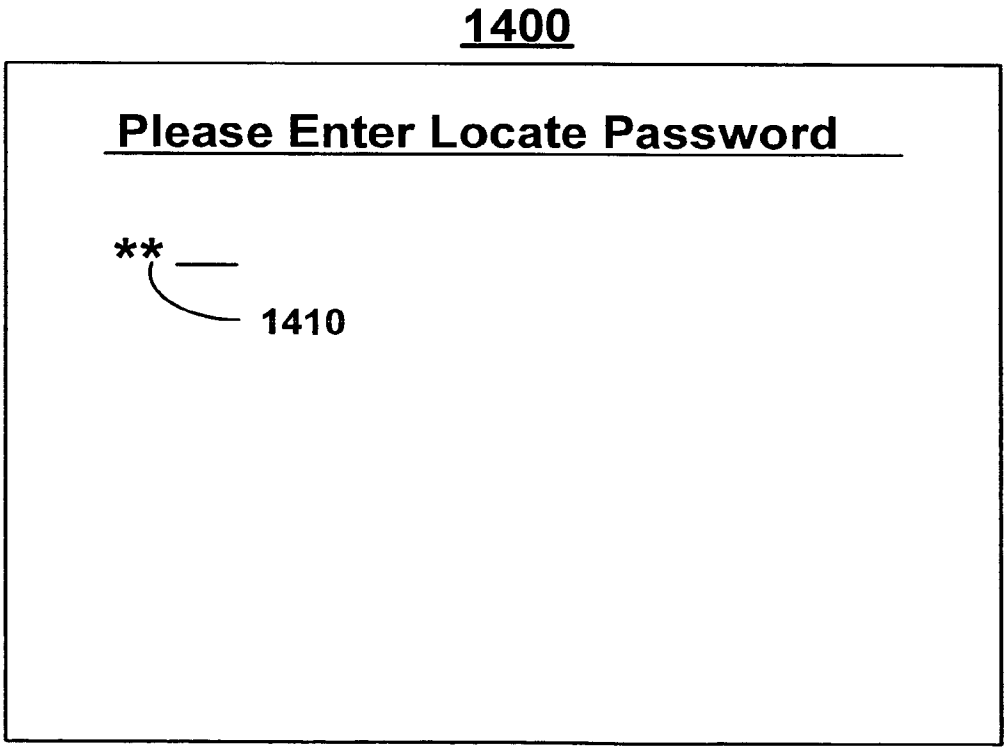

1400
Please Enter Locate Password
**
1410

FIG. 14

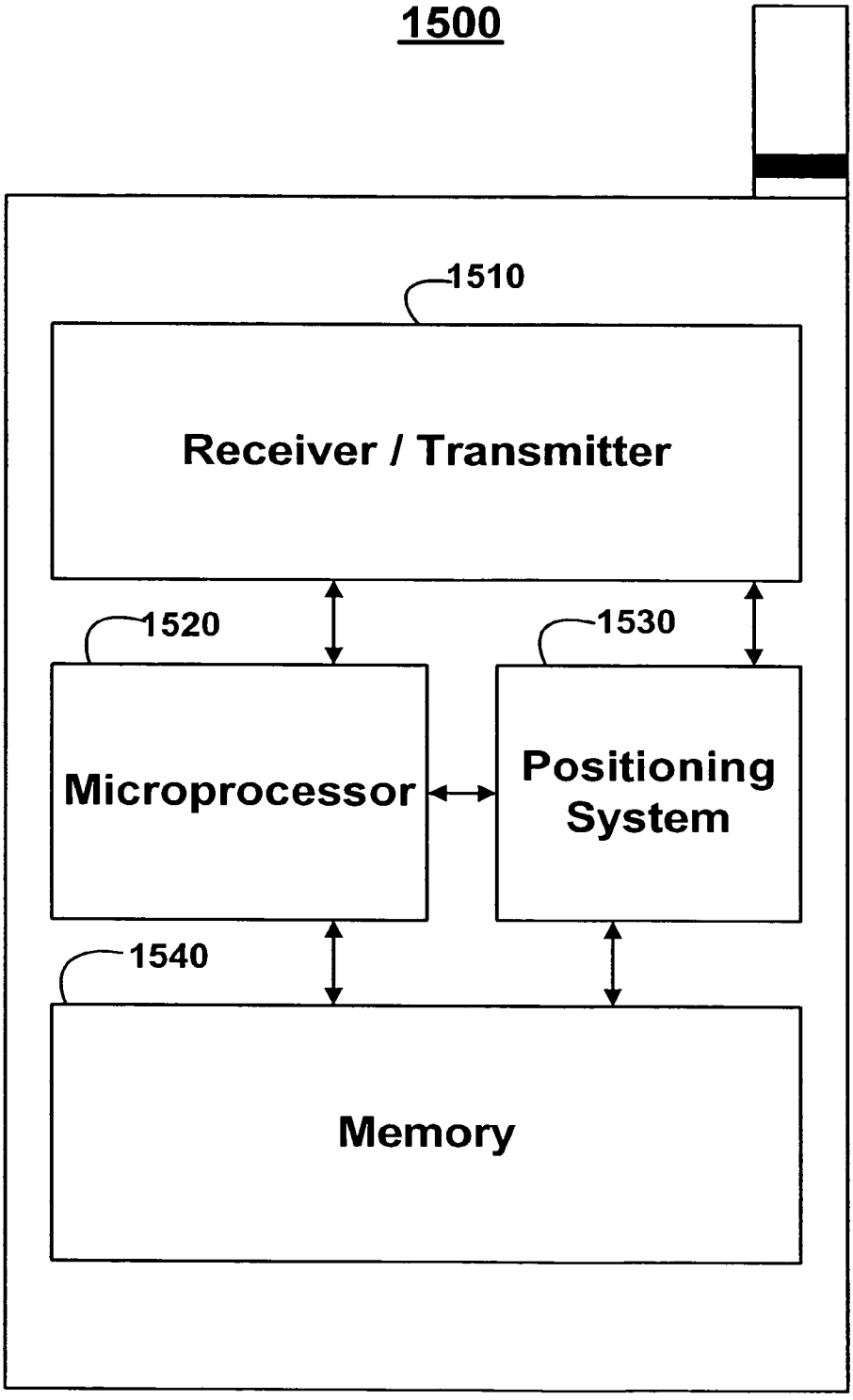

1500
1510
Receiver / Transmitter
1520
1530
Microprocessor
Positioning System
1540
Memory

FIG. 15

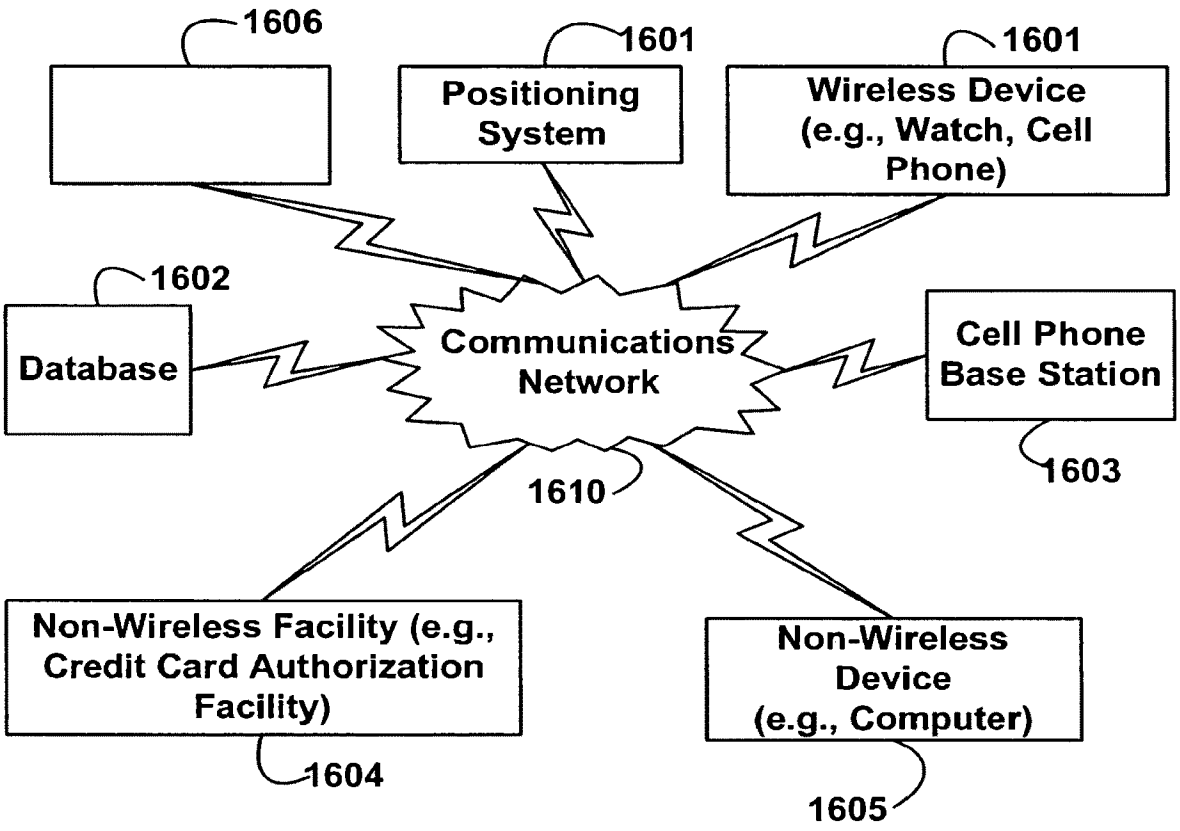

1600
1606
1601
Positioning System
1601
Wireless Device (e.g., Watch, Cell Phone)
1602
Database
Communications Network
Cell Phone Base Station
1603
1610
Non-Wireless Facility (e.g., Credit Card Authorization Facility)
1604
Non-Wireless Device (e.g., Computer)
1605

FIG. 16

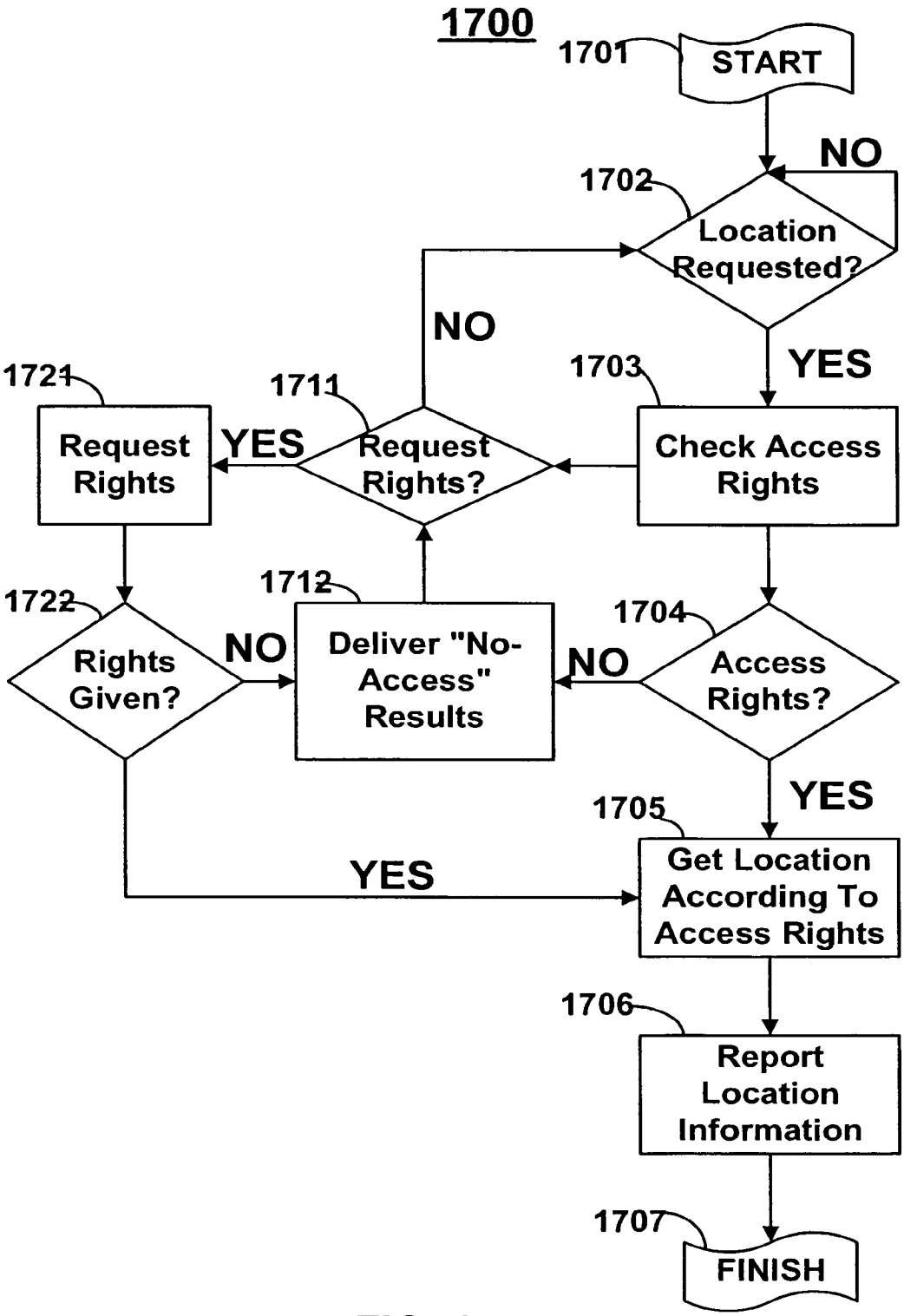

1700
1701
START
1702
Location Requested?
NO
YES
1703
Check Access Rights
1704
Access Rights?
NO
1705
Get Location According To Access Rights
1706
Report Location Information
1707
FINISH
1711
Request Rights?
YES
1712
Deliver "No-Access" Results
NO
1721
Request Rights
1722
Rights Given?
NO
YES

FIG. 17

1800

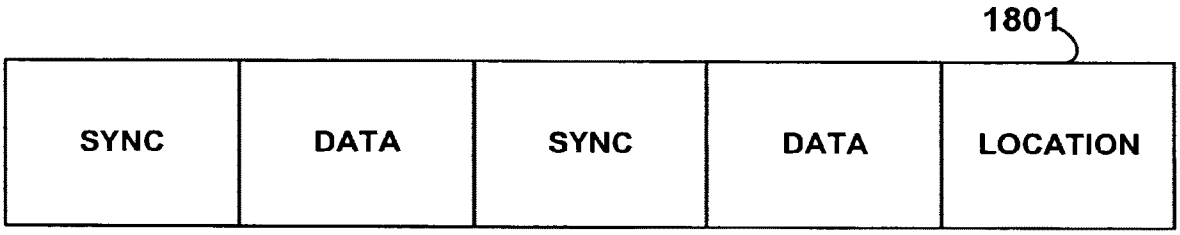


FIG. 18

SYSTEMS AND METHODS FOR LOCATING CELLULAR PHONES AND SECURITY MEASURES FOR THE SAME

CROSS-REFERENCE TO RELATED APPLICATIONS

This application is a continuation of U.S. Patent Application No. 10/400,296, filed on Mar. 25, 2003, which claims the benefit of U.S. Provisional Application No. 60/367,967, filed on Mar. 25, 2002, both of which are incorporated by reference herein in their entirety.

BACKGROUND OF THE INVENTION

This invention relates to systems and methods for determining a device's location. More particularly, this invention relates to systems and methods for remotely determining a device's location.

The Global Positioning System (GPS) has been developed in which a ground-based system can receive GPS signals from satellites and determine its location based on the time that it takes the GPS signals to reach the ground-based system. Generally, three satellite signals are needed to determine where in the world a receiver is located (i.e., position triangulation).

GPS systems have been integrated into cellular phones. However, these systems are deficient because the location of a device that is determined by these GPS signals are only minimally utilized. It is therefore desirable to provide systems and methods which better utilize the information about a device's location.

SUMMARY OF THE INVENTION

In accordance with the present invention, systems and methods are provided for locating cellular phones. More particularly, the present invention provides systems and methods for allowing a user of a cellular phone (e.g., a requesting user or a requester) to locate the position of a different user's cellular phone (e.g., a requested user) based upon requestor-assigned access rights.

One object of the present invention is to provide a security feature which allows a user to limit and/or deny location access to a particular user. In preferred embodiments, only the users that have been granted access to the location of a user's cellular phone can actually locate that user's cellular phone. Furthermore, different types of access levels may be provided that allow a user to filter location information to a different user. In this manner, a cell phone user may give access, through his or her cell phone, to a friend so that the friend can locate him or her dependent on the level of access that is granted to that friend.

For example, suppose that Phil tells Bill that he will be shopping in Manhattan and that Bill should locate him when Bill gets to Manhattan through their cell phones. In such an example, Phil may grant Bill access the exact location of his cell phone for a specific period of time (e.g., the next two hours). As a result, when Bill tries to access Phil's location, Bill will be told exactly where in Manhattan Phil's cell phone is located. Thus, Bill does not have to contact Phil directly to see where he is and, therefore, Phil does not have to spend any time giving Bill verbal directions; Bill can simply see what store Phil is currently in and go to it.

As mentioned previously, levels in the scope of access may be controlled by a user such that, for example, only a user's exact location, approximate location, city, state, or country can be accessed by a particular user.

Location alerts and monitoring features are also provided. For example, Phil may give Jen, a resident of Pittsburgh, city access so that when Phil travels into Pittsburgh, Jen will be alerted of Phil's presence. Such an alert may take the form of, for example, a display on Jen's cell phone that communicates to Jen "Phil is in Pittsburgh."

Locating a cellular phone may be accomplished in several ways. For example, satellite positioning systems such as the Global Positional System and the soon to be deployed Galileo system may be used to locate a user's cell phone.

User positions and security settings may be regularly or manually transmitted to a remote system, such a remote database so that requesting users can locate a requested user's position even if the requested user turns his/her cell phone OFF. Placing the security measures on a remote system (e.g., remote database, computer, or server) provides an information brokering scheme such that the system is still operable even when cell phones are added, removed, or modified from the system.

Additionally, the present invention may be configured to provide additional information about the location of a user. Such additional information may be, for example, a map, a location marker on a map, a map that changes as the user moves, a compass, coordinates of the located cell phone, directions to the located cell phone, where a user is in relation to another user, and information about the location the located user is currently positioned in or nearby locations such as landmarks. Such information may be provided by a remote information provider (e.g., a remote map information provider) and accessed by an information broker through a communications network.

Many other features are also employed that realizes advantageous locating functionality. As per an example, suppose that a wife wants to see if her husband has left work yet. She can locate her husband, without having to talk to him, and realize that he is driving home on a highway. Thus, a travel time option may be provided to the user. This option would compute the distance between the wife's location and husband's location by taking multiple location readings of the husband's location to see how fast the husband is traveling. Alternatively, because the husband's position will map to a highway, the system may assume that the user is driving and may provide the wife with an estimate on the husband's arrival time based on an assumed route. In this manner, the present invention may determine how much time it will take the husband to reach the wife and display this information to the wife.

As per other examples, a "see my friends" option may also be provided that brings up a map of a desired area. Dots or symbols may be present on the map to signify the location of all user's from which the requesting user has location information for. Similarly, a "find closest friend" option may be employed which finds the closest user with which the requesting user has location access to.

A cell phone location may by accessed by a variety of other devices. Alternatively, a cell phone may be used to access the location of a variety of other devices. For example, if the wife was at home, that wife may connect to the internet and access a remote database to either provide the most recent location information about the husband's cell phone to her or request a location update from the husband's cell phone. The wife's location may be already stored in such a database by associating the location to the IP address of the computer or by a manual input of the wife's location. The wife's identity may be determined by, for

example, a login and password on a website. Thus, the above-identified security measures are not limited to device-to-device locating rather user to user locating; the wife may only access the husband's location if the husband has granted access for the wife to do so. If, by accident, the wife's cell phone breaks, she may login on a friend's cell phone and determine the husband's location according to the device that the husband is logged into.

Security is preferably taken into account in the present invention and, therefore, location rights for a specific user may be given to a different user only by that specific user. However, a user may request location access rights from a different user. For example, a user may be provided with a request location screen on his cell phone and that user (e.g., user "X") may enter in the cell phone number of the cell phone whose location is desired. The user associated to the entered cell phone number may then receive an alert that says "user X has requested access to your location." Location access may then be given or denied on multiple levels and the requesting user notified of the decision.

The location feature of the present invention may be turned ON or OFF at any time. Users may be added, individually or in groups, to a list of users with location access rights to a specific user by that specific user. A specific user may, at any time, modify, delete, or add users allowed to access his or her location. Login and password information may be included to increase security or to create a user profile, allowing a specific user to log into any cell phone and be recognize by the present invention (and thereby be located with that cell phone or locatable device).

BRIEF DESCRIPTION OF THE DRAWINGS

The principles and advantages of the present invention can be more clearly understood from the following detailed description considered in conjunction with the following drawings, in which the same reference numerals denote the same structural elements throughout, and in which:

FIG. **1** is a network topology of a cell phone locating network in accordance with the principles of the present invention;

FIG. **2** is a flow chart of the locating feature in accordance with the principles of the present invention;

FIG. **3** is an illustration of a cell phone in accordance with the principles of the present invention;

FIG. **4** is a display screen for a locate feature in accordance with with the principles of the present invention;

FIG. **5** is a display screen for a retrieving location status feature in accordance with the principles of the present invention;

FIG. **6** is a display screen for a displaying location feature in accordance with the principles of the present invention;

FIG. **7** is a display screen listing options for a locate feature in accordance with the principles of the present invention;

FIG. **8** is a display screen of a failed locate feature due to insufficient rights in accordance with the principles of the present invention;

FIG. **9** is a display screen of adding and modifying locate rights and options to a user in accordance with the principles of the present invention;

FIG. **10** is a display screen of assigning location rights to a user in accordance with the principles of the present invention;

FIG. **11** is a display screen of alert options in accordance with the principles of the present invention;

FIG. **12** is a display screen of an alert feature in accordance with the principles of the present invention;

FIG. **13** is a display screen of a login feature in accordance with the principles of the present invention;

FIG. **14** is a display screen of a login feature in accordance with the principles of the present invention;

FIG. **15** is a wireless device in accordance with the principles of the present invention;

FIG. **16** is an embodiment of a network topology in accordance with the principles of the present invention;

FIG. **17** is an embodiment of a locating feature in accordance with the principles of the present invention; and

FIG. **18** is an embodiment of a communications signal in accordance with the principles of the present invention.

DETAILED DESCRIPTION OF THE INVENTION

FIG. **1** depicts a network topology of device location network **100** incorporating principles of the present invention. Network **100** includes one or more positioning satellites **110**, **112**, and **114** that can locate the position of one or more cell phones **120**, **122**, **126**, and **124** (and other locatable devices) on Earth **101**. Positioning satellites **110**, **112**, and **114** may be, for example, the Global Positioning System (GPS) or the upcoming Galileo satellite network.

Preferably, any cell phone in network **100** may locate a different cell phone, as long as access to location information is allowed, through the utilization of positioning satellites **110**, **112**, and **114**. Persons skilled in the art will appreciate that other positioning systems and methods may be used in locating the position of a user on a cell phone of network **100**.

To route information to and from a cell phone of network **100** additional facilities and communication paths may be included. For example, a main facility (not shown in FIG. **1**) containing user location access rights may be included in network **100**. Such a main facility may retrieve location information directly from a positioning system or a cellular phone and then route this information to a cellular phone or positioning system.

Persons skilled in the art will appreciate that if the Global Positioning System (GPS) is used as the positioning system then GPS receivers will be incorporated into cellular phones of the present invention. Persons skilled in the art will also appreciate that devices other than cellular phones may include positioning features. For example, watches, clothing, laptop computers, personal digital assistants (PDAs), may all contain location systems (e.g., GPS) and utilize the security principles of the present invention to allow different user's to access these locations.

FIG. **2** shows flow chart **200** of a simplified locating feature constructed in accordance with the principles of the present invention. Step **202** initiates when a user requests the location of another user's cell phone. Step **206** evaluates if the user initiating the location request has the rights to access the location of the desired user. If no access rights for the requesting user have been granted then step **204** will preferably inform the requesting user that he/she has not been given access to the requested location. In this manner, every user may assign rights (e.g. govern the security) to whom may or may not locate him/her. In preferred embodiments, these rights will be stored in, or functionality executed from, a remote facility and accessed and utilized by a user's cell phone or other requesting device (e.g., a watch or PDA).

If access has been given by a particular user that allows for the requesting user to locate that particular user, step **208**

is initiated and the allowed location information is provided to the user in step **210**. Step **208** may optionally filter the location information such that only a portion information is passed to the requesting user. The requested user may have, for example, defined that the requesting user only can obtain the city, state, or country of his/her location. Persons skilled in the art will appreciate that only the location of the desired user needs to have a cell phone or a positioning system. The requesting user may user other means (e.g., the internet) to request the location of the desired user.

Persons skilled in the art will appreciate that the location of a user's cell phone may be retrieved, in step **208**, from a remote database, facility, distribution center, or any other system. More particularly, a remote database may periodically request the location of a cell phone user with a positioning system and store this information. This database may also keep a record of those people allowed to access that user's location, the extent to which access is allowed, and the extent to which a user has requested a user's location. A user may update, add, manipulate, or remove access at any time by doing so at this database. Thus, a requesting user only has to contact the remote database, have his/her identity recognized, have his/her access rights for the requested user location determined, and, if the requesting user has the correct access rights, be provided with the requested user's location.

Instead of a remote database periodically obtaining location information for a user, the database can obtain a user's locations when a request is made for that user's location, providing the requesting user has access to the requested user's location. However, persons skilled in the art will recognize that a remote database is utilized in the above examples that contains the locations, in most circumstances, of a multitude of users. Thus, to increase security even more, a requesting user's cell phone may directly request a user's location from the requested user's cell phone without the need for a database. In such an example a user adds, manipulates, or removes access rights locally on his/her cell phone and does not have to worry about security issues that surround placing his location on a remote database. Furthermore, in such an embodiment a user's location does not have to be saved anywhere, a positioning system can just be "read" by a requesting user with the appropriate access rights.

However, by recording a user's location on a device, e.g., a cell phone's memory or in a remote database, novel applications may be utilized. For example, whenever a user makes a credit card purchase, a credit card authorization system can record the location of a cell phone associated to the purchasing user. In this manner, a new system and method of fraud protection is introduced. The credit card authorization system may, for example, reject a purchase if the purchaser's cell phone (or watch, clothing, PDA, or other positioning enabled device) is not in the vicinity of the purchase. Alternatively, the credit card authorization system may request a second form of identification if the purchaser's cell phone location does not correlate to the location of the purchase. Additionally, the credit card authorization system may call the purchaser's cell phone and request authorization for the credit card purchase. However, such features would preferably first involve the user/purchaser giving the credit card authorization system access to the location of his/her cell phone.

As per another application, a unique dating/matching service could be embodied. For example, a user may store a number of preferences in a matching profile. These preferences may describe what type of person he is interested in meeting. Additionally, a user may store, preferably locally (for the dating/matching feature) but alternatively at a remote location, his/her own profile that has data describing similar attributes for what he/she is looking for. For example, an entry in a user's profile may be "male" and an entry in "looking for" profile may be "female." When a user comes within a certain distance of a user (determined by comparing locations of a user) that fits his/her "looking for" profile, the user may be alerted of the proximity of a matching user. Preferably, the particular user is only alerted if the "looking for" user has entered in attributes similar to the particular user's attributes and is also alerted of the particular user. The next stages of such an application could include, for example, requesting access to a form of communication. Such a form of communication could be for example, talking on the phone, instant messaging, or delivering an email address. Persons skilled in the art will therefore appreciate that many useful applications may be constructed using the principles of the present invention.

FIG. **3** depicts cell phone **300** constructed in accordance with the principles of the present invention. Cell Phone **300** preferably includes speaker **330**, antenna **310**, display screen **320**, control keys **360**, alpha-numeric keys **350**, and microphone **340**. Cell phone **300** also preferably may include, for example, a communications transmitter (not shown), communications receiver (not shown), memory (not shown), positioning device (not shown), and a microprocessor (not shown).

Cell phone **300** may also include locate button **380**. Cell phone **300** may be configured such that if locate button **380** is pressed, a locate feature is initiated (e.g., display screen **400** of FIG. **4** is initiated). Alternatively, cell phone **300** may be configured such that if locate button **380** is pressed, a location signal is sent to a remote storage area (e.g., a remote database), thus manually updating the user's location. This latter functionality may be useful when a user does not want his/her location accessed. As in another alternative embodiment, cell phone **380** may be configured such that if locate button **380** is pressed, the locating features of cell phone **300** are toggled between ON and OFF. Person skilled in the art will appreciate that locate button **380** may be configured to produce a variety of useful functionalities.

FIG. **4** depicts display screen **400** that is displaying a locate feature constructed in accordance with the principles of the present invention. The locate feature of display screen **400** may be included, for example, in cell phone **300** of FIG. **3** and displayed to the user of cell phone **300** of FIG. **3** when that user requests the location of a different user of the present invention. The programming for the feature may, for example, be stored in the memory of the cell phone and executed by the processor at a user's request. Locate Feature **400** includes identifier list **410** of alpha-numeric identifiers for users stored in the memory on cell phone **300** (FIG. **3**) or at a remote location. More particularly the user of display **410** may locate a user contained in identifier list **410** by selecting an appropriate user identifier **420**.

The user identifiers (e.g., "Susan Pracht") in identifier list **410** are selectable and may be selected by control keys **360** of FIG. **3**. Highlight window **410** may be used to prompt the user what identifier from list **410** is currently selected any may be controlled, for example, by the input keys of the cell phone (e.g., keys **350** and **360** of FIG. **3**). Identifiers may be associated to, for example, cellular telephone number, user profiles, or any other identifier that may be associated to a locatable device or user interacting with a locatable device.

Persons skilled in the art will appreciate that display screen **400** may be provided to a user of devices other than

wireless devices. For example, display screen **410** may be provided to a user of a personal computer with no positioning system. Preferably, however, the security measures in accordance with the principles of the present invention are still abided to (e.g., access has been granted to the identifier associated to the requesting user). In this manner, a user can control who can access his/her wireless device (e.g., cell phone).

Persons skilled in the art will appreciate that identifier list **410** may be configured, for example, to contain only those users in which the user of cell phone **300** (FIG. **3**) has locate access rights to or any user stored in cell phone **300**. Persons skilled in the art will also appreciate that devices other than cell phone **300** may be used to incorporate the features of the present invention. Such devices could include, for example, personal digital assistants (PDAs), laptop, GPS pagers, GPS watches, car positioning devices, or any other devices that can be located. One advantage of the present invention is that it allows a mobile device with a positioning system to locate a different mobile device with a positioning system while still retaining a high level of location security and privacy.

FIG. **5** is display screen **500** for retrieving location status feature in accordance with the principles of the present invention. The selected identifier may be incorporated into display screen **500** through location status display **510** to inform the user of the status of the location retrieval. For example, display screen **500** may display "locating user" while a request is being processed by a remote facility or database.

FIG. **6** shoes display screen **600** for a display location feature constructed in accordance with the principles of the present invention. When a location is retrieved for the requested user, the location may be displayed on Display Screen **600** through primary location information **610**. Depending on what scope the requesting user has access to primary location information **610** may include, for example, the country, state, city, exact location, or any combination thereof of location information to the user. For example, if the user requesting the location of a desired user has been given unlimited location access by the desired user, primary information **610** may include the exact location of the user.

Secondary location information **620** may be included to supplement the requested users exact location so that the requesting user may have more of an idea of where the requested user is located. For example, if the desired user is located in a mall, primary location information **610** may be the address of the mall. In such an example, secondary location information **620** may be included and display, to the requesting user, the name of the mall.

Directional information **630** may also be included on display **600** or any other display of the present invention. Directional information **630** may include a digital compass **632** so that the user of cell phone **300** (FIG. **3**) knows what direction he or she is facing in. Digital compass **632** may be connected to a direction sensitive device (e.g, mechanical compass) in order to gather directional information. Directional arrow **633** may also be included in Display **600** to indicate where the requested user's location is relative to the location and direction of cell phone **300** (FIG. **3**) (e.g, the requesting user). Persons skilled in the art will appreciate that for some directional information **630** the location of the requesting user must be obtained. This information may be obtained either from cell phone **300**, a remote facility, or by any other suitable means. If the information is gathered from a location gathering device other than the requesting user's device (e.g, cell phone **300** (FIG. **3**)), then the user's device may communicate from this other location gathering device. Once both the locations of the requesting and requested/desired users are known, this information may be utilized in a number of features incorporating the principles of the present invention.

Distance information **634** is one such feature that displays the distance between the locations of the requested and requesting users (e.g., distance between the locations of the requested and requesting devices). Directional information **630** may contain many other elements to enhance the utility of the present invention. For example, a map (not shown in FIG. **6**) may be included in display **600**. This map may be of the area surrounding either the requested, the requesting user's location or both. Information may be included on the map to show the shortest path between the location as well as information about the surrounding area (e.g, area names, store names, etc.). Other information may include, for example, time to reach the destination according to specific types of travel (e.g, subway, walking, running, driving) and the direction the requested user is traveling in.

Many uses for this information may be utilized by a user. For example, if Jane calls Bill and Bill says "I am roaming midtown manhattan shopping why don't you join me", no other call to Bill is needed. Bill simply has to give Jane access to his location and Bill can continue shopping without having to worry about meeting up with Jane at a specific location.

In some instances, it may be beneficial to find the speed and direction of a requested user. For example, if a wife wants to see how long before her husband arrives home, the wife can use this feature of the present invention. This feature may find the husbands location multiple times in a determined amount of time. Through this information the feature may determine the speed and direction that the user is traveling. Using this speed, for example, this feature may display to the wife that the husband "is 10 minutes away" in directional information **630**. In doing so, the need for a call to the husband to determine his location is eliminated.

Persons skilled in the art that the location of multiple users may be displayed on display screen **600**. For example, suppose Jeff, Susan, and Chrissy are at a concert. If all three of these users have unlimited access to the other users, principles of the present invention would allow for a map to be displayed on each of the three locating devices with locator designations for each of the users. Using such map, the group may be able to find themselves in relative location to one another and decide, if need be, on the easiest location for them to meet. Thus map **660** may be included on display screen **600** and display the locations of multiple users (e.g., user's **621** and **622**).

More region **640** designates that more options or information may be retrieved or performed using principles of the present invention. A user may use control keys **340** (FIG. **3**) on cell phone **300** (FIG. **3**) to perform the functionality associated with more region **640**.

FIG. **7** shows display screen **700** for locate listing options in accordance with the principles of the present invention. Display screen **700** includes selectable options list **710** and highlight window **720** and may be displayed to the user, for example, through the activation of functionality associated by more region **640** (FIG. **6**). Options list **710** may include any of the features of the present invention. For example, options list **710** may include options activating a display screen of a map of the requesting user's location, a map of the requested user's location, directions to the requested user's location from the requesting user's location, travel

time for the requesting user, travel time for the requested user, and options to set location alerts.

FIG. **8** shows display screen **800** of a failed locate feature due to insufficient rights in accordance with the principles of the present invention. Display screen **800** may be displayed if a requesting user attempts to located a requested user but has not been given access rights by the request user to his or her location. In such an instance insufficient rights message **801** may be prompted on display screen **800**.

FIG. **9** shows display screen **900** of adding and modifying locate rights and options to a user in accordance with the principles of the present invention. A user may give or modify access rights through display **900** to a user identifier in selectable user identifier listing **910**. Highlight window **920** may be included to enhance the selecting process.

FIG. **10** shows display screen **1000** of assigning location rights to a user in accordance with the principles of the present invention. Display screen **1000** may be displayed, for example, after a user has been selected to be given location rights. Display screen **1000** contains selectable location rights listing **1010**, in which the selecting process may be enhanced by highlight window **1020**. Possible location access rights may be, for example, by country, state, city, exact location, or any other scope of location. Other rights may be assigned such as particular times in the day or time periods at which locations may be accessed.

FIG. **11** shows display screen **1100** of alert options in accordance with the principles of the present invention. Display screen **1100** allows for a user to set up alerts depending on the location of specific users. Selectable alert listings **1110** are included and may be selectable with highlight window **1120**. Examples of alerts that may be included in display screen **1100** may occur, for example, if the requested user is in a specific city or the same city as the user of display **1100**, is within a certain distance, or if a user located the user of display **1100**.

The alerts of the present invention may realize useful functionality. For example, suppose Susan Pracht lives in Pittsburgh and rarely comes to the city of the user of display screen **1100** on cell phone **300** (FIG. **3**) which is New York City. The user of cell phone **300** (FIG. **3**) may then use display screen **1100** and set an alert such that if Susan Pracht ever enters New York City, he or she would be alerted of Susan Pracht's presence.

FIG. **12** shows display screen **1200** of an alert feature in accordance with the principles of the present invention. Display screen **1200** includes an alert message and is displayed to a user when an event occurs that is designated by the user in display screen **1100** (FIG. **11**). Continuing the example from FIG. **11**, if Susan Pracht enters New York City, alert message **1210** would prompt the user that this event has occurred.

FIG. **13** shows display screen **1300** of a login feature in accordance with the principles of the present invention. In order for users to be identified by other user's cell phones or locating devices a user profile may need to be stored remotely from such devices. In such instances user profiles would be used as the locating identifier and the devices into which these profiles are logged into (recognized by) would allow for the user to be located. Display screen **1300** allows for a user to log into a locating device of the present invention. Logging into a device also adds a level of security to the present invention, especially when combined with a password. A user may use the controls of the device of the present invention to enter login **1310** of display **1300**.

In this manner a user may use another user's location device (e.g., cell phone) to locate a user or may use, for example, the internet to locate a user. Additionally, in this manner, a user may change the device being located. For example, a user may use his or her car GPS system or other systems in accordance with the principles of the present invention to be located instead of his or her cell phone. To further this example, a user may log into a web site on the internet and designate his or her current location as home, or any other location, thus eliminating the need for locatable device entirely.

FIG. **14** shows display screen **1400** of a login feature in accordance with the principles of the present invention. Display screen **1400** may be used by a user to enter a password associated to his profile, identity, or cell phone functionality access. A user may enter password **1410** using the controls of the device of display screen **1400** (e.g., cell phone **300** of FIG. **3**). By including a login/password scheme a user can be identified by a remote facility (e.g., a remote database) so that the user's location can be recorded/updated by multiple devices. Additionally, a login/password adds an extra level of security.

FIG. **15** shows cell phone **1500** that may be utilized to carry out the functionality in accordance with the principles of the present invention. Cell phone **1500** includes receiver/transmitter **1510**, microprocessor **1520**, positioning system **1530**, and memory **1540**.

Persons skilled in the art will appreciate that receiver/transmitter **1510** may directly communicate with memory **1540** if receiver/transmitter **1510** does not have its own memory (e.g., if receiver/transmitter **1510** are configured to utilize a buffer for capturing incoming communications bursts before demodulation and decryptions).

Positioning system **1530** may be, for example, a GPS system or a similar positioning system. Positioning system **1530** may include its own receiver for receiving particular signals utilized in positioning cell phone **1500**.

FIG. **16** shows network topology **1600**, in which all components of, or a part of the components of, may be utilized to carry out the features in accordance with the principles of the present invention. In this manner, persons skilled in the art will appreciate that multiple system configurations may be utilized. Topology **1600** introduces the diversity of systems that can be utilized to realize such configurations.

Generally, topology **1600** includes multiple mobile devices (e.g., multiple instances of mobile device **1601**), access control devices and location broker devices (e.g., database **1602** and cell phone base station **1603**), and non-mobile devices (e.g., grounded non-wireless device **1605**). Persons skilled in the art will appreciate that other devices or facilities may be included in topology **1600**. For example, one or more positioning systems **1601** may be included in topology **1600** in order to locate particular devices. For example, a positioning receiver (e.g., GPS receiver) may be included in wireless device **1601** with positing system **1601** being a positioning transmitter (e.g., GPS satellite network).

One or more wireless devices **1601** may be included in topology **1600** and may be, for example, watches, PDAs, cellular phones, radios, cars, or any other mobile device whose location can be determined.

As previously mentioned, access control and location broker devices may be included in topology **1600**. Such devices may be utilized, for example, to store user access rights for a particular user and may contain functionality to request and route a device's location. These devices may be considered information broker's such that devices may be

added, removed, or modified without creating the necessity of having to modify the other devices of topology **1600**.

Database **1602** is one such information broker. Database **1602** may, for example, be located in cell phone base station **1603** if database **1602** is utilized to assist in cell phone locating. Database **1602** may be utilized, for example, to store a history a of a device's locations, a user's list of assigned access rights to other users, a log of a user's call activity, a log of a location initiations, a user profile, login/password information, or any other sort of information. Many features may be provided that utilize such information, For example, n approximate location may be determined for a device that is turned OFF (e.g., by utilizing the device's location history). As per another example, if a cell phone is lost and a new one replaced, information such as, for example, phone books, activity logs, and assigned user access rights may be downloaded/flashed into the cell phone.

Database **1602** may be accessed either directly (e.g., manually by an user of the device) or indirectly (e.g., periodically) by a cell phone or other device. Alternatively, a device or cell phone may access database **1602** directly (e.g., manually by an administrator of the database) or indirectly (e.g., periodically) by database **1602**.

A credit card authorization system is an example of additional system **1606** that may be added to topology **1600** to realize new features. Such a credit card authorization system, as described above, could utilize a devices location in order to decrease credit card fraud. System **1600** may also be, for example, systems needed to realize the described dating functionalities or another information provider (e.g., a map information provider).

Non-wireless devices **1605** (e.g., a personal computer) may be included in topology **1600**. Such devices may have locations associated to them or contain a positioning system. These locations may then be associated to a user that is recognized as using the device. For example, if a particular user logs into a non-mobile personal computer, that user's location will be recognized as being the location associated to the personal computer.

The devices of topology **1600** communicate with each other through communications network **1610**. Communications network **1610** may include, for example, any type of communications, routing, amplification, encryption, decryption, parsing, modulation, or demodulation technologies. For example, positioning system **1601** may communicate with wireless device **1601** by sending multiple wireless positioning signals. At the same time, database **1602** may be providing non-wireless device **1605** with a device's location over conventional telephone wires.

FIG. **17** shows locating feature **1700** in accordance with the principles of the present invention. Locating feature **1701** starts at step **1701** and waits at step **1702** until a location is requested. As stated, a location can be requested in a number of instances and by a variety of different means.

For example, a location may be requested by a user of a cell phone that desires to locate a friend by locating that friend's cell phone. Alternatively, a device may be triggered to request a location of a mobile device when an event occurs. For example, a credit card authorization system may request the location of a user's cell phone and the location of a store that just used a credit card associated to the requested user.

If a location is requested, access rights to the requested location for the requesting device and/or user are obtained at step **1703**. Step **1703** may be employed for example, as a call to a database storing a list of assigned access rights for the requested device/user and finding if any access rights were assigned to the requestor's identity. As per another example, step **1703** may be employed as a direct call to the requested device/user.

Step **1704** determines if the requester has been assigned access rights to obtain the requested device/user's location. Persons skilled in the art will appreciate that some devices may always have access to a user's location regardless if a user has assigned access rights to the requesting device. In this manner, a device may be set up to always let a user access a location. For example, a mother may purchase a cell phone for a minor and may configure the cell phone to always allow her location information.

If access rights do exist for the requesting device/user at step **1704** then step **1705** may be initiated and location information may be provided to the requestor. Such location information may be filtered according to the assigned access rights. For example, if a user has only been assigned access rights to obtain the requested user's city location, only the city that the requested user/device is currently located in (or the last city location available) may be obtained. The process then finishes at step **1707** after the assigned location information has been delivered to the requester at step **1705**. Persons skilled in the art will appreciate that steps may be added to, removed, or modified from locating feature **1700**. For example, instead of finish step **1707**, step **1702** may be initiated after step **1706** has completed.

If a requester has not been assigned rights to access the requested user/device's location as determined by step **1704**, then step **1712** may be initiated. Step **1712** informs the requester that the requester does not have access rights to obtain the location of a user/device. Step **1711** may follow and provide an opportunity for the requester to obtain the access rights. More particularly, step **1711** asks the requester if the requester would like to request access rights. If the requester does not want to request access rights, locating feature **1700** may, for example, return to step **1702**. Else, access rights may be requested at step **1721**. Step **1722** follows and if access rights were given then step **1705** may be initiated. Else, step **1712** may, for example, be re-initiated.

FIG. **18** shows one embodiment of a cell phone burst that has been configured to embed a device or user's location **1801** between control signals (e.g., synchronization signals) and data signals. Persons skilled in the art will appreciate that some cell phone burst standards (e.g., TDMA and CDMA) have signal portions that are reserved for future technologies. In one embodiment, this reserved portion is utilized to house location information **1801**. A cell phone tower or base information may then strip received signals **1800** of location information **1801**, store location information **1801** into a database or other storage device, and deliver the received signals to its desired location. In this manner, a user may refresh his/her location information every time that a cell phone base station receives or routes information for the user. By stripping location information **1801** from signal **1800**, the intended receiver does not have access to the location of the device transmitting signal **1800**. A signal similar to signal **1800** may be sent to a cell phone that has requested, and has the appropriate location access rights, to location **1801**. Location **1701** may also be stored in other portions of signal **1700** that are not reserved portions. For example, a received signal **1800** may store location information in the data portions of signal **1800**. In embodiments where additional information is sent about location **1801** (e.g., a map associated with location **1801**) utilizing a main data portion of signal **1800** is preferred. Persons skilled in

the art will appreciate that signal burst **1800** may actually be any type of communication signal such as, for example, information returned from a database inquiry.

Persons skilled in the art will also appreciate that the systems and methods of the present invention may be implemented using other locating features and configurations. For example, a user may be manually requested to allow location access rights every time his/her location is requested. As per another example, a user may organize his/her user list into groups and assign access rights to that group (e.g., family member user group, close friend user group). All such modifications are within the scope of the present invention, which is limited only by the claims that follow.

What is claimed is:

1. A system comprising:

a first wireless telephonic device operable to provide a display screen after a request to locate a second wireless telephonic device from said first wireless telephonic device has occurred and after a confirmation that said first wireless telephonic device has been given a permission by said second telephonic wireless device to locate said second telephonic wireless device, wherein said display screen includes a map provided with respect to the location of said first wireless telephonic device, said display screen includes indicia on said map representative of a first location, said display screen includes indicia representative of a second location obtained from said third wireless telephonic device, said display screen includes a distance from said first wireless telephonic device to said first location, and said display includes an address associated with said first location.

2. The system of claim **1**, wherein said permission includes several location access rights, wherein each one of said several location access rights are associated with different location resolutions.

3. The system of claim **1**, wherein said permission is stored on a server remote to said second wireless telephonic device, said third wireless telephonic device, and said first wireless telephonic device.

4. The system of claim **1**, wherein said third wireless device associates a second permission with said second location to permit said first wireless telephonic device to access said second location.

5. The system of claim **1**, wherein said permission of said second wireless telephonic device is associated with one of several access levels with said first location, said one of said several access levels permits said first wireless telephonic device to access said first location.

6. A system comprising:

a wireless telephonic device operable to provide a display screen after a request from said wireless telephonic device for access to a first location of a first wireless device, wherein said display screen includes a map provided from a perspective of said wireless telephonic device, said display screen includes indicia on said map representative of said first location, said display screen includes indicia on said map representative of a second location obtained from a second wireless device, and said display screen includes a distance from said wireless telephonic device to said first location, said display screen includes a compass, said display screen includes a directional arrow representative of the direction of said first location with respect to the location of said wireless telephonic device, and a determination is operable to be made to provide on said wireless telephonic device for a travel time from said first location to said wireless telephonic device.

7. The system of claim **6**, wherein said first wireless device associates a permission with said first location to permit said wireless telephonic device to access said first location.

8. The system of claim **6**, wherein said first wireless device associates a permission with said first location to permit said wireless telephonic device to access said first location and said permission is stored on a server remote to said first wireless device, said second wireless device, and said wireless telephonic device.

9. The system of claim **6**, wherein said first wireless device associates a first permission with said first location to permit said wireless telephonic device to access said first location and said second wireless device associates a second permission with said second location to permit said wireless telephonic device to access said second location.

10. The system of claim **6**, wherein said first wireless device associates one of several access levels with said first location, said one of said several access levels permits said wireless telephonic device to access said first location.

11. A system comprising:

a wireless device operable to provide a display screen after a request from said wireless telephonic device for access to a first location of a first wireless device, wherein said display screen includes a map from the perspective of said wireless device, said display screen includes indicia on said map representative of said first location, said display screen includes indicia on said map representative of a second user according to a second location obtained from a second wireless device, and said display screen includes a distance from said wireless telephonic device to said first location, said display screen includes a compass, said display screen includes an address of said first location, and said display screen includes a travel time based on at least the first location and the location of said wireless telephonic device.

12. The system of claim **11**, wherein said first wireless device associates a permission with said first location to permit said wireless telephonic device to access said first location.

13. The system of claim **11**, wherein said first wireless device associates a permission with said first location to permit said wireless telephonic device to access said first location and said permission is stored on a server remote to said first wireless device, said second wireless device, and said wireless telephonic device.

14. The system of claim **11**, wherein said first wireless device associates a first permission with said first location to permit said wireless telephonic device to access said first location and said second wireless device associates a second permission with said second location to permit said wireless telephonic device to access said second location.

15. The system of claim **11**, wherein said first wireless device associates one of several access levels with said first location, said one of said several access levels permits said wireless telephonic device to access said first location.

16. A system comprising:

a first device operable to identify a user identification on said first device by receiving a login and password from said first device, a first location is operable to be recorded of said user identification, based on a location of said first device after said user identification is identified on said first device, a first map provided from

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the perspective of said first location and is operable of being displayed on said first device, said first location is operable to be provided to a third device not associated with said user identification, said user identification is operable to be identified on a second device by receiving said login and password from a second device, a second location is operable to be recorded of said user identification based on a second location of said second device after said user identification is identified on said second device, a second map provided from the perspective of said second location and is operable of being displayed on said second device, said first location and said second location are different, and said second location is operable to be provided a said third device not associated with said user identification.

17. The system of claim **16**, wherein said first device includes a first positioning system, said second device includes a second positioning system, said third device includes a third positioning system, said first location is determined, at least in part, based on said first positioning system, and said second location is determined, at least in part, based on said second positioning system.

18. The system of claim **16**, wherein said first location is provided to said third device based on an access permission of said first location to said third device provided by said identified user on said first device.

19. The system of claim **16**, wherein said first location is recorded on a server remote to said first device, second device, and third device.

* * * * *

EXHIBIT 5

US011096039B2

(12) **United States Patent**
Mullen

(10) **Patent No.: US 11,096,039 B2**
(45) **Date of Patent: Aug. 17, 2021**

(54) **SYSTEMS AND METHODS FOR LOCATING CELLULAR PHONES AND SECURITY MEASURES FOR THE SAME**

(76) Inventor: **Jeffrey David Mullen**, Pittsburgh, PA (US)

(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 532 days.

(21) Appl. No.: **11/841,750**

(22) Filed: **Aug. 20, 2007**

(65) **Prior Publication Data**

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Related U.S. Application Data

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(60) Provisional application No. 60/367,967, filed on Mar. 25, 2002.

(51) **Int. Cl.**

H04W 24/00	(2009.01)
H04W 8/14	(2009.01)
H04W 64/00	(2009.01)
H04W 8/16	(2009.01)

(52) **U.S. Cl.**

CPC ***H04W 8/14*** (2013.01); ***H04W 64/00*** (2013.01); *H04W 8/16* (2013.01)

(58) **Field of Classification Search**

CPC H04W 8/14; H04W 64/00; H04W 8/16
USPC 455/456.1, 404.1, 404.2, 410, 456.2, 455/456.3, 457, 405–408
See application file for complete search history.

(56) **References Cited**

U.S. PATENT DOCUMENTS

5,790,548	A *	8/1998	Sistanizadeh	H04L 12/2856 370/401
5,999,124	A *	12/1999	Sheynblat	G01S 19/46 342/357.29
6,442,391	B1 *	8/2002	Johansson	H04W 12/06 455/433
6,456,854	B1 *	9/2002	Chern et al.	455/457
6,636,732	B1 *	10/2003	Boling	H04B 1/38 455/404.1
6,716,101	B1 *	4/2004	Meadows et al.	455/456.1
6,725,032	B1 *	4/2004	Sheridan et al.	455/419
6,826,692	B1 *	11/2004	White	H04L 63/0815 709/208
6,885,874	B2 *	4/2005	Grube et al.	455/520
6,970,853	B2 *	11/2005	Schutzer	G06F 21/32 705/67
6,999,777	B1 *	2/2006	Ganesh	455/456.1
7,013,148	B1 *	3/2006	Ganesh	455/456.1
7,072,956	B2 *	7/2006	Parupudi et al.	709/223
7,177,651	B1 *	2/2007	Almassy	455/456.1
7,215,965	B2 *	5/2007	Fournier et al.	455/456.1
7,272,220	B1 *	9/2007	Zhang et al.	379/221.08

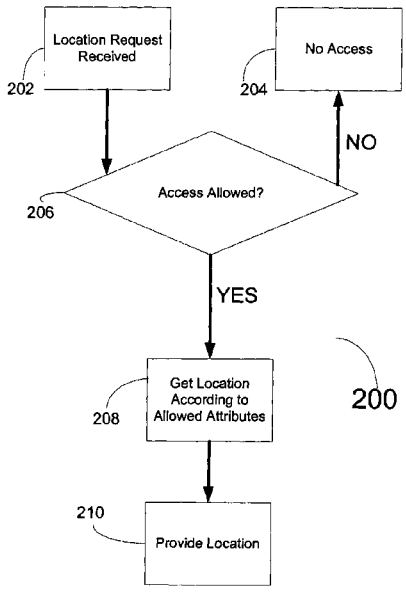
(Continued)

Primary Examiner — William J Deane, Jr.

(57) **ABSTRACT**

Systems and methods for locating a cellular phone are provided. More particularly, systems and methods for providing the location of a requested user's cellular phone from a requesting user's device (e.g., a second cellular phone) based on access rights defined by the requested user. Location descriptions may be provided at a multitude of levels. For example, if a cellular phone, or an identity associated to (e.g., logged into) a cellular phone, has been given access rights to a cell phone's exact location for an indefinite amount of time, that cell phone can receive, on command, the exact location of the approved cell phone. Other levels of location information that can be granted include, for example, proximities, states, and countries.

19 Claims, 17 Drawing Sheets



(56) **References Cited**

U.S. PATENT DOCUMENTS

7,275,258	B2 *	9/2007	Arbab	H04L 63/0815 713/183
7,333,776	B1 *	2/2008	York	455/90.1
7,983,947	B2 *	7/2011	Kaiwa et al.	705/14.58
8,478,304	B1 *	7/2013	David et al.	455/456.5
2001/0048364	A1 *	12/2001	Kalthoff et al.	340/573.1
2002/0003470	A1 *	1/2002	Auerbach	340/425.5
2002/0090912	A1 *	7/2002	Cannon	H04L 29/12009 455/41.2
2002/0115453	A1 *	8/2002	Poulin et al.	455/456
2002/0184351	A1 *	12/2002	Istvan	H04L 41/0803 709/222
2003/0004743	A1 *	1/2003	Callegari	705/1
2003/0060214	A1 *	3/2003	Hendrey	H04W 4/02 455/456.3
2003/0101225	A1 *	5/2003	Han	H04W 4/02 709/206
2003/0119522	A1 *	6/2003	Barclay et al.	455/456
2005/0222756	A1 *	10/2005	Davis et al.	701/205
2009/0005019	A1 *	1/2009	Patel et al.	455/414.2
2009/0029717	A1 *	1/2009	Bates et al.	455/456.1
2012/0106728	A1 *	5/2012	Ghaffari et al.	379/211.02

* cited by examiner

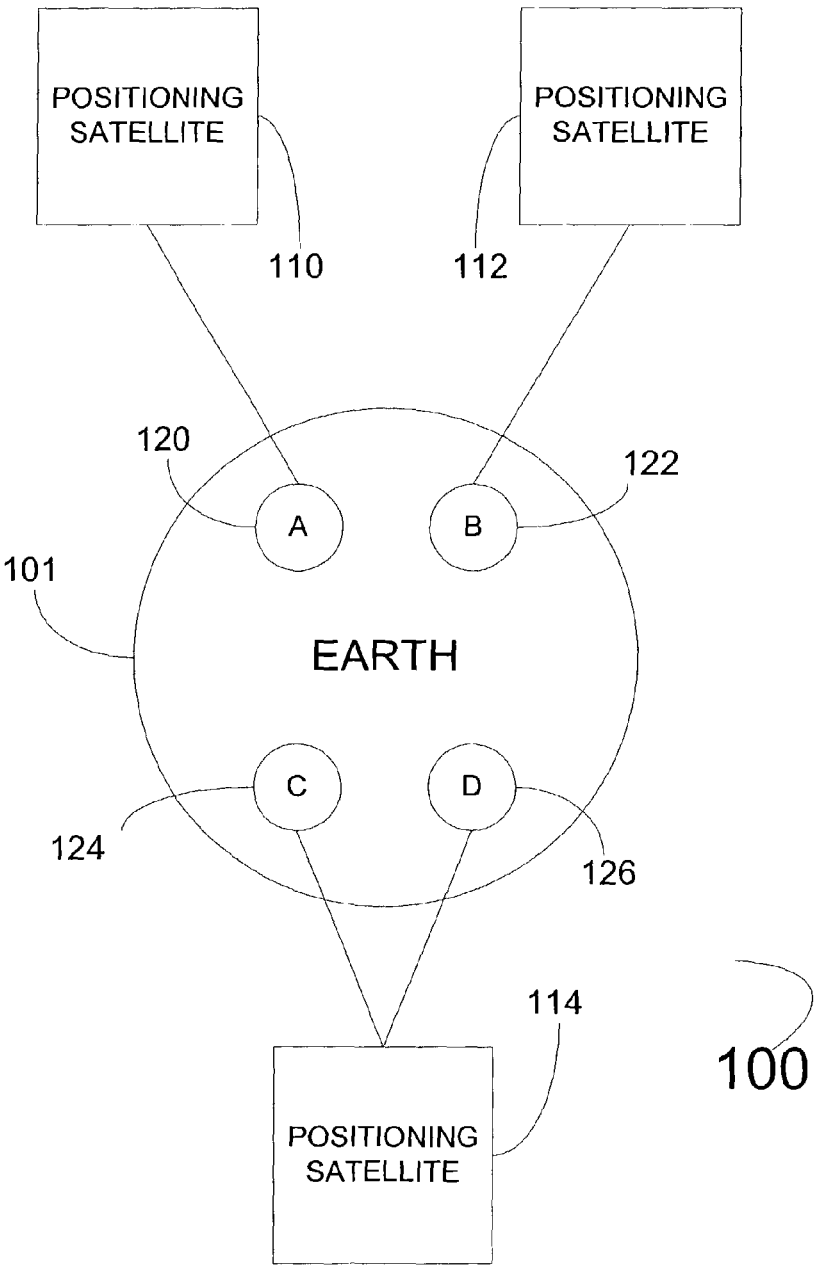

POSITIONING SATELLITE
POSITIONING SATELLITE
110
112
120
122
A
B
101
EARTH
C
D
124
126
114
100
POSITIONING SATELLITE

FIG. 1

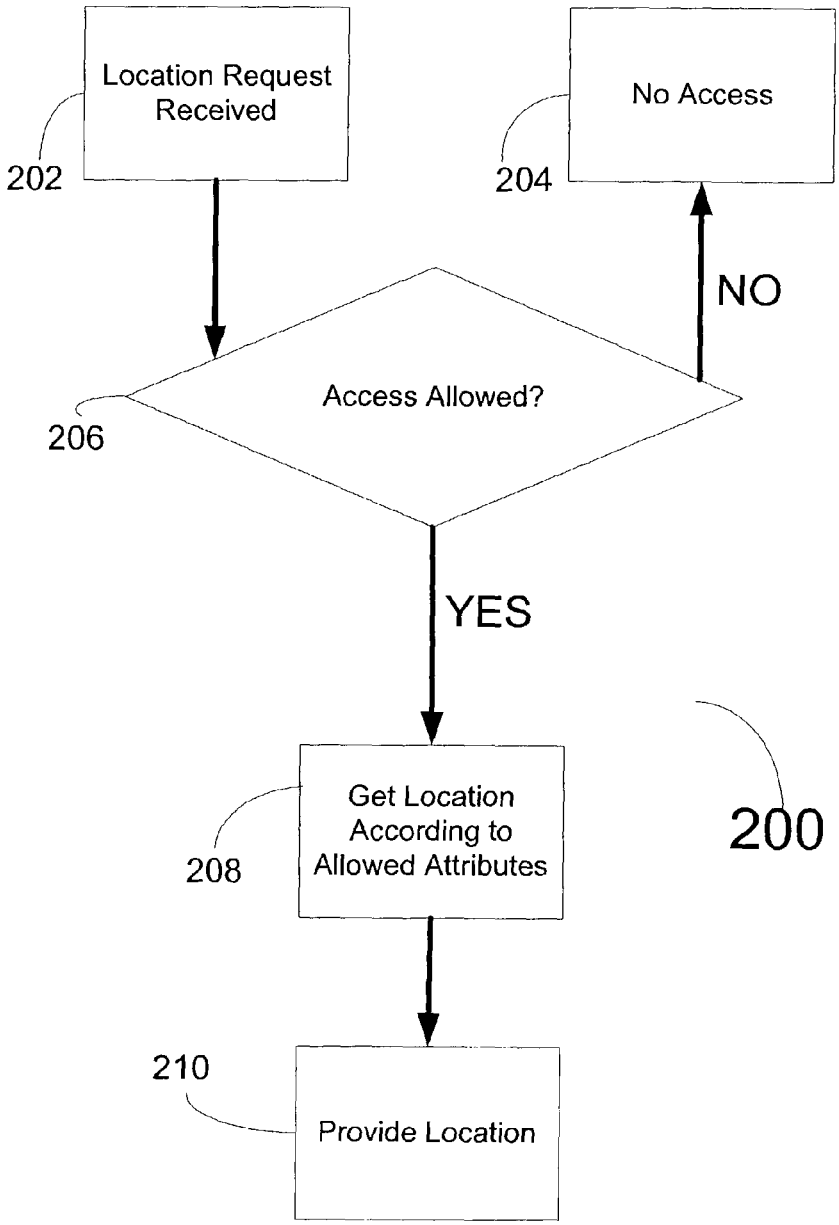

Location Request Received
202
No Access
204
NO
Access Allowed?
206
YES
Get Location According to Allowed Attributes
208
200
210
Provide Location

FIG. 2

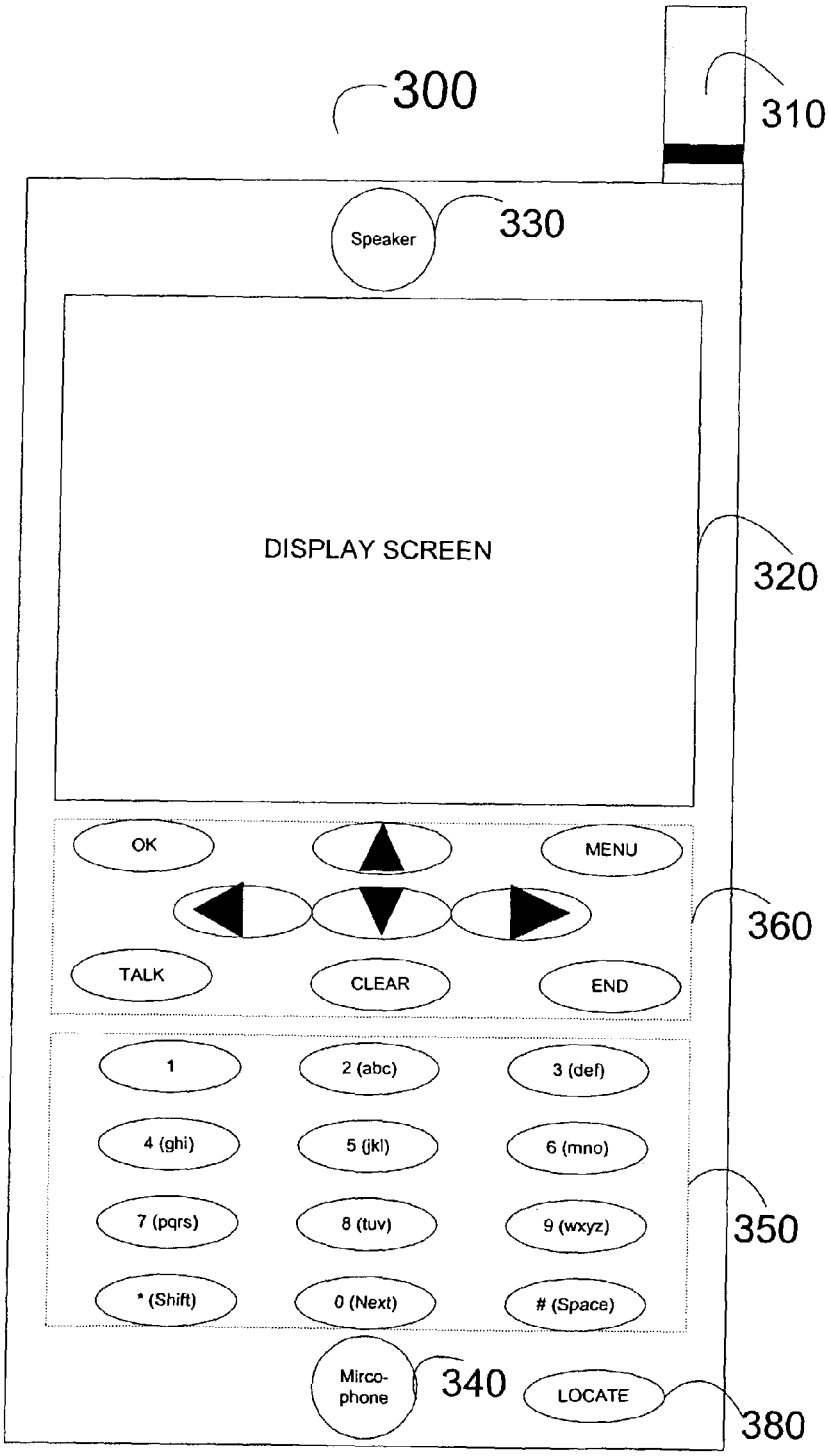

300
310
Speaker
330
DISPLAY SCREEN
320
OK
MENU
360
TALK
CLEAR
END
1
2 (abc)
3 (def)
4 (ghi)
5 (jkl)
6 (mno)
7 (pqrs)
8 (tuv)
9 (wxyz)
350
* (Shift)
0 (Next)
(Space)
Mirco-phone
340
LOCATE
380

FIG. 3

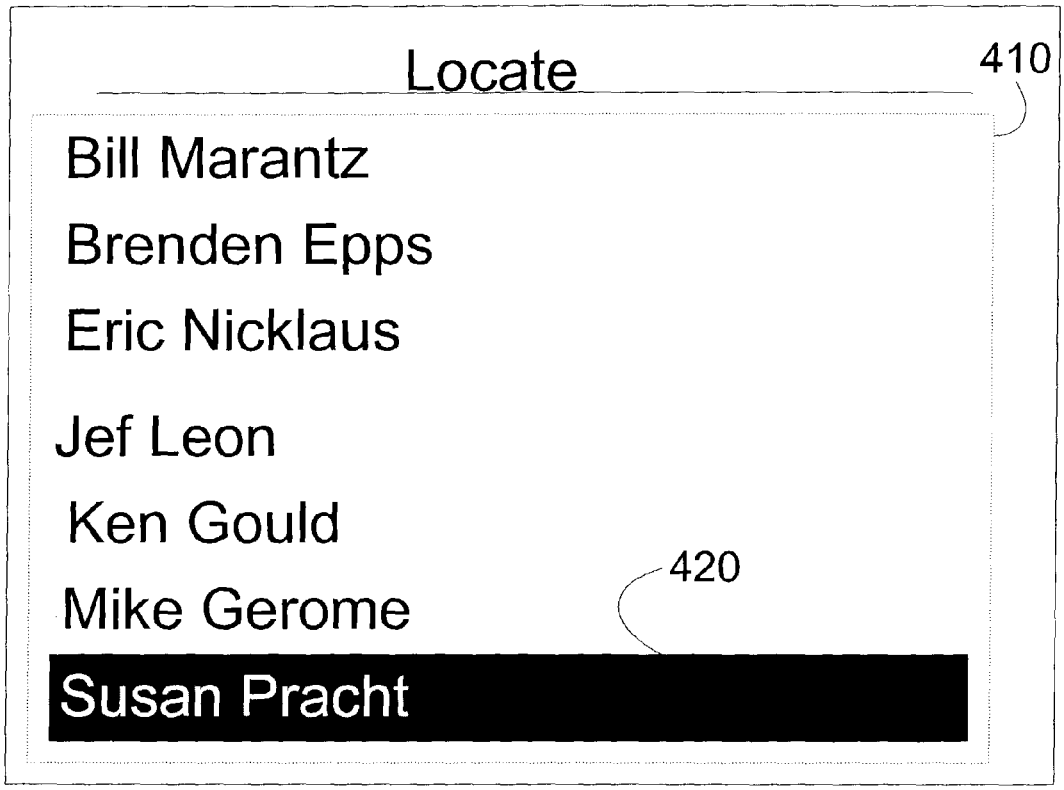

Locate
410
Bill Marantz
Brenden Epps
Eric Nicklaus
Jef Leon
Ken Gould
Mike Gerome
420
Susan Pracht

FIG. 4

400

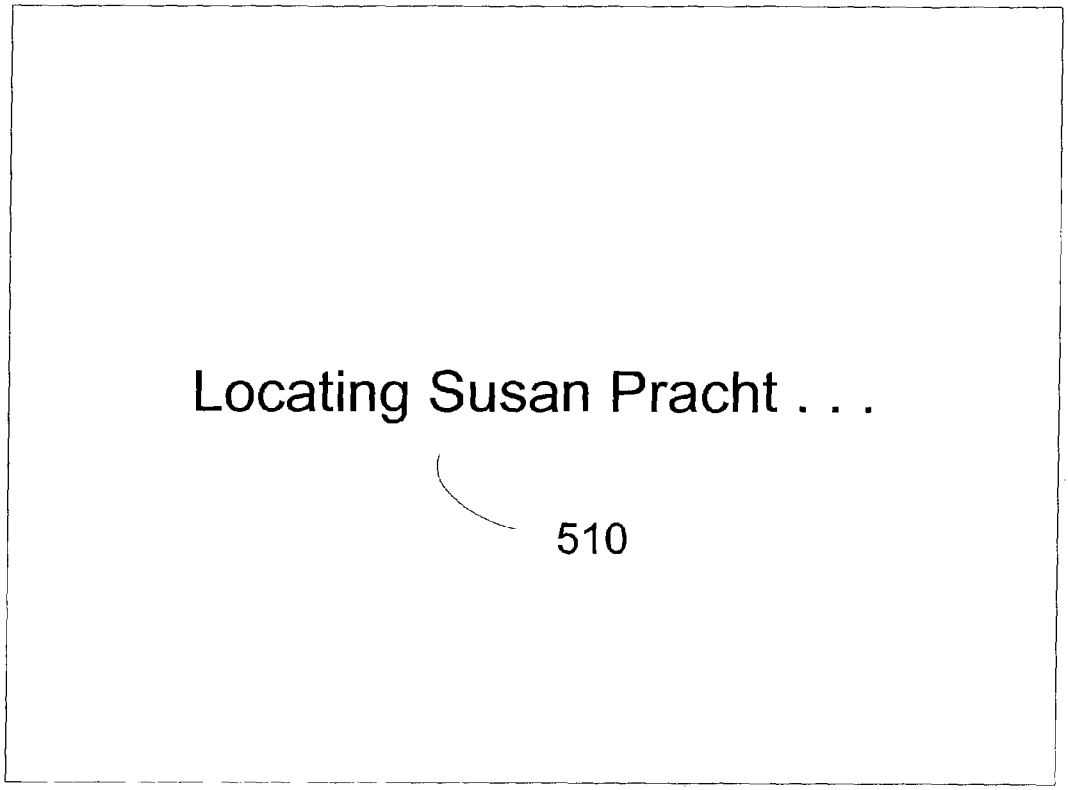


FIG. 5

500

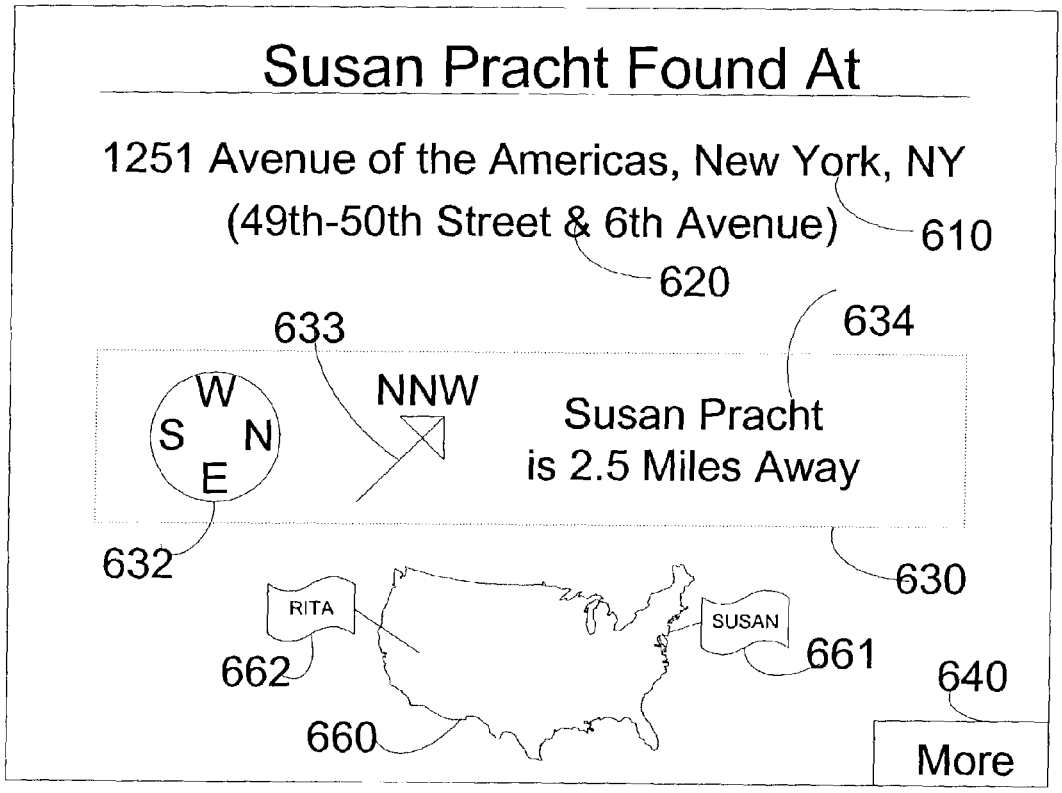

Susan Pracht Found At
1251 Avenue of the Americas, New York, NY
(49th-50th Street & 6th Avenue)
610
620
633
634
W
S
N
E
NNW
Susan Pracht
is 2.5 Miles Away
632
630
RITA
SUSAN
662
661
640
660
More
600

FIG. 6

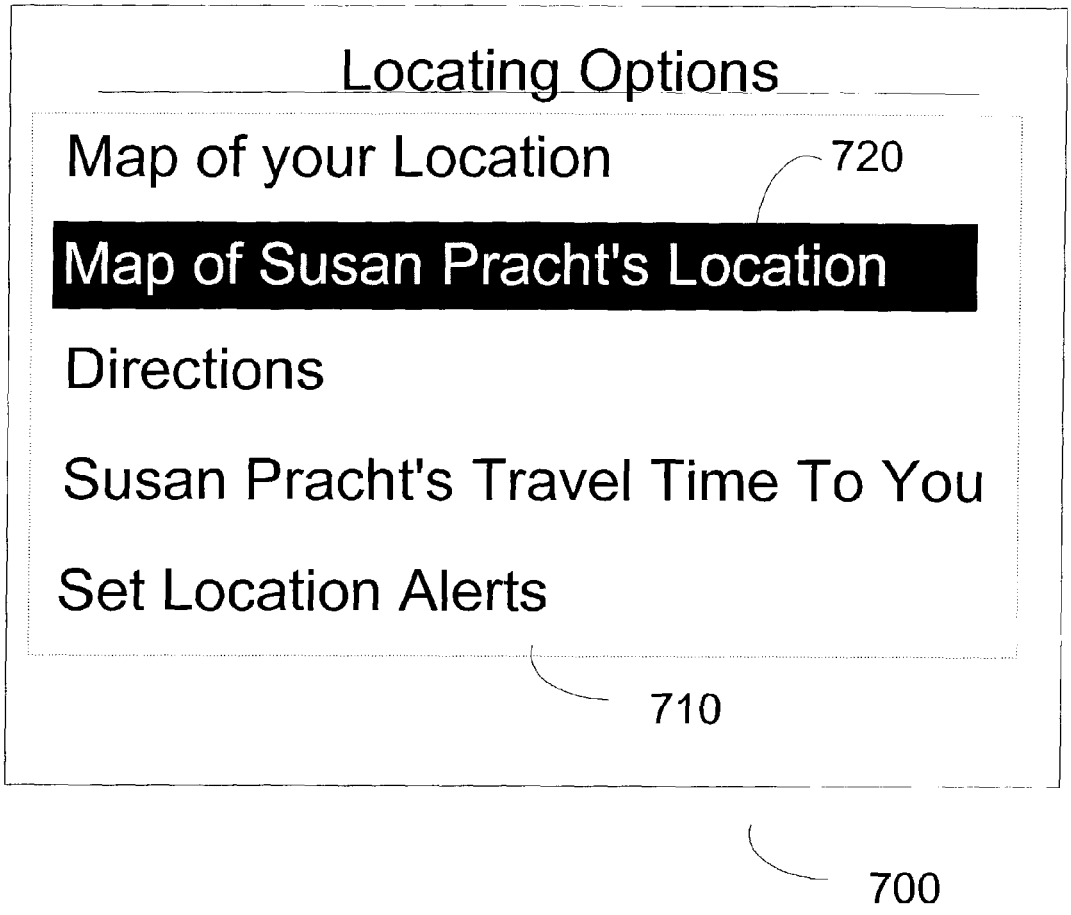

Locating Options
Map of your Location
720
Map of Susan Pracht's Location
Directions
Susan Pracht's Travel Time To You
Set Location Alerts
710
700

FIG. 7

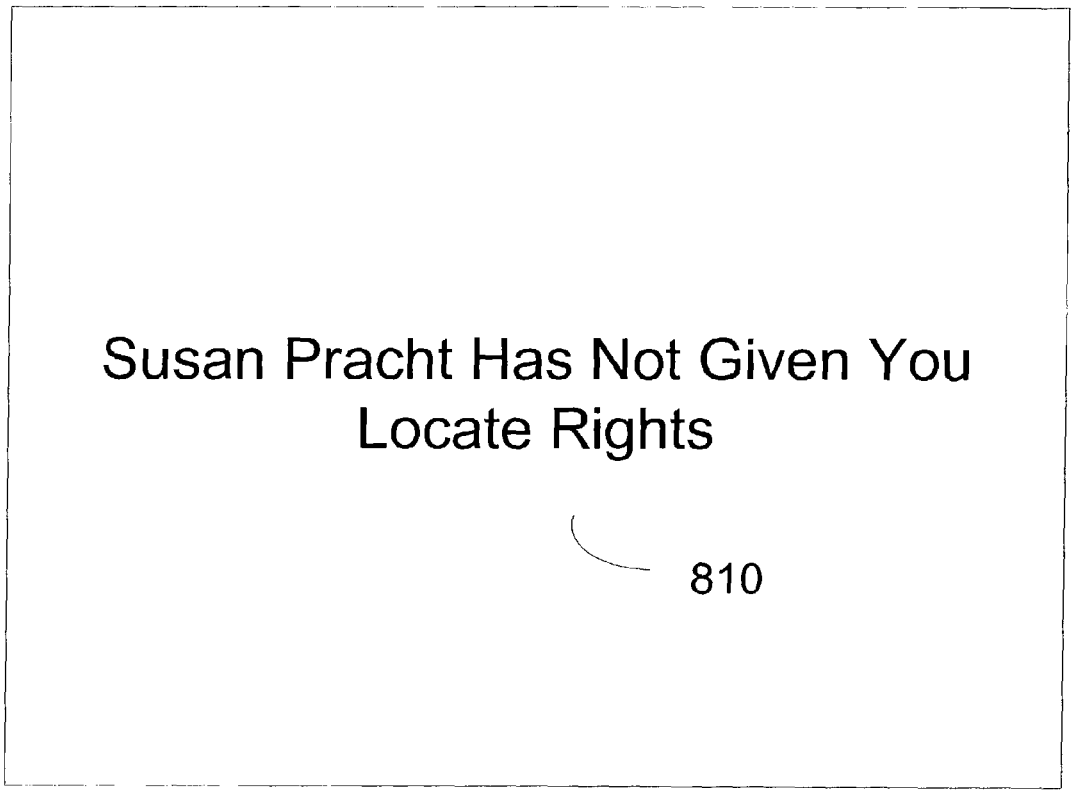


FIG. 8

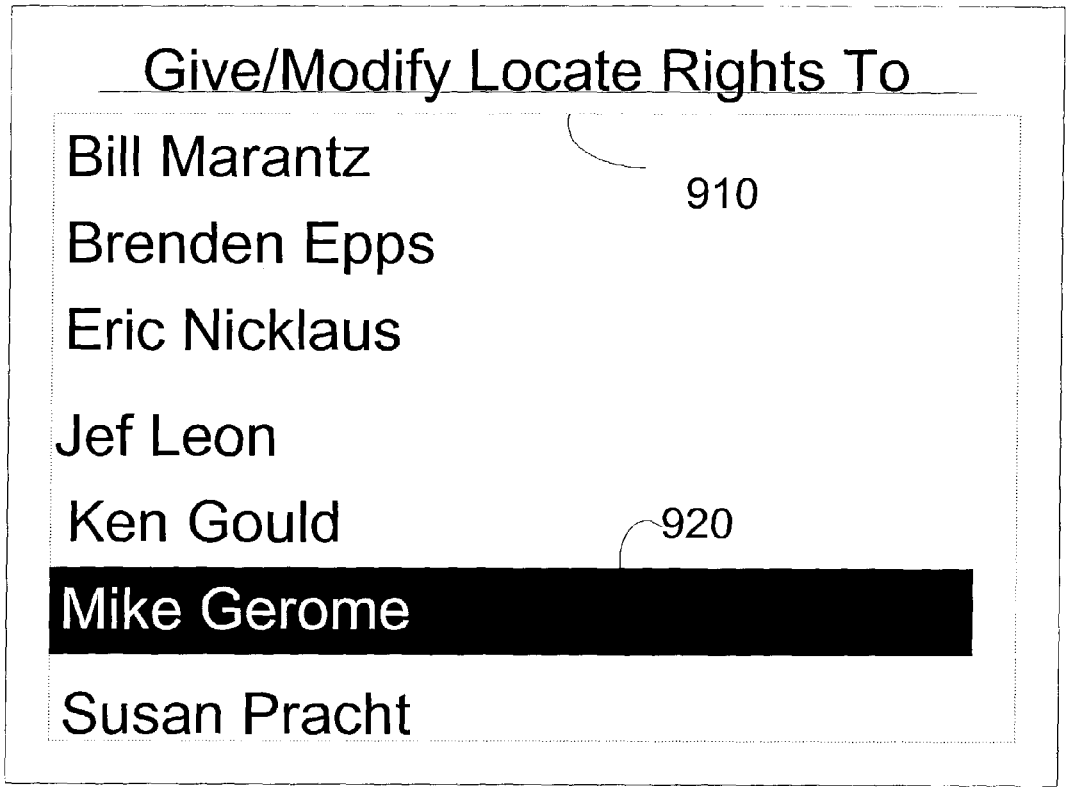

Give/Modify Locate Rights To
Bill Marantz
Brenden Epps
Eric Nicklaus
Jef Leon
Ken Gould
Mike Gerome
Susan Pracht
910
920
900

FIG. 9

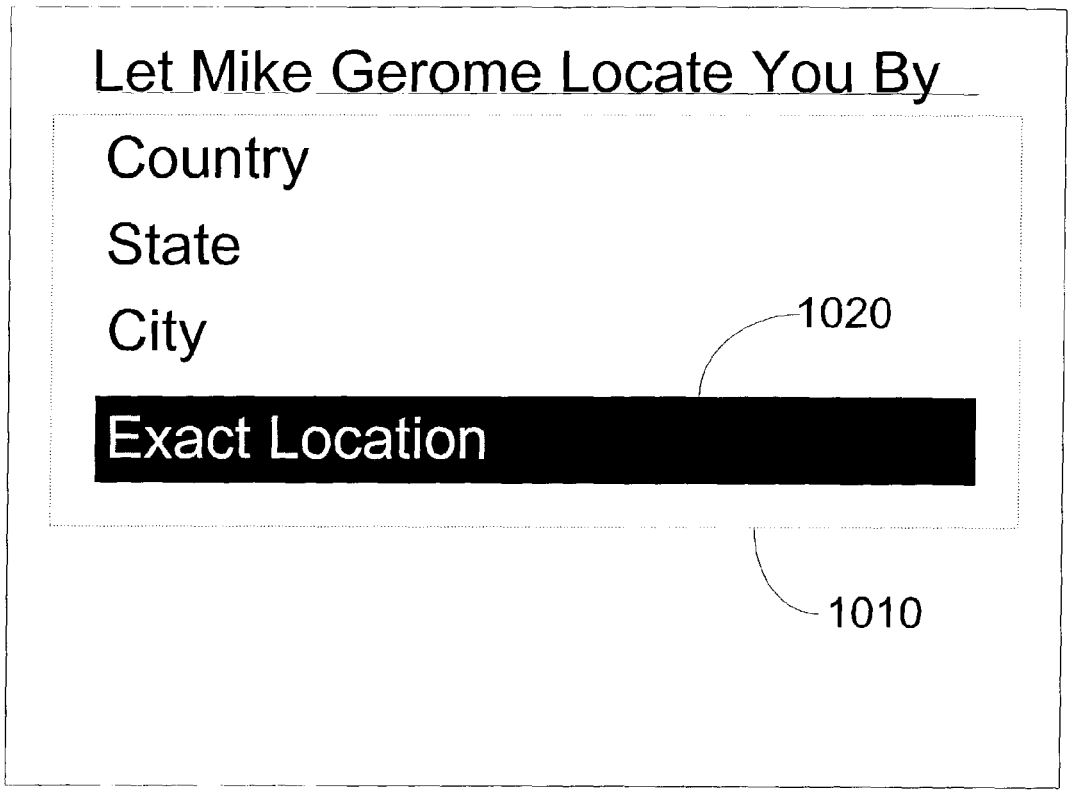

Let Mike Gerome Locate You By
Country
State
City
Exact Location
1020
1010
1000

FIG. 10

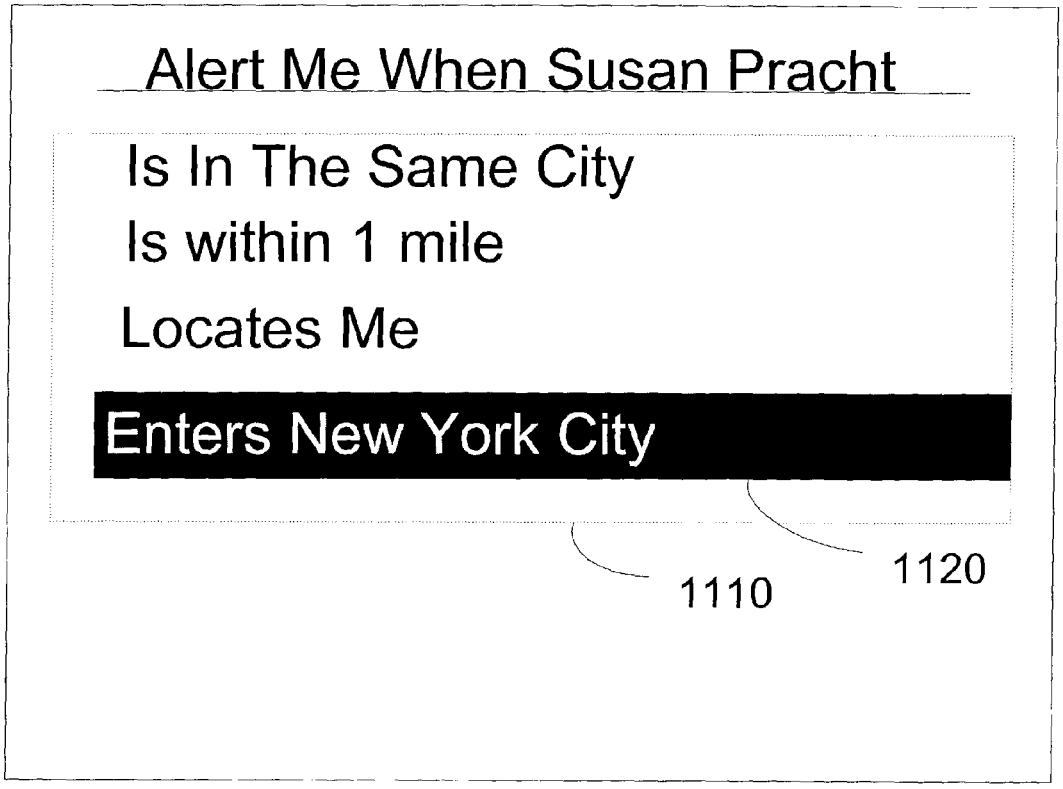

Alert Me When Susan Pracht
Is In The Same City
Is within 1 mile
Locates Me
Enters New York City
1110
1120
1100

FIG. 11

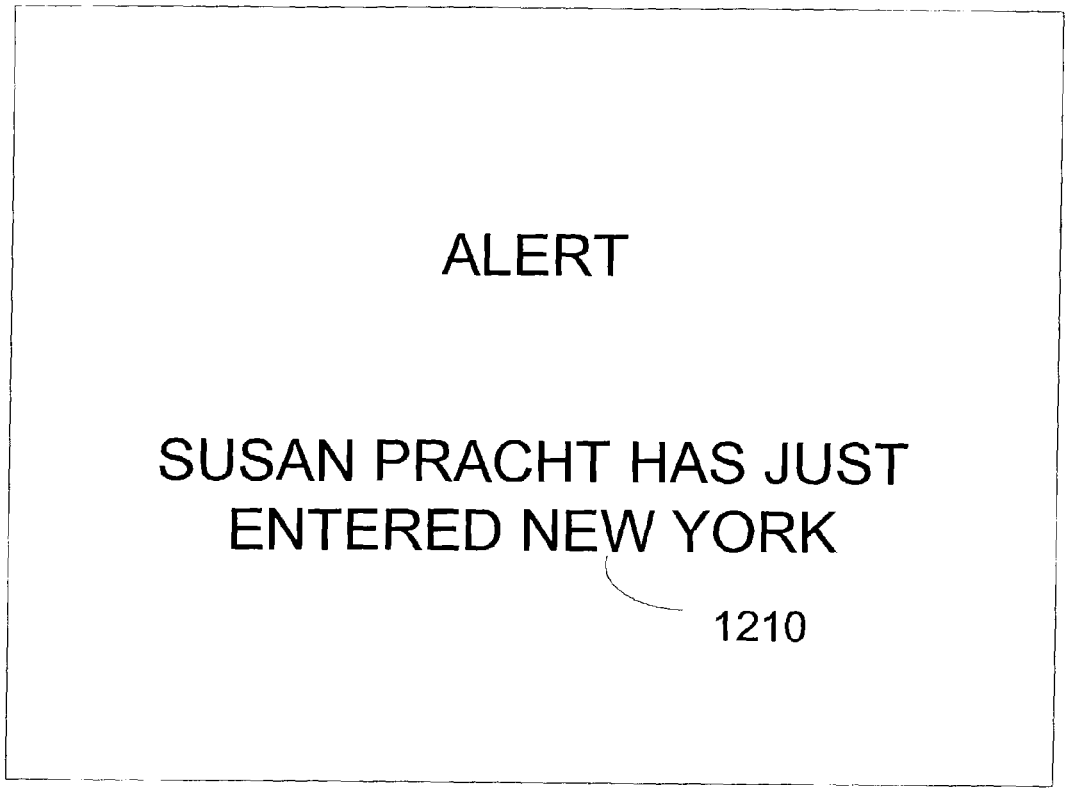


FIG. 12

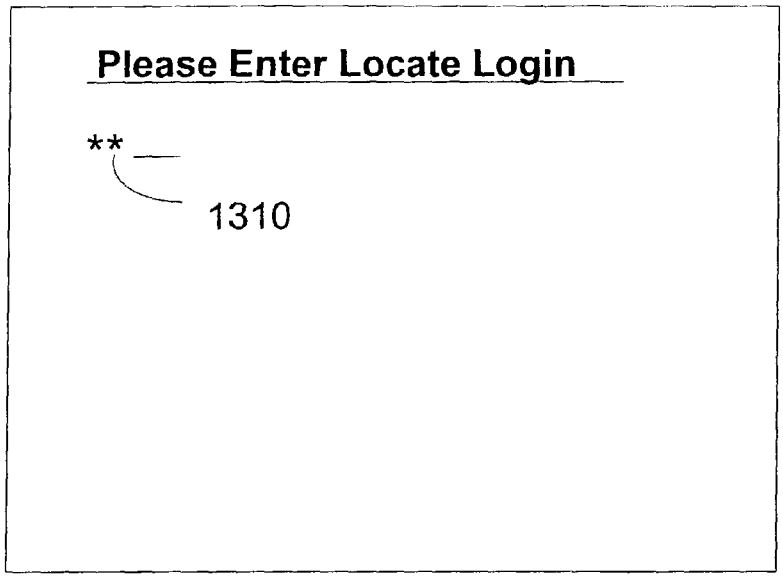

Please Enter Locate Login
**
1310
1300

FIG. 13

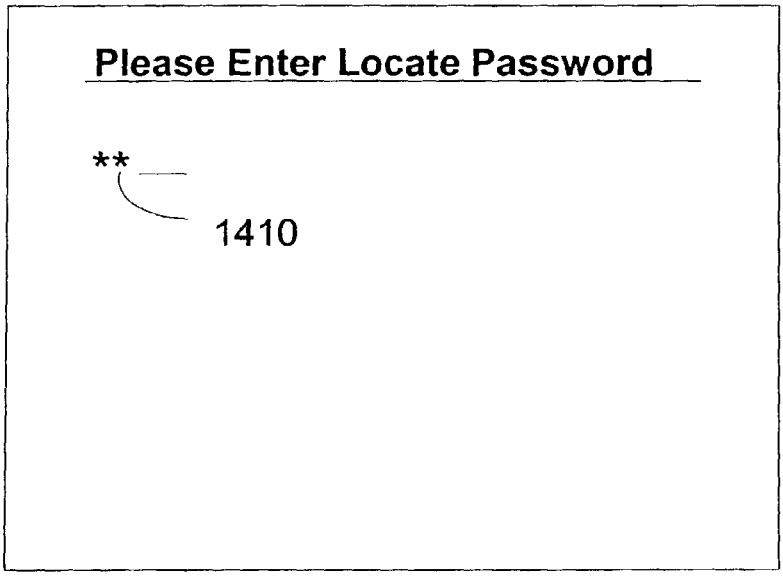

Please Enter Locate Password
**
1410
1400

FIG. 14

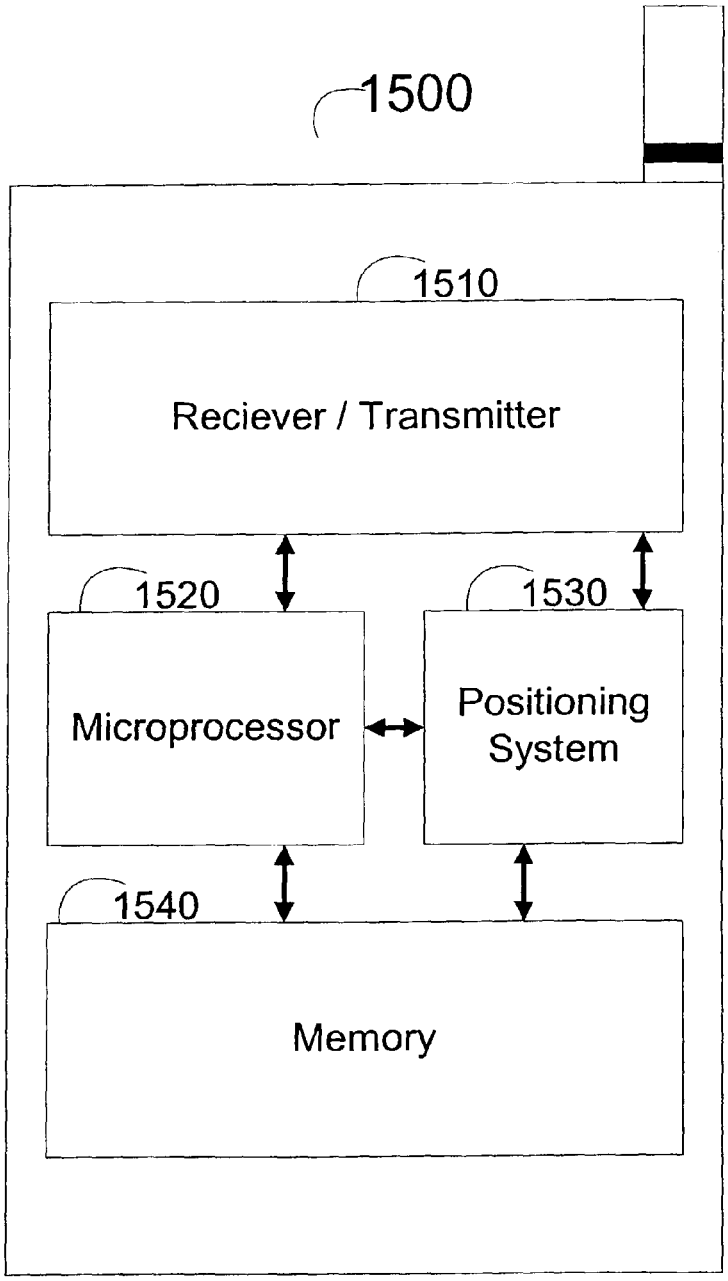

1500
1510
Reciever / Transmitter
1520
1530
Microprocessor
Positioning System
1540
Memory

FIG. 15

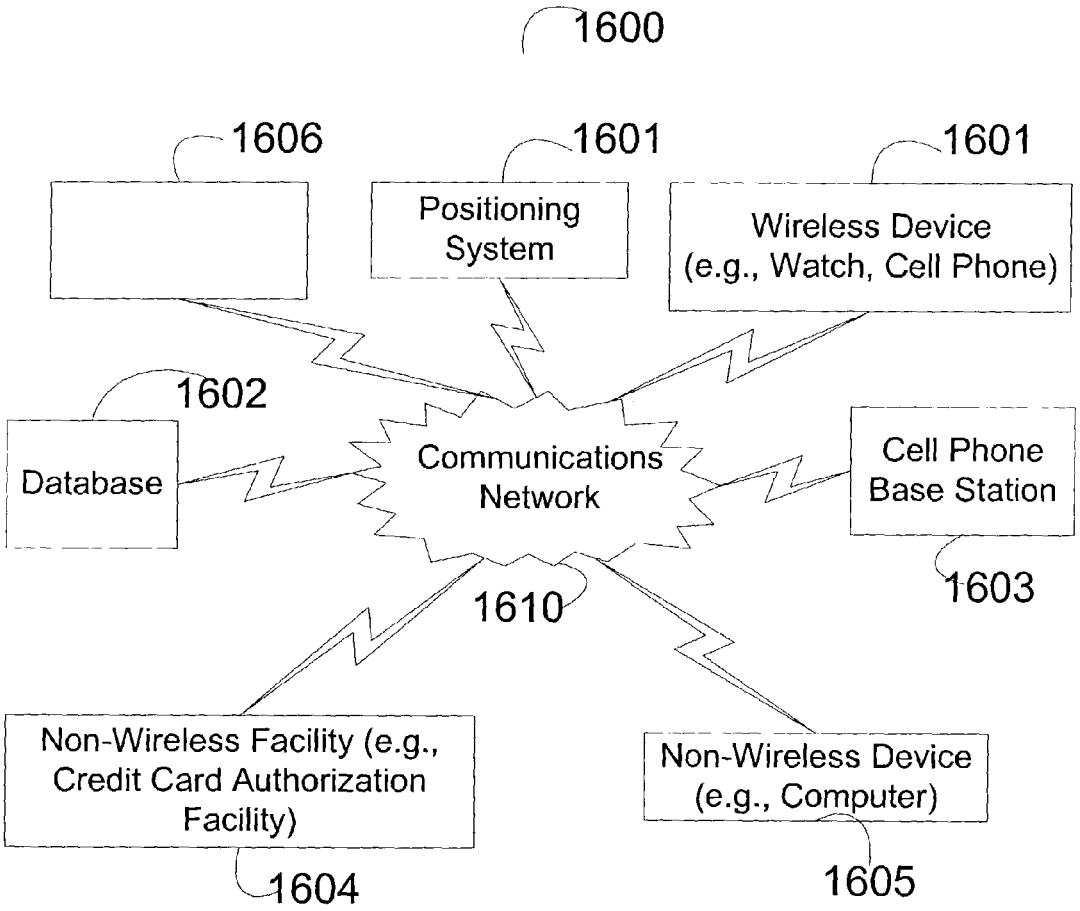

1600
1606
1601
1601
Positioning System
Wireless Device (e.g., Watch, Cell Phone)
1602
Database
Communications Network
Cell Phone Base Station
1603
1610
Non-Wireless Facility (e.g., Credit Card Authorization Facility)
Non-Wireless Device (e.g., Computer)
1604
1605

FIG. 16

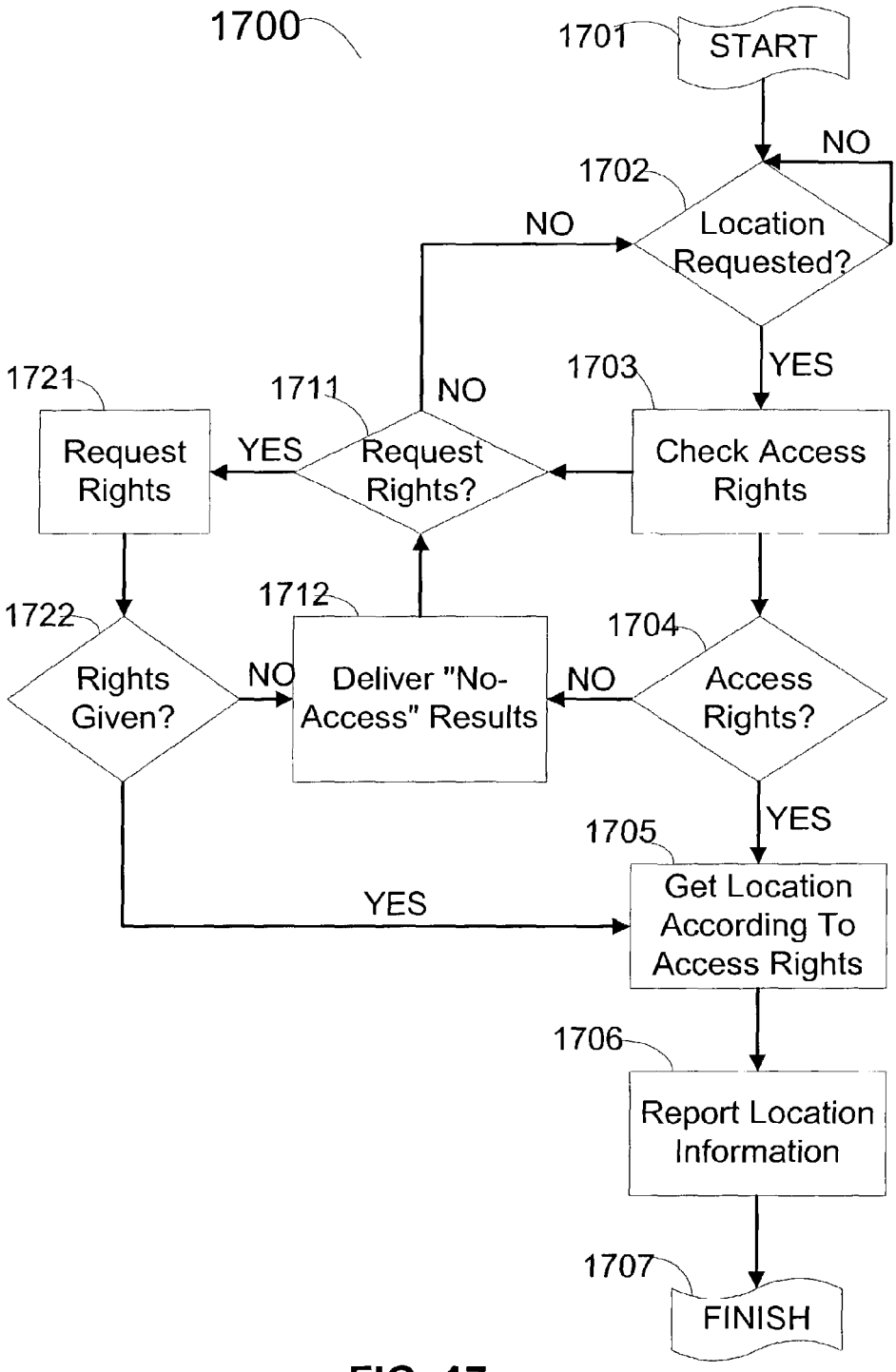

1700
1701
START
NO
1702
Location Requested?
NO
YES
1703
Check Access Rights
1711
NO
Request Rights?
YES
1721
Request Rights
1712
1722
Rights Given?
NO
Deliver "No-Access" Results
NO
1704
Access Rights?
YES
1705
YES
Get Location According To Access Rights
1706
Report Location Information
1707
FINISH

FIG. 17

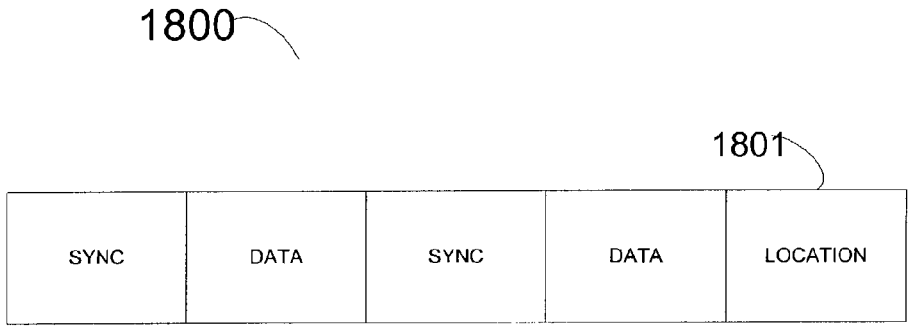


FIG. 18

SYSTEMS AND METHODS FOR LOCATING CELLULAR PHONES AND SECURITY MEASURES FOR THE SAME

CROSS-REFERENCE TO RELATED APPLICATIONS

This application is a continuation of U.S. patent application Ser. No. 10/400,296, filed on Mar. 25, 2003, which claims the benefit of U.S. Provisional Application No. 60/367,967, filed on Mar. 25, 2002, both of which are incorporated by reference herein in their entirety.

BACKGROUND OF THE INVENTION

This invention relates to systems and methods for determining a device's location. More particularly, this invention relates to systems and methods for remotely determining a device's location.

The Global Positioning System (GPS) has been developed in which a ground-based system can receive GPS signals from satellites and determine its location based on the time that it takes the GPS signals to reach the ground-based system. Generally, three satellite signals are needed to determine where in the world a receiver is located (i.e., position triangulation).

GPS systems have been integrated into cellular phones. However, these systems are deficient because the location of a device that is determined by these GPS signals are only minimally utilized. It is therefore desirable to provide systems and methods which better utilize the information about a device's location.

SUMMARY OF THE INVENTION

In accordance with the present invention, systems and methods are provided for locating cellular phones. More particularly, the present invention provides systems and methods for allowing a user of a cellular phone (e.g., a requesting user or a requester) to locate the position of a different user's cellular phone (e.g., a requested user) based upon requestor-assigned access rights.

One object of the present invention is to provide a security feature which allows a user to limit and/or deny location access to a particular user. In preferred embodiments, only the users that have been granted access to the location of a user's cellular phone can actually locate that user's cellular phone. Furthermore, different types of access levels may be provided that allow a user to filter location information to a different user. In this manner, a cell phone user may give access, through his or her cell phone, to a friend so that the friend can locate him or her dependent on the level of access that is granted to that friend.

For example, suppose that Phil tells Bill that he will be shopping in Manhattan and that Bill should locate him when Bill gets to Manhattan through their cell phones. In such an example, Phil may grant Bill access the exact location of his cell phone for a specific period of time (e.g., the next two hours). As a result, when Bill tries to access Phil's location, Bill will be told exactly where in Manhattan Phil's cell phone is located. Thus, Bill does not have to contact Phil directly to see where he is and, therefore, Phil does not have to spend any time giving Bill verbal directions; Bill can simply see what store Phil is currently in and go to it.

As mentioned previously, levels in the scope of access may be controlled by a user such that, for example, only a user's exact location, approximate location, city, state, or country can be accessed by a particular user.

Location alerts and monitoring features are also provided. For example, Phil may give Jen, a resident of Pittsburgh, city access so that when Phil travels into Pittsburgh, Jen will be alerted of Phil's presence. Such an alert may take the form of, for example, a display on Jen's cell phone that communicates to Jen "Phil is in Pittsburgh."

Locating a cellular phone may be accomplished in several ways. For example, satellite positioning systems such as the Global Positional System and the soon to be deployed Galileo system may be used to locate a user's cell phone.

User positions and security settings may be regularly or manually transmitted to a remote system, such a remote database so that requesting users can locate a requested user's position even if the requested user turns his/her cell phone OFF. Placing the security measures on a remote system (e.g., remote database, computer, or server) provides an information brokering scheme such that the system is still operable even when cell phones are added, removed, or modified from the system.

Additionally, the present invention may be configured to provide additional information about the location of a user. Such additional information may be, for example, a map, a location marker on a map, a map that changes as the user moves, a compass, coordinates of the located cell phone, directions to the located cell phone, where a user is in relation to another user, and information about the location the located user is currently positioned in or nearby locations such as landmarks. Such information may be provided by a remote information provider (e.g., a remote map information provider) and accessed by an information broker through a communications network.

Many other features are also employed that realizes advantageous locating functionality. As per an example, suppose that a wife wants to see if her husband has left work yet. She can locate her husband, without having to talk to him, and realize that he is driving home on a highway. Thus, a travel time option may be provided to the user. This option would compute the distance between the wife's location and husband's location by taking multiple location readings of the husband's location to see how fast the husband is traveling. Alternatively, because the husband's position will map to a highway, the system may assume that the user is driving and may provide the wife with an estimate on the husband's arrival time based on an assumed route. In this manner, the present invention may determine how much time it will take the husband to reach the wife and display this information to the wife.

As per other examples, a "see my friends" option may also be provided that brings up a map of a desired area. Dots or symbols may be present on the map to signify the location of all user's from which the requesting user has location information for. Similarly, a "find closest friend" option may be employed which finds the closest user with which the requesting user has location access to.

A cell phone location may by accessed by a variety of other devices. Alternatively, a cell phone may be used to access the location of a variety of other devices. For example, if the wife was at home, that wife may connect to the internet and access a remote database to either provide the most recent location information about the husband's cell phone to her or request a location update from the husband's cell phone. The wife's location may be already stored in such a database by associating the location to the IP address of the computer or by a manual input of the wife's location. The wife's identity may be determined by, for

example, a login and password on a website. Thus, the above-identified security measures are not limited to device-to-device locating rather user to user locating; the wife may only access the husband's location if the husband has granted access for the wife to do so. If, by accident, the wife's cell phone breaks, she may login on a friend's cell phone and determine the husband's location according to the device that the husband is logged into.

Security is preferably taken into account in the present invention and, therefore, location rights for a specific user may be given to a different user only by that specific user. However, a user may request location access rights from a different user. For example, a user may be provided with a request location screen on his cell phone and that user (e.g., user "X") may enter in the cell phone number of the cell phone whose location is desired. The user associated to the entered cell phone number may then receive an alert that says "user X has requested access to your location." Location access may then be given or denied on multiple levels and the requesting user notified of the decision.

The location feature of the present invention may be turned ON or OFF at any time. Users may be added, individually or in groups, to a list of users with location access rights to a specific user by that specific user. A specific user may, at any time, modify, delete, or add users allowed to access his or her location. Login and password information may be included to increase security or to create a user profile, allowing a specific user to log into any cell phone and be recognize by the present invention (and thereby be located with that cell phone or locatable device).

BRIEF DESCRIPTION OF THE DRAWINGS

The principles and advantages of the present invention can be more clearly understood from the following detailed description considered in conjunction with the following drawings, in which the same reference numerals denote the same structural elements throughout, and in which:

FIG. **1** is a network topology of a cell phone locating network in accordance with the principles of the present invention;

FIG. **2** is a flow chart of the locating feature in accordance with the principles of the present invention;

FIG. **3** is an illustration of a cell phone in accordance with the principles of the present invention;

FIG. **4** is a display screen for a locate feature in accordance with the principles of the present invention;

FIG. **5** is a display screen for a retrieving location status feature in accordance with the principles of the present invention;

FIG. **6** is a display screen for a displaying location feature in accordance with the principles of the present invention;

FIG. **7** is a display screen listing options for a locate feature in accordance with the principles of the present invention;

FIG. **8** is a display screen of a failed locate feature due to insufficient rights in accordance with the principles of the present invention;

FIG. **9** is a display screen of adding and modifying locate rights and options to a user in accordance with the principles of the present invention;

FIG. **10** is a display screen of assigning location rights to a user in accordance with the principles of the present invention;

FIG. **11** is a display screen of alert options in accordance with the principles of the present invention;

FIG. **12** is a display screen of an alert feature in accordance with the principles of the present invention;

FIG. **13** is a display screen of a login feature in accordance with the principles of the present invention;

FIG. **14** is a display screen of a login feature in accordance with the principles of the present invention;

FIG. **15** is a wireless device in accordance with the principles of the present invention;

FIG. **16** is an embodiment of a network topology in accordance with the principles of the present invention;

FIG. **17** is an embodiment of a locating feature in accordance with the principles of the present invention; and

FIG. **18** is an embodiment of a communications signal in accordance with the principles of the present invention.

DETAILED DESCRIPTION OF THE INVENTION

FIG. **1** depicts a network topology of device location network **100** incorporating principles of the present invention. Network **100** includes one or more positioning satellites **110**, **112**, and **114** that can locate the position of one or more cell phones **120**, **122**, **126**, and **124** (and other locatable devices) on Earth **101**. Positioning satellites **110**, **112**, and **114** may be, for example, the Global Positioning System (GPS) or the upcoming Galileo satellite network.

Preferably, any cell phone in network **100** may locate a different cell phone, as long as access to location information is allowed, through the utilization of positioning satellites **110**, **112**, and **114**. Persons skilled in the art will appreciate that other positioning systems and methods may be used in locating the position of a user on a cell phone of network **100**.

To route information to and from a cell phone of network **100** additional facilities and communication paths may be included. For example, a main facility (not shown in FIG. **1**) containing user location access rights may be included in network **100**. Such a main facility may retrieve location information directly from a positioning system or a cellular phone and then route this information to a cellular phone or positioning system.

Persons skilled in the art will appreciate that if the Global Positioning System (GPS) is used as the positioning system then GPS receivers will be incorporated into cellular phones of the present invention. Persons skilled in the art will also appreciate that devices other than cellular phones may include positioning features. For example, watches, clothing, laptop computers, personal digital assistants (PDAs), may all contain location systems (e.g., GPS) and utilize the security principles of the present invention to allow different user's to access these locations.

FIG. **2** shows flow chart **200** of a simplified locating feature constructed in accordance with the principles of the present invention. Step **202** initiates when a user requests the location of another user's cell phone. Step **206** evaluates if the user initiating the location request has the rights to access the location of the desired user. If no access rights for the requesting user have been granted then step **204** will preferably inform the requesting user that he/she has not been given access to the requested location. In this manner, every user may assign rights (e.g. govern the security) to whom may or may not locate him/her. In preferred embodiments, these rights will be stored in, or functionality executed from, a remote facility and accessed and utilized by a user's cell phone or other requesting device (e.g., a watch or PDA).

If access has been given by a particular user that allows for the requesting user to locate that particular user, step **208**

is initiated and the allowed location information is provided to the user in step **210**. Step **208** may optionally filter the location information such that only a portion information is passed to the requesting user. The requested user may have, for example, defined that the requesting user only can obtain the city, state, or country of his/her location. Persons skilled in the art will appreciate that only the location of the desired user needs to have a cell phone or a positioning system. The requesting user may user other means (e.g., the internet) to request the location of the desired user.

Persons skilled in the art will appreciate that the location of a user's cell phone may be retrieved, in step **208**, from a remote database, facility, distribution center, or any other system. More particularly, a remote database may periodically request the location of a cell phone user with a positioning system and store this information. This database may also keep a record of those people allowed to access that user's location, the extent to which access is allowed, and the extent to which a user has requested a user's location. A user may update, add, manipulate, or remove access at any time by doing so at this database. Thus, a requesting user only has to contact the remote database, have his/her identity recognized, have his/her access rights for the requested user location determined, and, if the requesting user has the correct access rights, be provided with the requested user's location.

Instead of a remote database periodically obtaining location information for a user, the database can obtain a user's locations when a request is made for that user's location, providing the requesting user has access to the requested user's location. However, persons skilled in the art will recognize that a remote database is utilized in the above examples that contains the locations, in most circumstances, of a multitude of users. Thus, to increase security even more, a requesting user's cell phone may directly request a user's location from the requested user's cell phone without the need for a database. In such an example a user adds, manipulates, or removes access rights locally on his/her cell phone and does not have to worry about security issues that surround placing his location on a remote database. Furthermore, in such an embodiment a user's location does not have to be saved anywhere, a positioning system can just be "read" by a requesting user with the appropriate access rights.

However, by recording a user's location on a device, e.g., a cell phone's memory or in a remote database, novel applications may be utilized. For example, whenever a user makes a credit card purchase, a credit card authorization system can record the location of a cell phone associated to the purchasing user. In this manner, a new system and method of fraud protection is introduced. The credit card authorization system may, for example, reject a purchase if the purchaser's cell phone (or watch, clothing, PDA, or other positioning enabled device) is not in the vicinity of the purchase. Alternatively, the credit card authorization system may request a second form of identification if the purchaser's cell phone location does not correlate to the location of the purchase. Additionally, the credit card authorization system may call the purchaser's cell phone and request authorization for the credit card purchase. However, such features would preferably first involve the user/purchaser giving the credit card authorization system access to the location of his/her cell phone.

As per another application, a unique dating/matching service could be embodied. For example, a user may store a number of preferences in a matching profile. These preferences may describe what type of person he is interested in meeting. Additionally, a user may store, preferably locally (for the dating/matching feature) but alternatively at a remote location, his/her own profile that has data describing similar attributes for what he/she is looking for. For example, an entry in a user's profile may be "male" and an entry in "looking for" profile may be "female." When a user comes within a certain distance of a user (determined by comparing locations of a user) that fits his/her "looking for" profile, the user may be alerted of the proximity of a matching user. Preferably, the particular user is only alerted if the "looking for" user has entered in attributes similar to the particular user's attributes and is also alerted of the particular user. The next stages of such an application could include, for example, requesting access to a form of communication. Such a form of communication could be for example, talking on the phone, instant messaging, or delivering an email address. Persons skilled in the art will therefore appreciate that many useful applications may be constructed using the principles of the present invention.

FIG. **3** depicts cell phone **300** constructed in accordance with the principles of the present invention. Cell Phone **300** preferably includes speaker **330**, antenna **310**, display screen **320**, control keys **360**, alpha-numeric keys **350**, and microphone **340**. Cell phone **300** also preferably may include, for example, a communications transmitter (not shown), communications receiver (not shown), memory (not shown), positioning device (not shown), and a microprocessor (not shown).

Cell phone **300** may also include locate button **380**. Cell phone **300** may be configured such that if locate button **380** is pressed, a locate feature is initiated (e.g., display screen **400** of FIG. **4** is initiated). Alternatively, cell phone **300** may be configured such that if locate button **380** is pressed, a location signal is sent to a remote storage area (e.g., a remote database), thus manually updating the user's location. This latter functionality may be useful when a user does not want his/her location accessed. As in another alternative embodiment, cell phone **380** may be configured such that if locate button **380** is pressed, the locating features of cell phone **300** are toggled between ON and OFF. Person skilled in the art will appreciate that locate button **380** may be configured to produce a variety of useful functionalities.

FIG. **4** depicts display screen **400** that is displaying a locate feature constructed in accordance with the principles of the present invention. The locate feature of display screen **400** may be included, for example, in cell phone **300** of FIG. **3** and displayed to the user of cell phone **300** of FIG. **3** when that user requests the location of a different user of the present invention. The programming for the feature may, for example, be stored in the memory of the cell phone and executed by the processor at a user's request. Locate Feature **400** includes identifier list **410** of alpha-numeric identifiers for users stored in the memory on cell phone **300** (FIG. **3**) or at a remote location. More particularly the user of display **410** may locate a user contained in identifier list **410** by selecting an appropriate user identifier **420**.

The user identifiers (e.g., "Susan Pracht") in identifier list **410** are selectable and may be selected by control keys **360** of FIG. **3**. Highlight window **410** may be used to prompt the user what identifier from list **410** is currently selected any may be controlled, for example, by the input keys of the cell phone (e.g., keys **350** and **360** of FIG. **3**). Identifiers may be associated to, for example, cellular telephone number, user profiles, or any other identifier that may be associated to a locatable device or user interacting with a locatable device.

Persons skilled in the art will appreciate that display screen **400** may be provided to a user of devices other than

wireless devices. For example, display screen **410** may be provided to a user of a personal computer with no positioning system. Preferably, however, the security measures in accordance with the principles of the present invention are still abided to (e.g., access has been granted to the identifier associated to the requesting user). In this manner, a user can control who can access his/her wireless device (e.g., cell phone).

Persons skilled in the art will appreciate that identifier list **410** may be configured, for example, to contain only those users in which the user of cell phone **300** (FIG. **3**) has locate access rights to or any user stored in cell phone **300**. Persons skilled in the art will also appreciate that devices other than cell phone **300** may be used to incorporate the features of the present invention. Such devices could include, for example, personal digital assistants (PDAs), laptop, GPS pagers, GPS watches, car positioning devices, or any other devices that can be located. One advantage of the present invention is that it allows a mobile device with a positioning system to locate a different mobile device with a positioning system while still retaining a high level of location security and privacy.

FIG. **5** is display screen **500** for retrieving location status feature in accordance with the principles of the present invention. The selected identifier may be incorporated into display screen **500** through location status display **510** to inform the user of the status of the location retrieval. For example, display screen **500** may display "locating user" while a request is being processed by a remote facility or database.

FIG. **6** shoes display screen **600** for a display location feature constructed in accordance with the principles of the present invention. When a location is retrieved for the requested user, the location may be displayed on Display Screen **600** through primary location information **610**. Depending on what scope the requesting user has access to primary location information **610** may include, for example, the country, state, city, exact location, or any combination thereof of location information to the user. For example, if the user requesting the location of a desired user has been given unlimited location access by the desired user, primary information **610** may include the exact location of the user.

Secondary location information **620** may be included to supplement the requested users exact location so that the requesting user may have more of an idea of where the requested user is located. For example, if the desired user is located in a mall, primary location information **610** may be the address of the mall. In such an example, secondary location information **620** may be included and display, to the requesting user, the name of the mall.

Directional information **630** may also be included on display **600** or any other display of the present invention. Directional information **630** may include a digital compass **632** so that the user of cell phone **300** (FIG. **3**) knows what direction he or she is facing in. Digital compass **632** may be connected to a direction sensitive device (e.g, mechanical compass) in order to gather directional information. Directional arrow **633** may also be included in Display **600** to indicate where the requested user's location is relative to the location and direction of cell phone **300** (FIG. **3**) (e.g, the requesting user). Persons skilled in the art will appreciate that for some directional information **630** the location of the requesting user must be obtained. This information may be obtained either from cell phone **300**, a remote facility, or by any other suitable means. If the information is gathered from a location gathering device other than the requesting user's device (e.g, cell phone **300** (FIG. **3**)), then the user's device may communicate from this other location gathering device. Once both the locations of the requesting and requested/desired users are known, this information may be utilized in a number of features incorporating the principles of the present invention.

Distance information **634** is one such feature that displays the distance between the locations of the requested and requesting users (e.g., distance between the locations of the requested and requesting devices). Directional information **630** may contain many other elements to enhance the utility of the present invention. For example, a map (not shown in FIG. **6**) may be included in display **600**. This map may be of the area surrounding either the requested, the requesting user's location or both. Information may be included on the map to show the shortest path between the location as well as information about the surrounding area (e.g, area names, store names, etc.). Other information may include, for example, time to reach the destination according to specific types of travel (e.g, subway, walking, running, driving) and the direction the requested user is traveling in.

Many uses for this information may be utilized by a user. For example, if Jane calls Bill and Bill says "I am roaming midtown manhattan shopping why don't you join me", no other call to Bill is needed. Bill simply has to give Jane access to his location and Bill can continue shopping without having to worry about meeting up with Jane at a specific location.

In some instances, it may be beneficial to find the speed and direction of a requested user. For example, if a wife wants to see how long before her husband arrives home, the wife can use this feature of the present invention. This feature may find the husbands location multiple times in a determined amount of time. Through this information the feature may determine the speed and direction that the user is traveling. Using this speed, for example, this feature may display to the wife that the husband "is 10 minutes away" in directional information **630**. In doing so, the need for a call to the husband to determine his location is eliminated.

Persons skilled in the art that the location of multiple users may be displayed on display screen **600**. For example, suppose Jeff, Susan, and Chrissy are at a concert. If all three of these users have unlimited access to the other users, principles of the present invention would allow for a map to be displayed on each of the three locating devices with locator designations for each of the users. Using such map, the group may be able to find themselves in relative location to one another and decide, if need be, on the easiest location for them to meet. Thus map **660** may be included on display screen **600** and display the locations of multiple users (e.g., user's **621** and **622**).

More region **640** designates that more options or information may be retrieved or performed using principles of the present invention. A user may use control keys **340** (FIG. **3**) on cell phone **300** (FIG. **3**) to perform the functionality associated with more region **640**.

FIG. **7** shows display screen **700** for locate listing options in accordance with the principles of the present invention. Display screen **700** includes selectable options list **710** and highlight window **720** and may be displayed to the user, for example, through the activation of functionality associated by more region **640** (FIG. **6**). Options list **710** may include any of the features of the present invention. For example, options list **710** may include options activating a display screen of a map of the requesting user's location, a map of the requested user's location, directions to the requested user's location from the requesting user's location, travel

time for the requesting user, travel time for the requested user, and options to set location alerts.

FIG. **8** shows display screen **800** of a failed locate feature due to insufficient rights in accordance with the principles of the present invention. Display scree **800** may be displayed if a requesting user attempts to located a requested user but has not been given access rights by the request user to his or her location. In such an instance insufficient rights message **801** may be prompted on display screen **800**.

FIG. **9** shows display screen **900** of adding and modifying locate rights and options to a user in accordance with the principles of the present invention. A user may give or modify access rights through display **900** to a user identifier in selectable user identifier listing **910**. Highlight window **920** may be included to enhance the selecting process.

FIG. **10** shows display screen **1000** of assigning location rights to a user in accordance with the principles of the present invention. Display screen **1000** may be displayed, for example, after a user has been selected to be given location rights. Display screen **1000** contains selectable location rights listing **1010**, in which the selecting process may be enhanced by highlight window **1020**. Possible location access rights may be, for example, by country, state, city, exact location, or any other scope of location. Other rights may be assigned such as particular times in the day or time periods at which locations may be accessed.

FIG. **11** shows display screen **1100** of alert options in accordance with the principles of the present invention. Display screen **1100** allows for a user to set up alerts depending on the location of specific users. Selectable alert listings **1110** are included and may be selectable with highlight window **1120**. Examples of alerts that may be included in display screen **1100** may occur, for example, if the requested user is in a specific city or the same city as the user of display **1100**, is within a certain distance, or if a user located the user of display **1100**.

The alerts of the present invention may realize useful functionality. For example, suppose Susan Pracht lives in Pittsburgh and rarely comes to the city of the user of display screen **1100** on cell phone **300** (FIG. **3**) which is New York City. The user of cell phone **300** (FIG. **3**) may then use display screen **1100** and set an alert such that if Susan Pracht ever enters New York City, he or she would be alerted of Susan Pracht's presence.

FIG. **12** shows display screen **1200** of an alert feature in accordance with the principles of the present invention. Display screen **1200** includes an alert message and is displayed to a user when an event occurs that is designated by the user in display screen **1100** (FIG. **11**). Continuing the example from FIG. **11**, if Susan Pracht enters New York City, alert message **1210** would prompt the user that this event has occurred.

FIG. **13** shows display screen **1300** of a login feature in accordance with the principles of the present invention. In order for users to be identified by other user's cell phones or locating devices a user profile may need to be stored remotely from such devices. In such instances user profiles would be used as the locating identifier and the devices into which these profiles are logged into (recognized by) would allow for the user to be located. Display screen **1300** allows for a user to log into a locating device of the present invention. Logging into a device also adds a level of security to the present invention, especially when combined with a password. A user may use the controls of the device of the present invention to enter login **1310** of display **1300**.

In this manner a user may use another user's location device (e.g., cell phone) to locate a user or may use, for example, the internet to locate a user. Additionally, in this manner, a user may change the device being located. For example, a user may use his or her car GPS system or other systems in accordance with the principles of the present invention to be located instead of his or her cell phone. To further this example, a user may log into a web site on the internet and designate his or her current location as home, or any other location, thus eliminating the need for locatable device entirely.

FIG. **14** shows display screen **1400** of a login feature in accordance with the principles of the present invention. Display screen **1400** may be used by a user to enter a password associated to his profile, identity, or cell phone functionality access. A user may enter password **1410** using the controls of the device of display screen **1400** (e.g., cell phone **300** of FIG. **3**). By including a login/password scheme a user can be identified by a remote facility (e.g., a remote database) so that the user's location can be recorded/updated by multiple devices. Additionally, a login/password adds an extra level of security.

FIG. **15** shows cell phone **1500** that may be utilized to carry out the functionality in accordance with the principles of the present invention. Cell phone **1500** includes receiver/transmitter **1510**, microprocessor **1520**, positioning system **1530**, and memory **1540**.

Persons skilled in the art will appreciate that receiver/transmitter **1510** may directly communicate with memory **1540** if receiver/transmitter **1510** does not have its own memory (e.g., if receiver/transmitter **1510** are configured to utilize a buffer for capturing incoming communications bursts before demodulation and decryptions).

Positioning system **1530** may be, for example, a GPS system or a similar positioning system. Positioning system **1530** may include its own receiver for receiving particular signals utilized in positioning cell phone **1500**.

FIG. **16** shows network topology **1600**, in which all components of, or a part of the components of, may be utilized to carry out the features in accordance with the principles of the present invention. In this manner, persons skilled in the art will appreciate that multiple system configurations may be utilized. Topology **1600** introduces the diversity of systems that can be utilized to realize such configurations.

Generally, topology **1600** includes multiple mobile devices (e.g., multiple instances of mobile device **1601**), access control devices and location broker devices (e.g., database **1602** and cell phone base station **1603**), and non-mobile devices (e.g., grounded non-wireless device **1605**). Persons skilled in the art will appreciate that other devices or facilities may be included in topology **1600**. For example, one or more positioning systems **1601** may be included in topology **1600** in order to locate particular devices. For example, a positioning receiver (e.g., GPS receiver) may be included in wireless device **1601** with positing system **1601** being a positioning transmitter (e.g., GPS satellite network).

One or more wireless devices **1601** may be included in topology **1600** and may be, for example, watches, PDAs, cellular phones, radios, cars, or any other mobile device whose location can be determined.

As previously mentioned, access control and location broker devices may be included in topology **1600**. Such devices may be utilized, for example, to store user access rights for a particular user and may contain functionality to request and route a device's location. These devices may be considered information broker's such that devices may be

added, removed, or modified without creating the necessity of having to modify the other devices of topology **1600**.

Database **1602** is one such information broker. Database **1602** may, for example, be located in cell phone base station **1603** if database **1602** is utilized to assist in cell phone locating. Database **1602** may be utilized, for example, to store a history a of a device's locations, a user's list of assigned access rights to other users, a log of a user's call activity, a log of a location initiations, a user profile, login/password information, or any other sort of information. Many features may be provided that utilize such information, For example, n approximate location may be determined for a device that is turned OFF (e.g., by utilizing the device's location history). As per another example, if a cell phone is lost and a new one replaced, information such as, for example, phone books, activity logs, and assigned user access rights may be downloaded/flashed into the cell phone.

Database **1602** may be accessed either directly (e.g., manually by an user of the device) or indirectly (e.g., periodically) by a cell phone or other device. Alternatively, a device or cell phone may access database **1602** directly (e.g., manually by an administrator of the database) or indirectly (e.g., periodically) by database **1602**.

A credit card authorization system is an example of additional system **1606** that may be added to topology **1600** to realize new features. Such a credit card authorization system, as described above, could utilize a devices location in order to decrease credit card fraud. System **1600** may also be, for example, systems needed to realize the described dating functionalities or another information provider (e.g., a map information provider).

Non-wireless devices **1605** (e.g., a personal computer) may be included in topology **1600**. Such devices may have locations associated to them or contain a positioning system. These locations may then be associated to a user that is recognized as using the device. For example, if a particular user logs into a non-mobile personal computer, that user's location will be recognized as being the location associated to the personal computer.

The devices of topology **1600** communicate with each other through communications network **1610**. Communications network **1610** may include, for example, any type of communications, routing, amplification, encryption, decryption, parsing, modulation, or demodulation technologies. For example, positioning system **1601** may communicate with wireless device **1601** by sending multiple wireless positioning signals. At the same time, database **1602** may be providing non-wireless device **1605** with a device's location over conventional telephone wires.

FIG. **17** shows locating feature **1700** in accordance with the principles of the present invention. Locating feature **1701** starts at step **1701** and waits at step **1702** until a location is requested. As stated, a location can be requested in a number of instances and by a variety of different means.

For example, a location may be requested by a user of a cell phone that desires to locate a friend by locating that friend's cell phone. Alternatively, a device may be triggered to request a location of a mobile device when an event occurs. For example, a credit card authorization system may request the location of a user's cell phone and the location of a store that just used a credit card associated to the requested user.

If a location is requested, access rights to the requested location for the requesting device and/or user are obtained at step **1703**. Step **1703** may be employed for example, as a call to a database storing a list of assigned access rights for the requested device/user and finding if any access rights were assigned to the requestor's identity. As per another example, step **1703** may be employed as a direct call to the requested device/user.

Step **1704** determines if the requester has been assigned access rights to obtain the requested device/user's location. Persons skilled in the art will appreciate that some devices may always have access to a user's location regardless if a user has assigned access rights to the requesting device. In this manner, a device may be set up to always let a user access a location. For example, a mother may purchase a cell phone for a minor and may configure the cell phone to always allow her location information.

If access rights do exist for the requesting device/user at step **1704** then step **1705** may be initiated and location information may be provided to the requestor. Such location information may be filtered according to the assigned access rights. For example, if a user has only been assigned access rights to obtain the requested user's city location, only the city that the requested user/device is currently located in (or the last city location available) may be obtained. The process then finishes at step **1707** after the assigned location information has been delivered to the requester at step **1705**. Persons skilled in the art will appreciate that steps may be added to, removed, or modified from locating feature **1700**. For example, instead of finish step **1707**, step **1702** may be initiated after step **1706** has completed.

If a requester has not been assigned rights to access the requested user/device's location as determined by step **1704**, then step **1712** may be initiated. Step **1712** informs the requester that the requester does not have access rights to obtain the location of a user/device. Step **1711** may follow and provide an opportunity for the requester to obtain the access rights. More particularly, step **1711** asks the requester if the requester would like to request access rights. If the requester does not want to request access rights, locating feature **1700** may, for example, return to step **1702**. Else, access rights may be requested at step **1721**. Step **1722** follows and if access rights were given then step **1705** may be initiated. Else, step **1712** may, for example, be re-initiated.

FIG. **18** shows one embodiment of a cell phone burst that has been configured to embed a device or user's location **1801** between control signals (e.g., synchronization signals) and data signals. Persons skilled in the art will appreciate that some cell phone burst standards (e.g., TDMA and CDMA) have signal portions that are reserved for future technologies. In one embodiment, this reserved portion is utilized to house location information **1801**. A cell phone tower or base information may then strip received signals **1800** of location information **1801**, store location information **1801** into a database or other storage device, and deliver the received signals to its desired location. In this manner, a user may refresh his/her location information every time that a cell phone base station receives or routes information for the user. By stripping location information **1801** from signal **1800**, the intended receiver does not have access to the location of the device transmitting signal **1800**. A signal similar to signal **1800** may be sent to a cell phone that has requested, and has the appropriate location access rights, to location **1801**. Location **1701** may also be stored in other portions of signal **1700** that are not reserved portions. For example, a received signal **1800** may store location information in the data portions of signal **1800**. In embodiments where additional information is sent about location **1801** (e.g., a map associated with location **1801**) utilizing a main data portion of signal **1800** is preferred. Persons skilled in

the art will appreciate that signal burst **1800** may actually be any type of communication signal such as, for example, information returned from a database inquiry.

Persons skilled in the art will also appreciate that the systems and methods of the present invention may be implemented using other locating features and configurations. For example, a user may be manually requested to allow location access rights every time his/her location is requested. As per another example, a user may organize his/her user list into groups and assign access rights to that group (e.g., family member user group, close friend user group). All such modifications are within the scope of the present invention, which is limited only by the claims that follow.

What is claimed is:

1. A system comprising:

a remote system, wherein user information is operable to be identified from a plurality of different user information by receiving at least a manually entered login from a first wireless device associated with said user information and a manually entered password associated with said login, a location of said first wireless device is operable to be recorded on said remote system after said user information has been identified on said first wireless device and said location is associated with said user information and provided by said first wireless device to said remove server, a location-based event is operable to be provided based, at least in part, on said location of said first wireless device, wherein said located-based event is operable to be manually pre-selected from a list of at least three types of location-based events on a device, a location-based event notification is operable to be provided on said device as a result of, at least in part, location access rights of said device from said first wireless device, wherein a first one of said at least three types of location-based events is, at least in part, region-based, and a second one of said at least three types of location-based events is, at least in part, distance-based.

2. A system comprising:

a remote system operable to perform a trigger of a request of location information of a wireless telephonic device for a device at an occurrence of a location-based event based, at least in part, on a location of said wireless telephonic device, wherein said located-based event is operable to be manually pre-selected from a plurality of located-based events on a first screen of said device from a list of at least three types of location-based events, access rights are operable to be obtained for said device that are associated with accessing said location information of said first wireless device as a result of said trigger of said trigger a location-based event notification is operable to be provided on said device on a second display screen as a result of, at least in part, said trigger and said access rights, and a first one of said at least three types of location-based events is, at least in part, region-based, and a second one of said at least three types of location-based events is, at least in part, distance-based.

3. The system of claim **1**, further comprising a second device, wherein said second device is a second wireless device, said second device includes a global positioning system and a second location is provided by said global positioning system and said second location is stored on said remote system.

4. The system of claim **1**, wherein said first wireless device includes a first global positioning system that is operable to provide said location and a second device is provided that includes a second global positioning system that is operable to provide a second location, wherein said second location is stored on said remote system.

5. The system of claim **1**, wherein said access rights are associated with a second user information, and said access rights for said second user information are operable to be manually selected on a display screen from a list of at least four different user information.

6. The system of claim **1**, wherein said access rights are associated with a second user information, and said access rights for said second user information are operable to be manually selected on a display screen from a list of at least four different user information and a user name associated of said user information is displayed on and selectable from said display screen.

7. The system of claim **1**, wherein a display screen is provided on said first wireless device after said identifying of said user information on said first wireless device that includes a first selectable option for providing a first map associated with said location and a second selectable option for providing a second map associated with a third location of a third user information.

8. The system of claim **1**, wherein said first wireless device is operable after said identifying of said user information on said first wireless device to provide a first map associated with said location and a second map associated with a third location of a third user information.

9. The system of claim **1**, wherein said first wireless device is operable after said identifying of said user information on said first wireless device to provide a travel time between said location associated with said first user information and a third location associated with a third user information.

10. The system of claim **1**, wherein said first wireless device is operable after said identifying of said user information on said first wireless device to provide said location to a third user information filtered by a first type of geographic region or a second type of geographic region.

11. The system of claim **1**, wherein said first wireless device is operable after said identifying of said user information on said first wireless device to provide said location to a third user information filtered to by a first type of geographic region or a second type of geographic region, said first geographic region is a state and said second geographic region is a city.

12. The system of claim **1**, wherein said first wireless device is operable after said identifying of said user information on said first wireless device to provide said location to a third user information filtered by a first type of geographic region or an exact location.

13. The system of claim **1**, wherein said first wireless device is a first wireless telephonic device and said device is a telephonic device.

14. The system of claim **2**, wherein said access rights are operable to be selected from a list of selectable options including access to a type of geographic region or an exact location.

15. The system of claim **2**, wherein said access rights are operable to be selected from a list of selectable options including access to a first type of geographic region or a second type of geographic region.

16. The system of claim **2**, wherein said access rights are operable to be selected from a list of selectable options including at least two access options.

17. The system of claim **2**, wherein said access rights are operable to be selected from a list of selectable options including at least three access options.

18. The system of claim **2**, wherein said access rights are operable to be selected from include a list of selectable options including at least four access options.

19. The system of claim **2**, wherein a third display screen is operable to be provided on said device with a selectable option for providing a first map associated with said location information based on said access rights or a second map associated with second location information associated with said device.

* * * * *

UNITED STATES PATENT AND TRADEMARK OFFICE

CERTIFICATE OF CORRECTION

PATENT NO. : 11,096,039 B2
APPLICATION NO. : 11/841750
DATED : August 17, 2021
INVENTOR(S) : Jeffrey David Mullen

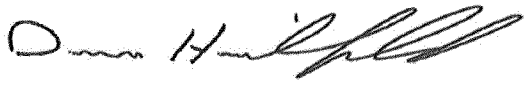
It is certified that error appears in the above-identified patent and that said Letters Patent is hereby corrected as shown below:

In the Claims

Claim 1, Column 13, Line 27: "said remove server" should read --said remote system--.

Claim 1, Column 13, Line 30: "located-based event" should read --location-based event--.

Signed and Sealed this
Seventh Day of December, 2021



Drew Hirshfeld
Performing the Functions and Duties of the
Under Secretary of Commerce for Intellectual Property and
Director of the United States Patent and Trademark Office

UNITED STATES PATENT AND TRADEMARK OFFICE

CERTIFICATE OF CORRECTION

PATENT NO. : 11,096,039 B2
APPLICATION NO. : 11/841750
DATED : August 17, 2021
INVENTOR(S) : Jeffrey David Mullen

It is certified that error appears in the above-identified patent and that said Letters Patent is hereby corrected as shown below:

On the Title Page

Item (63) In the Related U.S. Application Data:
"10/496,200" should read --10/400,296--.

Signed and Sealed this
Nineteenth Day of April, 2022

Katherine Kelly Vidal

Katherine Kelly Vidal
Director of the United States Patent and Trademark Office

EXHIBIT 6

Contact

www.linkedin.com/in/kylelhood (LinkedIn)

Top Skills

Graphics
Management
Sales

Kyle Hood

Engineering Manager at Samsung Electronics America
Sachse, Texas, United States

Summary

Committed, driven, hard-working individual. Creative thinker, problem solver, organized and analytical. Exceptional networking and leadership skills. Dedicated to maximizing potential and ongoing growth. Unique in complimenting technical aptitude with creative intuition.

Experience

Samsung Electronics America
9 years 10 months

Engineering Manager - Strategic Services
January 2020 - Present (4 years 7 months)
Plano, TX

Managing a team of 20 Engineers, strategizing and setting short + long term goals with KPIs for development and quality assurance of strategic services in Samsung Mobile Experience for Flagship Development devices such as Galaxy Z-Fold, Z-Flip, S-Series (S22, S21..) etc.

Team R&R Covers:
- Bixby (AI Voice Assistant): Voice Utterance, Client/Server update, Performance/Lab, New Features testing
- SmartThings / Internet of Things (IoT): Multi-Device Experience, SmartThings Find development testing + Bixby Compatibility testing and special projects
- Connected Car / Android Auto: BT, NFC, UWB Compatibility and functional testing + Direct Collaboration with all major US Car OEMs (i.e. Toyota, GM, Ford, Tesla...) and Usability Task force with HQ and Google Android Auto teams + Maintaining carkit compatibility test lab
- B2B Wi-Fi Compatibility, Mobile Hotspot (IEEE 802.11): Compatibility testing + Direct Collaboration with major US Wi-Fi OEMs (i.e. Netgear, Cisco, Arris, Amazon Eero..) + Maintaining Wi-Fi B2B Compatibility test lab

Sr. Engineer - Strategic Services / Artificial Intelligence (Bixby)
March 2019 - December 2019 (10 months)
Plano, Texas

Lead a team of 8 Engineers focused specifically on AI/Bixby 3rd Party Content, working together
with US Marketing, Project Management, Content & Services teams, as well as AI development
groups in Korea, India and California through entire development lifecyle and market launch.
Managed projects and capsules as PO, working with cross-functional teams that follow Agile &
Waterfall methodologies simultaneously. Strong proficiency in numerous Samsung proprietary
and widely used tools and systems such as Sharepoint, M-Wiki, CodeBeamer, MS Office, Slack,
WebEx, ADB; Samsung automation, issue tracking and project lifecycle management tools, etc.
Frequent presentations to VP levels from other groups to collaborate, escalate concerns &
strategies, optimize processes, propose solutions, track schedule and deliverables, etc.
Developed new strategies for app continuity and more for new Foldable form-factor android
devices (Galaxy Fold), as well as other iOS and android app side testing.
SME for AI – strong understanding of AI platform and its architecture (ASR, NLU, NLG, TTS, etc),
as well as cloud based servers and clients for SmartThings and Bixby Home, Voice, and Vision.

Engineer III - IoT Team Leader
January 2018 - March 2019 (1 year 3 months)
Richardson, TX

- Created and Lead a team of 8 experienced Engineers in managing new development IoT products and Samsung's AI Voice Assistant Bixby (2.0) with primary focus on SmartThings
- Worked closely with global R&D, QA, Product Planning & Product Strategy teams as Project Lead, designing and managing scope, risks, issues, test schedules & deliverables, doing feature improvement proposals, market sensing & bench-marking analysis throughout entire project life-cycle for Samsung SmartThings Wi-Fi Hubs, Samsung SmartThings Trackers (First 4G LTE Cat.M1 device in the US), Samsung / AKG Galaxy Home Smart Speaker (in progress), etc.

- Re-designed a new expanded smart home lab for all Internet of Things (IoT) SmartThings supported devices as well as competitor products for testing and analysis
- Managed IoT team's daily tasks, weekly reports and led weekly sync up meetings with numerous cross functional teams' global stakeholders

Engineer II - Strategic Services Team
March 2017 - January 2018 (11 months)
Richardson, TX

- Conducted interviews for hiring 16 Full time Engineers and 60 voice testers to help establish Strategic Services Team with the focus of launching Bixby 1.0 – Samsung's first AI voice assistant on Galaxy S9
- Responsible for training 16 full time experienced Engineers as well as managing 60 direct report voice testers, running daily scrum meetings with leads and major project milestones
- Developed testing strategy and created fully comprehensive test suite working with developers and other stakeholders from the US, Korea, India, Poland, and the UK for successful 1.0 launch
- Designed and built out a new smart home lab for all Internet of Things (IoT) supported devices
- Market & Competitor Bench-marking analysis of upcoming IoT development products (Tracker, Smart Wi-Fi Hub, Smart Speaker) with Product Planning & Product Strategy teams

Engineer I - Project Leader
January 2016 - March 2017 (1 year 3 months)
Richardson, TX

- Created, maintained, performed and developed test cases, procedures, training material and processes on major NDA flagship devices such as the Samsung Galaxy S8
- Experience in wireless technologies such as GSM, CDMA, WCDMA, LTE, Wifi Calling, VOIP, VoLTE/IR.92, ViLTE/IR.94, IPME, RCS
- Lead up to 10 projects simultaneously, working with numerous other teams in Korea and globally, compiling results and overseeing the entire SDLC from QA perspective
- Primarily worked with Major Carriers – AT&T, T-Mobile, Verizon, Sprint
- Managed project status and followed up with issue status to ensure product readiness throughout SDLC

Engineer I - Strategic Team
October 2014 - January 2016 (1 year 4 months)

Richardson, TX

- Worked with Developers and Project Managers Globally performing test cases and test procedures for product quality validation and verification on strategic Android based mobile devices
- Wrote and designed professional reports on detected issues to present to R&D with multiple attached logs and analysis
- Performed testing on Battery Consumption, Audio Quality / Volume, Protocol / Driving, Network Performance, Basic functionality / App testing, Sanity, Data throughput, Carrier Apps, FOTA, RF Performance, GPS, Aging, Automation, and IOT / Home network testing
- Primarily worked with Strategic carriers such as Cricket, Metro PCS, US Cellular, Tracfone, Verizon LRA, ACG, OpenMobile, Cellcom, Bluegrass
- Managed project status and followed up with issue status to ensure product readiness throughout SDLC

Texas Warriors Hockey
Head Coach
June 2015 - March 2020 (4 years 10 months)
Richardson, Texas

numerous
Freelance Graphic Designer
January 2014 - December 2016 (3 years)
Richardson, TX

- Designed logos, apparel, advertisements and prints for numerous clients
- Worked with clients to identify specifications and ensure satisfaction through the design process

Dallas Oilers Youth Hockey
Head / Assistant Coach
July 2010 - June 2015 (5 years)
Richardson, TX

- Coach multiple select traveling youth hockey teams
- Recruiting, management, design apparel, logos, weekly newsletters, website maintenance

Senior Research
Electrical Characterization of ZnO based TFTs
June 2014 - August 2014 (3 months)

Electrical Characterization of Zinc Oxide Thin Film Transistors with high-k dielectrics

- Analyzed and executed pulsed current – voltage testing to investigate instability in ZnO TFTs
- Assisted Dr. Chadwin Young and his team of PhD students in documenting, taking measurements such as I-V curves, and general contributions to research
- Responsible for scheduling weekly meetings and maintaining communication with team

Senior design

Solar-powered HVAC system

January 2014 - August 2014 (8 months)

- Took a leadership role in team communications, presentations, and prototyping
- Designed, simulated, and tested a fully functional small scale prototype
- Documented and presented progress verbally, through email and with ppt presentations

Ice Training Center

Instructor / Graphic Designer

January 2005 - August 2014 (9 years 8 months)

- Instruct youth and adults of all ages in ice hockey skills classes and camps
- Coach multiple teams, adult and youth, as well as private lessons for all ages
- Lead groups of over 20 students in skills development activities
- Design tournament logos, apparel, programs, flyers, and maintain website
- Maintain relationship with adult league teams and players

Red Bull

Route service rep

January 2007 - January 2008 (1 year 1 month)

- Rotate and stock product in stores, maintain displays
- Maintain relationships with customer

Education

The University of Texas at Dallas

Bachelor's degree, Electrical Engineering · (2012 - 2014)

Invalid9380

Associate's degree, Electrical Engineering · (2008 - 2012)

Sachse H.S

· (2008)

EXHIBIT 7

US009204283B2

(12) **United States Patent**
Mullen

(10) **Patent No.: US 9,204,283 B2**
(45) **Date of Patent: Dec. 1, 2015**

(54) **SYSTEMS AND METHODS FOR LOCATING CELLULAR PHONES AND SECURITY MEASURES FOR THE SAME**

(76) Inventor: **Jeffrey D Mullen**, New York, NY (US)

(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 847 days.

(21) Appl. No.: **11/462,201**

(22) Filed: **Aug. 3, 2006**

(65) **Prior Publication Data**

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Related U.S. Application Data

(63) Continuation of application No. 10/400,296, filed on Mar. 25, 2003.

(60) Provisional application No. 60/367,967, filed on Mar. 25, 2002.

(51) **Int. Cl.**

H04W 24/00	(2009.01)
H04W 8/14	(2009.01)
H04W 64/00	(2009.01)
H04W 8/16	(2009.01)

(52) **U.S. Cl.**

CPC ***H04W 8/14*** (2013.01); ***H04W 64/00*** (2013.01); *H04W 8/16* (2013.01)

(58) **Field of Classification Search**

CPC H04W 64/00; H04W 8/16; H04W 12/08; H04W 4/02; H04W 12/06; H04W 8/10; H04W 8/14; H04W 8/005; H04W 4/04; G01S 5/06; G01S 19/17; H04L 67/18; H04L 2209/80; G06F 21/31; G06F 17/30241; G01C 21/00

USPC 455/456.1–457, 567

See application file for complete search history.

(56) **References Cited**

U.S. PATENT DOCUMENTS

4,654,879	A	3/1987	Goldman et al.
5,043,736	A	8/1991	Darnell et al.
5,086,390	A	2/1992	Matthews
5,097,416	A	3/1992	Matthews

(Continued)

FOREIGN PATENT DOCUMENTS

WO	WO 99/07170	2/1999
WO	WO 99/09775	2/1999

(Continued)

OTHER PUBLICATIONS

ETSI TS 101 513. "Digital Cellular Telecommunications System (Phase 2): Location Services (LCS)," GSM 12.71, version 8.0.1. 1999.

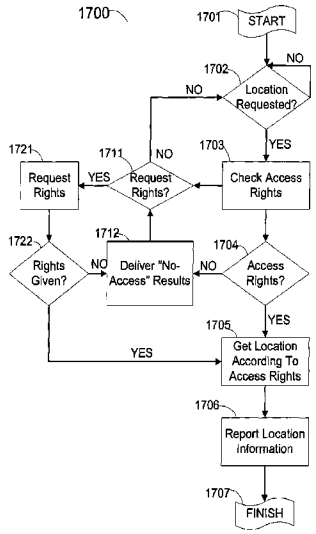
(Continued)

Primary Examiner — Allahyar Kasraian

(57) **ABSTRACT**

Systems and methods for locating a cellular phone are provided. More particularly, systems and methods for providing the location of a requested user's cellular phone from a requesting user's device (e.g., a second cellular phone) based on access rights defined by the requested user. Location descriptions may be provided at a multitude of levels. For example, if a cellular phone, or an identity associated to (e.g., logged into) a cellular phone, has been given access rights to a cell phone's exact location for an indefinite amount of time, that cell phone can receive, on command, the exact location of the approved cell phone. Other levels of location information that can be granted include, for example, proximities, states, and countries.

20 Claims, 17 Drawing Sheets



(56) **References Cited**

U.S. PATENT DOCUMENTS

5,197,092	A		3/1993	Bamburak
5,305,201	A		4/1994	Matthews
5,327,144	A		7/1994	Stilp et al.
5,337,334	A		8/1994	Alvesalo
5,341,410	A		8/1994	Aron et al.
5,384,824	A		1/1995	Alvesalo
5,388,147	A		2/1995	Grimes
5,442,805	A		8/1995	Sagars et al.
5,479,482	A		12/1995	Grimes
5,502,757	A		3/1996	Bales et al.
5,519,760	A		5/1996	Borkowski et al.
5,537,460	A		7/1996	Holliday, Jr. et al.
5,548,816	A		8/1996	DeVaney
5,551,058	A		8/1996	Hutcheson et al.
5,555,286	A		9/1996	Tendler
5,719,563	A		2/1998	Thompson
5,767,788	A		6/1998	Ness
5,778,315	A		7/1998	Proietti
5,796,634	A		8/1998	Craport et al.
5,805,999	A		9/1998	Inoue
5,815,538	A		9/1998	Grell et al.
5,832,381	A		11/1998	Kauppi
5,847,976	A		12/1998	Lescourret
5,875,398	A		2/1999	Snapp
5,889,474	A		3/1999	LaDue
5,890,062	A		3/1999	Courtney et al.
5,920,820	A		7/1999	Qureshi et al.
5,929,752	A		7/1999	Janky et al.
5,950,125	A		9/1999	Buhrmann et al.
5,950,137	A	*	9/1999	Kim 455/456.2
5,961,569	A		10/1999	Craport et al.
5,961,572	A		10/1999	Craport et al.
5,978,747	A		11/1999	Craport et al.
5,987,019	A		11/1999	Raith
5,999,124	A		12/1999	Sheynblat
6,023,241	A		2/2000	Clapper
6,028,537	A		2/2000	Suman et al.
6,032,042	A		2/2000	Kauppi
6,035,189	A		3/2000	All-Vehmas
6,035,198	A		3/2000	Wiehe
6,038,446	A		3/2000	Courtney et al.
6,047,051	A		4/2000	Ginzboorg
6,049,711	A		4/2000	Ben-Yehezkel
6,061,561	A		5/2000	Alanara et al.
6,078,578	A		6/2000	Matsumoto
6,088,586	A		7/2000	Haverty
6,091,959	A		7/2000	Souissi et al.
6,138,003	A		10/2000	Kingdon et al.
6,144,336	A		11/2000	Preston et al.
6,157,841	A		12/2000	Bolduc et al.
6,166,626	A		12/2000	Janky et al.
6,173,182	B1		1/2001	Cha
6,201,803	B1		3/2001	Munday et al.
6,208,866	B1		3/2001	Rouhollahzadeh et al.
6,215,863	B1		4/2001	Bennett et al.
6,236,359	B1		5/2001	Watters et al.
6,236,858	B1		5/2001	Griffith
6,240,069	B1		5/2001	Alperovich
6,246,376	B1		6/2001	Bork et al.
6,246,861	B1		6/2001	Messier et al.
6,252,543	B1		6/2001	Camp
6,256,498	B1		7/2001	Ludwig
6,259,923	B1		7/2001	Lim et al.
6,275,544	B1		8/2001	Aiello
6,275,771	B1		8/2001	Berstis et al.
6,311,060	B1		10/2001	Evans et al.
6,314,365	B1		11/2001	Smith
6,317,718	B1		11/2001	Fano
6,321,092	B1		11/2001	Fitch et al.
6,324,404	B1		11/2001	Dennison et al.
6,330,452	B1		12/2001	Fattouche et al.
6,360,101	B1		3/2002	Irvin
6,360,102	B1		3/2002	Havinis
6,360,167	B1		3/2002	Millington et al.
6,374,306	B1		4/2002	Tognazzini
6,377,565	B1		4/2002	Puckette
6,377,810	B1		4/2002	Geiger et al.
6,393,274	B1		5/2002	Peltonen
6,397,065	B1		5/2002	Huusko et al.
6,400,946	B1		6/2002	Vazvan
6,400,956	B1		6/2002	Richton
6,408,186	B1		6/2002	Park et al.
6,421,009	B2		7/2002	Suprunov
6,438,376	B1		8/2002	Elliott et al.
6,438,381	B1		8/2002	Alberth, Jr. et al.
6,446,118	B1		9/2002	Gottlieb
6,449,486	B1		9/2002	Rao
6,456,854	B1		9/2002	Chern
D464,033	S		10/2002	Poirier
6,466,788	B1		10/2002	Carlsson
6,532,360	B1		3/2003	Shaffer
6,564,064	B1		5/2003	Ciganer
6,580,914	B1		6/2003	Smith
6,580,918	B1		6/2003	Leickel
6,584,314	B1		6/2003	Haumont
6,587,691	B1		7/2003	Granstam
6,603,969	B1		8/2003	Vuoristo
6,603,977	B1		8/2003	Walsh et al.
6,611,687	B1		8/2003	Clark
6,618,593	B1		9/2003	Drutman et al.
6,618,671	B2		9/2003	Dooley et al.
6,622,020	B1		9/2003	Seki
6,628,938	B1		9/2003	Rachabathuni et al.
6,647,257	B2		11/2003	Owensby
6,662,014	B1		12/2003	Walsh et al.
6,662,614	B1		12/2003	Lim
6,665,389	B1		12/2003	Haste, III
6,677,894	B2		1/2004	Sheynblat
6,714,791	B2		3/2004	Friedman
6,716,101	B1	*	4/2004	Meadows et al. 455/456.1
6,725,032	B1	*	4/2004	Sheridan et al. 455/419
6,735,564	B1		5/2004	Puhakainen
6,778,837	B2		8/2004	Bade et al.
6,795,710	B1		9/2004	Creemer
6,798,358	B2		9/2004	Joyce et al.
6,799,094	B1		9/2004	Vaida et al.
6,806,813	B1		10/2004	Cheng et al.
6,816,735	B1		11/2004	Rayburn et al.
6,826,398	B1		11/2004	Lagerstrom et al.
6,836,667	B1		12/2004	Smith
6,870,822	B2		3/2005	Balogh
6,879,838	B2		4/2005	Rankin et al.
6,882,837	B2		4/2005	Fernandez et al.
6,882,856	B1	*	4/2005	Alterman et al. 455/519
6,885,874	B2		4/2005	Grube
6,912,398	B1		6/2005	Domnitz
6,912,545	B1		6/2005	Lundy et al.
6,920,319	B2		7/2005	Knutsson et al.
6,920,328	B2	*	7/2005	Wollrab 455/456.1
6,928,279	B2		8/2005	Seligmann et al.
6,932,698	B2		8/2005	Sprogis
6,944,447	B2		9/2005	Portman et al.
6,968,179	B1		11/2005	De Vries
6,975,998	B1		12/2005	Jones
6,999,777	B1		2/2006	Ganesh
7,010,110	B2		3/2006	Jorasch et al.
7,013,148	B1		3/2006	Ganesh
7,072,956	B2		7/2006	Parupudi
7,130,630	B1		10/2006	Enzmann
7,177,651	B1		2/2007	Almassy
7,203,674	B2		4/2007	Cohen
7,215,965	B2		5/2007	Fournier et al.
7,248,872	B2		7/2007	Bassett et al.
7,269,426	B2		9/2007	Kokkonen et al.
7,269,428	B1	*	9/2007	Wallenius et al. 455/456.2
7,272,220	B1		9/2007	Zhang
7,324,823	B1		1/2008	Rosen
7,333,776	B1		2/2008	York
7,409,429	B2	*	8/2008	Kaufman et al. 709/207
7,570,958	B2		8/2009	Krasner
7,983,947	B2		7/2011	Kaiwa et al.
8,073,087	B2		12/2011	Casaccia et al.
8,289,643	B2		10/2012	Grundvig
8,478,304	B1		7/2013	David et al.

(56) **References Cited**

U.S. PATENT DOCUMENTS

2001/0029184	A1*	10/2001	I'Anson et al.	455/456
2001/0048364	A1	12/2001	Kalthoff et al.	
2001/0055328	A1	12/2001	Dowling	
2002/0003470	A1	1/2002	Auerbach	
2002/0039904	A1*	4/2002	Anderson	455/456
2002/0042277	A1	4/2002	Smith	
2002/0086683	A1	7/2002	Kohar et al.	
2002/0102989	A1	8/2002	Calvert et al.	
2002/0115453	A1	8/2002	Poulin et al.	
2002/0138581	A1*	9/2002	MacIntosh et al.	709/206
2002/0141434	A1	10/2002	Grundvig	
2002/0164998	A1	11/2002	Younis	
2002/0183059	A1	12/2002	Noreen et al.	
2003/0004743	A1	1/2003	Callegari	
2003/0013456	A1	1/2003	Bates	
2003/0013461	A1	1/2003	Mizune et al.	
2003/0023726	A1	1/2003	Rice et al.	
2003/0069692	A1	4/2003	Krasner	
2003/0119522	A1	6/2003	Barclay et al.	
2003/0144009	A1*	7/2003	Nowlin	455/456
2004/0033795	A1	2/2004	Walsh et al.	
2004/0038706	A1	2/2004	Wasser et al.	
2004/0054428	A1	3/2004	Sheha	
2004/0077359	A1	4/2004	Bernas et al.	
2004/0127231	A1	7/2004	Dorr	
2004/0180669	A1	9/2004	Kall	
2004/0198386	A1*	10/2004	Dupray	455/456.1
2005/0097595	A1	5/2005	Lipsanen et al.	
2005/0222756	A1	10/2005	Davis et al.	
2008/0287143	A1	11/2008	Rosen	
2009/0005019	A1	1/2009	Patel et al.	
2009/0029717	A1	1/2009	Bates et al.	
2009/0197612	A1	8/2009	Kiiskinen	
2012/0106728	A1	5/2012	Ghaffari et al.	

FOREIGN PATENT DOCUMENTS

WO	WO 99/51051	3/1999
WO	WO 00/28760	5/2000
WO	WO 00/35228	6/2000
WO	WO 00/38350	6/2000
WO	WO 00/64075	10/2000
WO	WO 00/76194	12/2000
WO	WO 00/76243	12/2000
WO	WO 01/01711	1/2001
WO	WO 01/01718	1/2001
WO	WO 01/03406	1/2001
WO	WO 01/03454	1/2001
WO	WO 01/03461	1/2001
WO	WO 01/20938	3/2001
WO	WO 01/33885	5/2001
WO	WO 01/39525	5/2001
WO	WO 01/39528	5/2001
WO	WO 01/41468	6/2001
WO	WO 01/50544	7/2001
WO	WO 01/86880	11/2001
WO	WO 01/89251	11/2001
WO	WO 02/03718	1/2002

OTHER PUBLICATIONS

ETSI TS 101 527 "Digital Cellular Telecommunications System (Phase 2+): Location Services (LCS): Mobile Station (MS): Serving Mobile Location Centre (SMLC)," Radio Resource LCS Protocol (RRLP), GSM 04.31, version 8.1.0. 1999.

Wrolstad, Jay, "Sprint Claims First With E911-Capable Phone," newsfactor.com (as viewed at http://www.newsfactor.com/perl/story/13952.html on Jan. 22, 2007), Oct. 4, 2001).

Wrolstad, Jay, "Sprint Rolls Out E911 Services," newsfactor.com (as viewed at http://www.newsfactor.com/perl/story/15506.html on Jan. 22, 2007), Dec. 26, 2001).

"Sprint PCS First Quarterly E911 Implementation Report," Before the Federal Communications Commission, In the Matter of Revision of the Commission's Rules to Ensure Compatibility With Enhanced 911 Emergency Calling Systems, Feb. 1, 2002.

"Wireless Telecommunications Bureau Seeks Comment On Request To Commence Rulemaking To Establish Fair Location Information Practices," , (as viewed at http://www.fcc.gov.Bureaus/Wireless/PublicNotices/9001/da010696.html on Jan. 22, 2007), Mar. 16, 2001.

"Go2 Systems & Integrated Data Communications to Deliver Location Services Automatically to Wireless Phones; Alliance Enables Automatic Recognition of Wireless Caller's Location," Business Wire (as viewed at http://www.findarticles.com/p/articles/mi_m0EIN/is_2000_Feb_28/ai/59621222 on Jan. 22, 2007), Feb. 28, 2000.

"Before the Federal Communications Commission: In the Matter of: E-911 Automatic Location Identification Round Table," Transcript, Jun. 28, 1999.

"Pulver.com's Location Based Services Report," pulver.com (as visited at http://pulver.com/lbareport/lastlbareport.16jan01.txt on Jan. 22, 2007), Jan. 2001.

"Pulver.com's Location Based Services Report," pulver.com (as visited at http://pulver.com/lbareport/lastlbareport.26feb01.txt on Jan. 22, 2007), Feb. 2001.

"Pulver.com's Location Based Services Report," pulver.com (as visited at http://pulver.com/lbareport/lastlbareport.26mar01.txt on Jan. 22, 2007), Mar. 2001.

"Pulver.com's Location Based Services Report," pulver.com (as visited at http://pulver.com/lbareport/lastlbareport.05apr01.txt on Jan. 22, 2007), Apr. 2001.

"Pulver.com's Location Based Services Report," pulver.com (as visited at http://pulver.com/lbareport/lastlbareport.01may01.txt on Jan. 22, 2007), May, 2001.

"Pulver.com's Location Based Services Report," pulver.com (as visited at http://pulver.com/lbareport/lastlbareport.10jun01.txt on Jan. 22, 2007), Jun. 2001.

"Pulver.com's Location Based Services Report," pulver.com (as visited at http://pulver.com/lbareport/lastlbareport.05jul01.txt on Jan. 22, 2007), Jul. 2001.

"Pulver.com's Location Based Services Report," pulver.com (as visited at http://pulver.com/lbareport/lastlbareport.01aug01.txt on Jan. 22, 2007), Aug. 2001.

"Pulver.com's Location Based Services Report," pulver.com (as visited at http://pulver.com/lbareport/lastlbareport.04sep01.txt on Jan. 22, 2007), Sep. 2001.

"Pulver.com's Location Based Services Report," pulver.com (as visited at http://pulver.com/lbareport/lastlbareport.02oct01.txt on Jan. 22, 2007), Oct. 2001.

"Pulver.com's Location Based Services Report," pulver.com (as visited at http://pulver.com/lbareport/lastlbareport.02nov01.txt on Jan. 22, 2007), Nov. 2001.

"Pulver.com's Location Based Services Report," pulver.com (as visited at http://pulver.com/lbareport/lastlbareport.03dec01.txt on Jan. 22, 2007), Dec. 2001.

"Pulver.com's Location Based Services Report," pulver.com (as visited at http://pulver.com/lbareport/lastlbareport.07jan02.txt on Jan. 22, 2007), Jan. 2002.

"Pulver.com's Location Based Services Report," pulver.com (as visited at http://pulver.com/lbareport/lastlbareport.04feb02.txt on Jan. 22, 2007), Feb. 2002.

"Pulver.com's Location Based Services Report," pulver.com (as visited at http://pulver.com/lbareport/lastlbareport.04mar02.txt on Jan. 22, 2007), Mar. 2002.

* cited by examiner

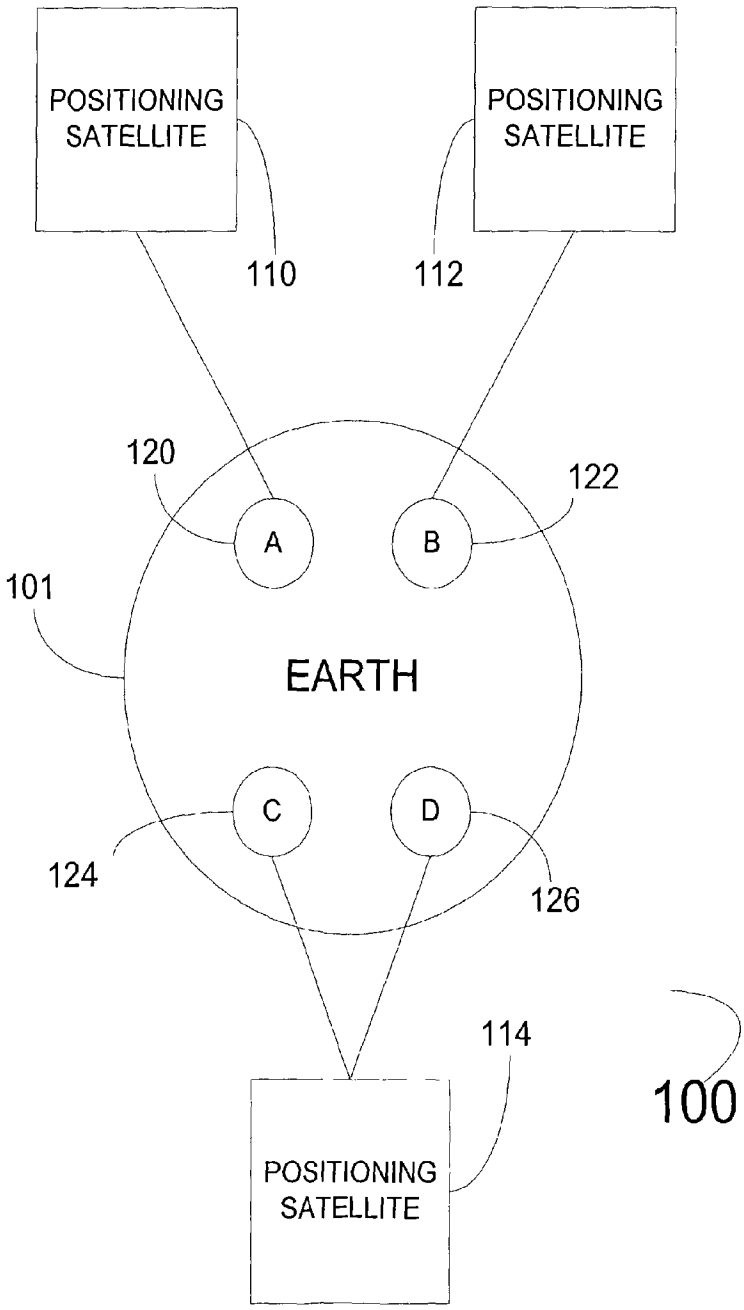

POSITIONING SATELLITE
POSITIONING SATELLITE
110
112
120
122
A
B
101
EARTH
C
D
124
126
114
100
POSITIONING SATELLITE

FIG. 1

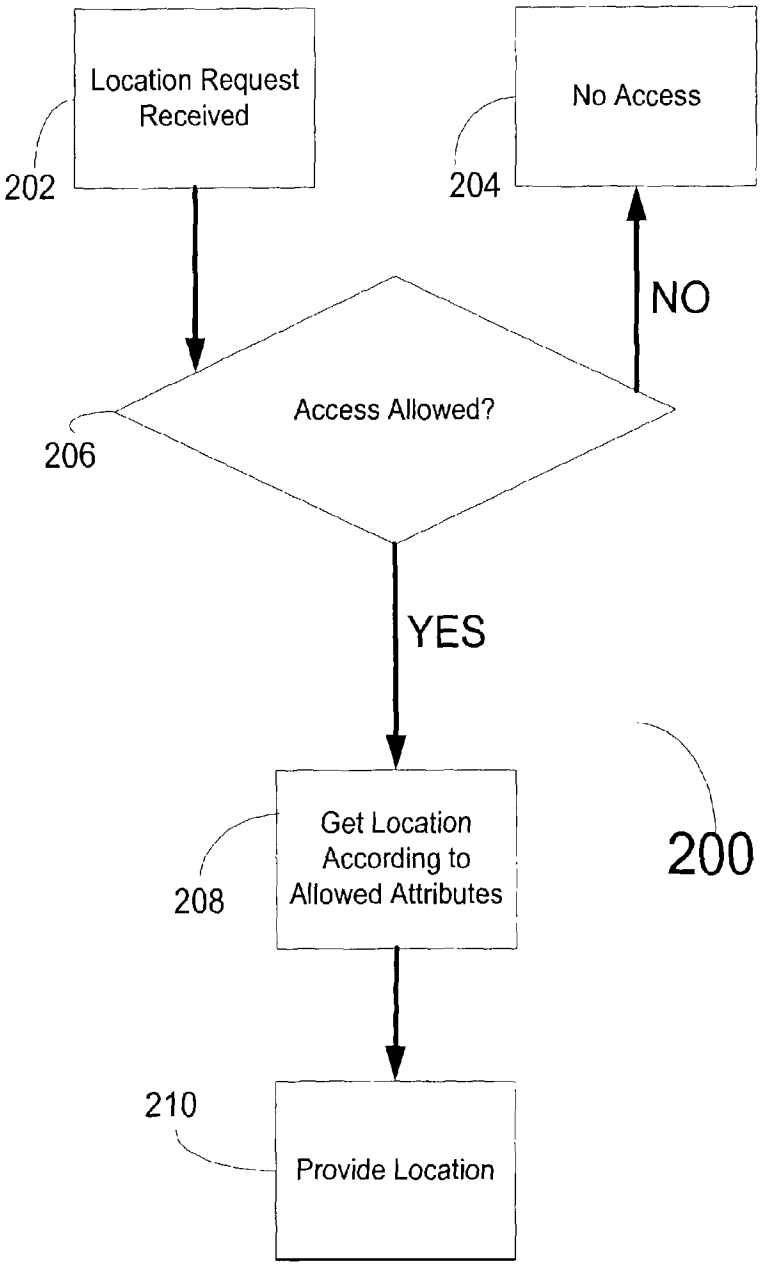

Location Request Received
202
No Access
204
NO
Access Allowed?
206
YES
Get Location According to Allowed Attributes
208
200
210
Provide Location

FIG. 2

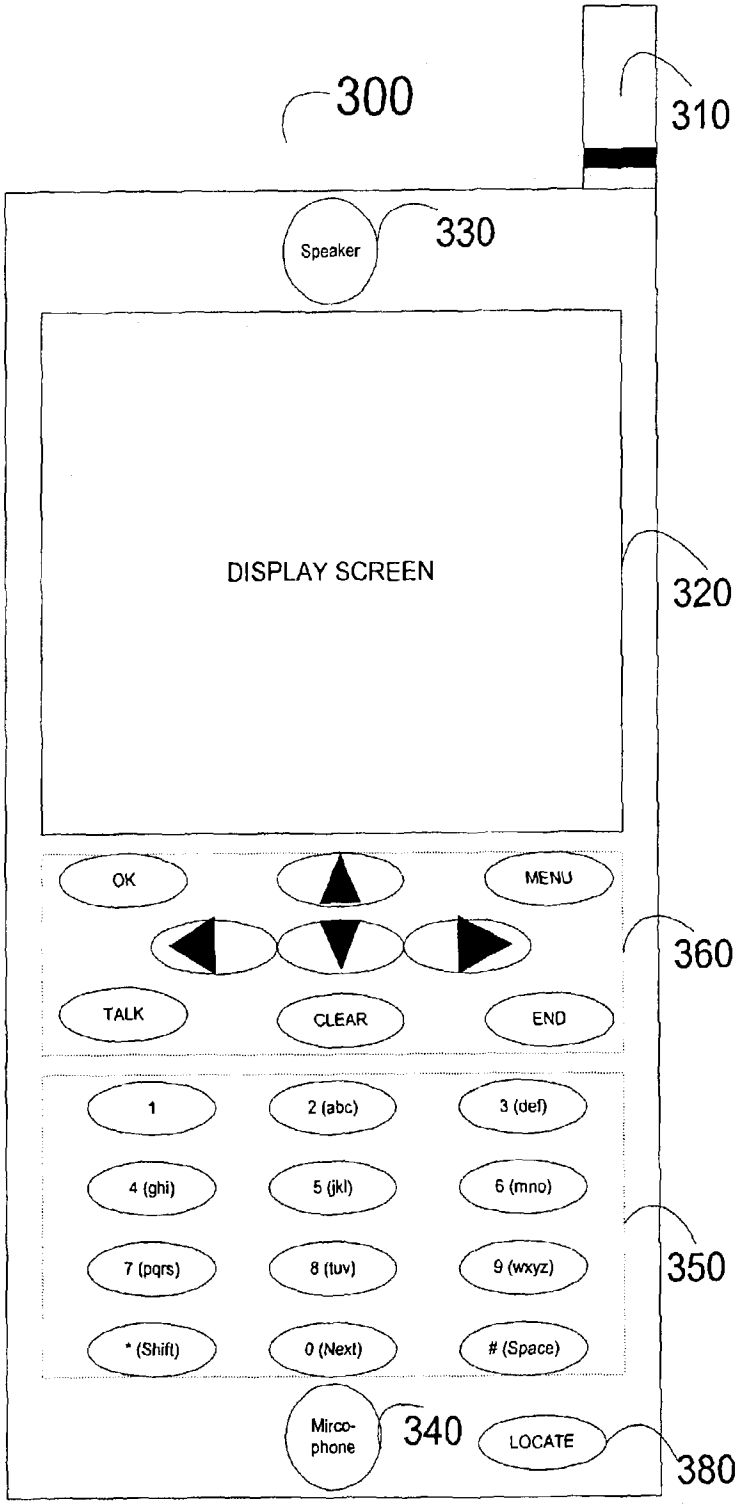

300
310
Speaker
330
DISPLAY SCREEN
320
OK
MENU
360
TALK
CLEAR
END
1
2 (abc)
3 (def)
4 (ghi)
5 (jkl)
6 (mno)
7 (pqrs)
8 (tuv)
9 (wxyz)
350
* (Shift)
0 (Next)
(Space)
Mirco-phone
340
LOCATE
380

FIG. 3

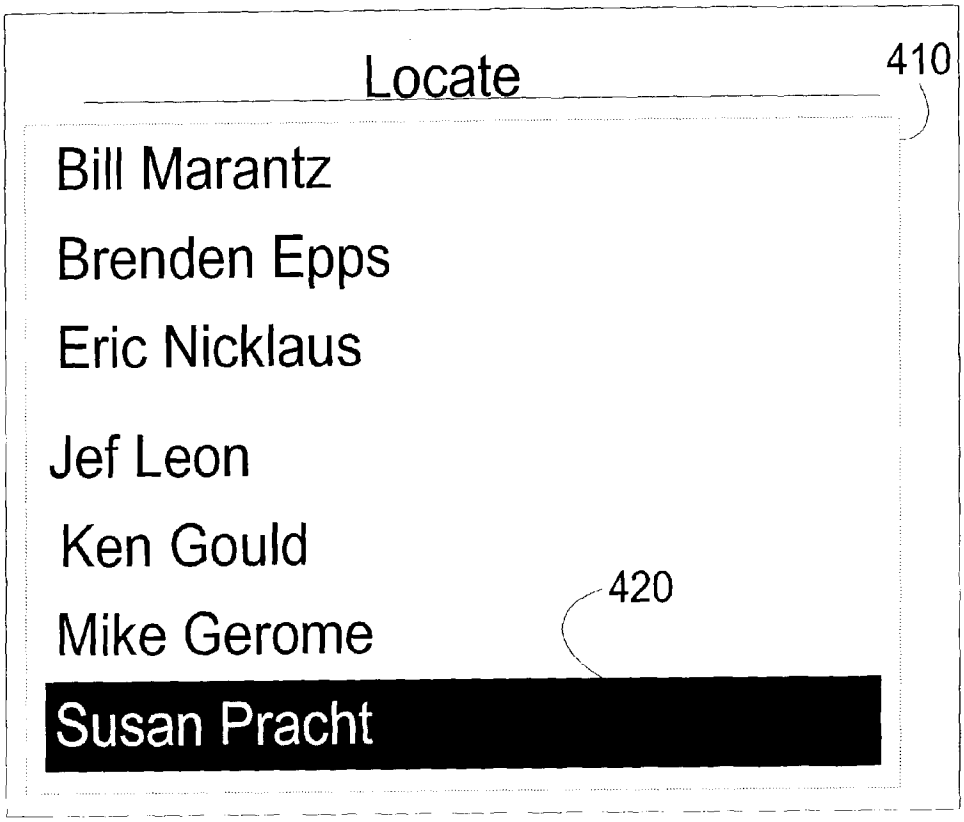

Locate
410
Bill Marantz
Brenden Epps
Eric Nicklaus
Jef Leon
Ken Gould
Mike Gerome
420
Susan Pracht

FIG. 4

400

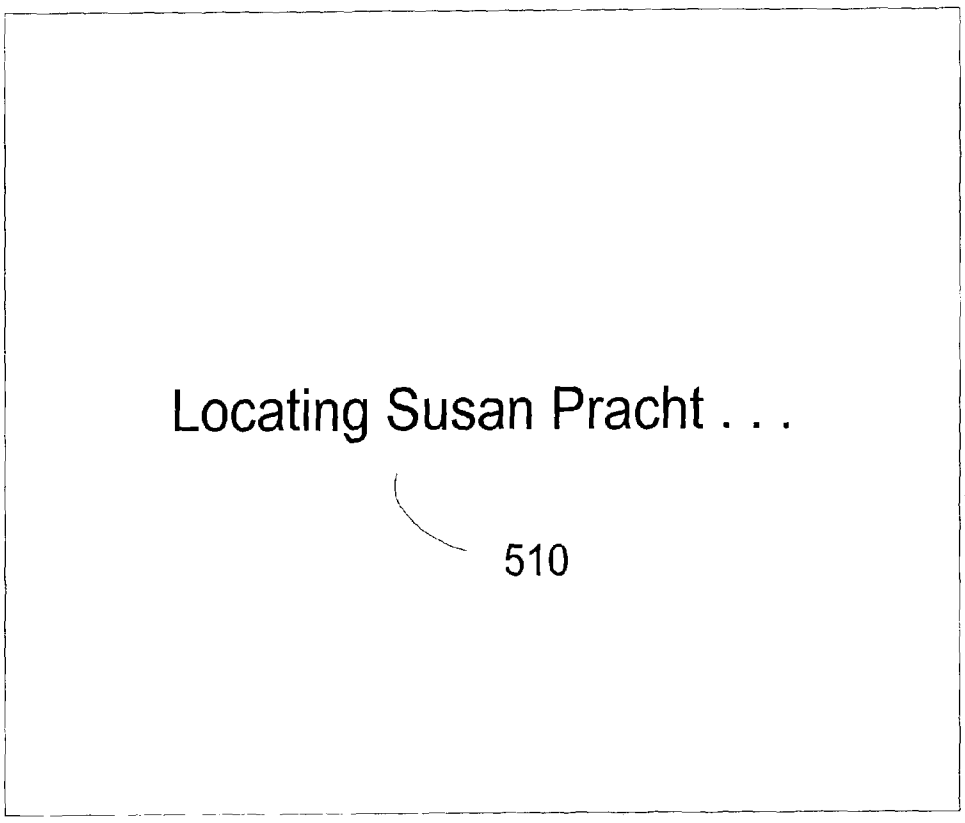


FIG. 5

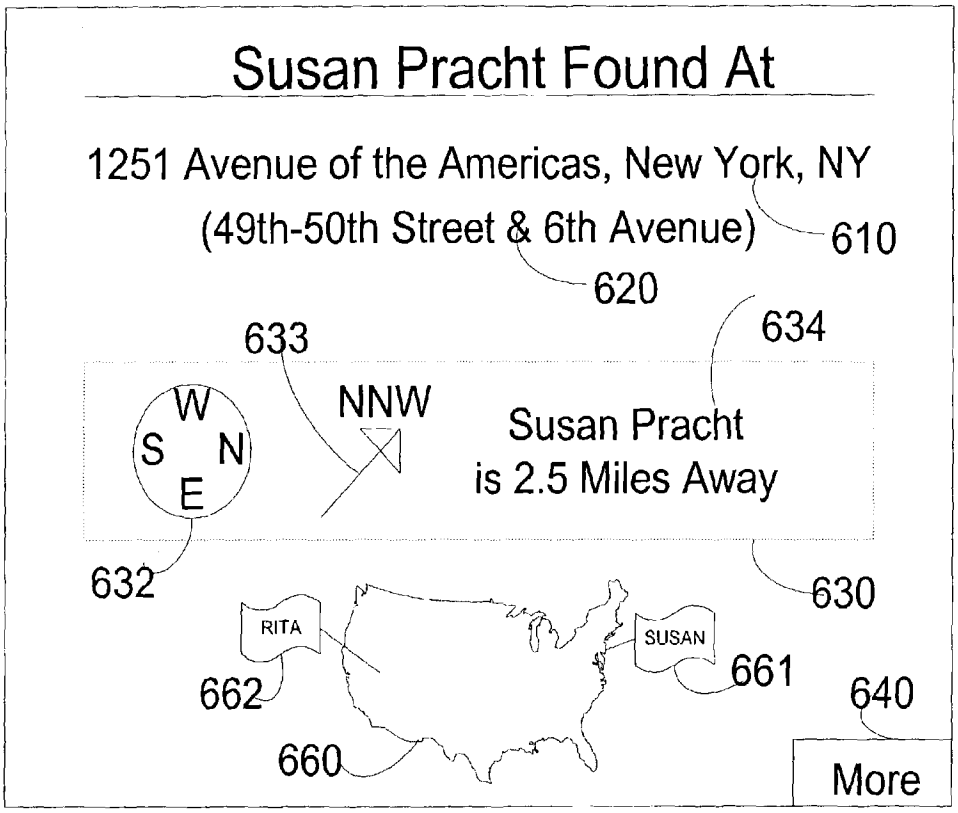

Susan Pracht Found At
1251 Avenue of the Americas, New York, NY
(49th-50th Street & 6th Avenue)
610
620
633
634
W
S
N
E
NNW
Susan Pracht
is 2.5 Miles Away
632
630
RITA
SUSAN
662
661
640
660
More
600

FIG. 6

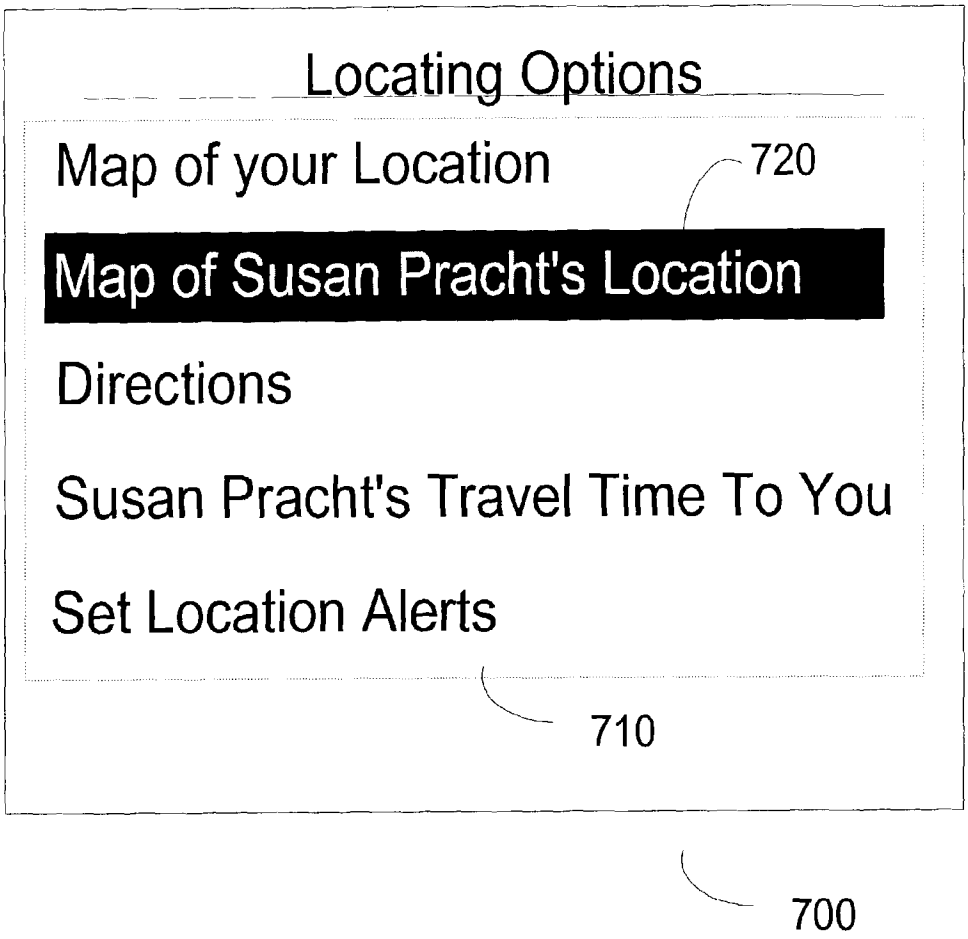

Locating Options
Map of your Location
720
Map of Susan Pracht's Location
Directions
Susan Pracht's Travel Time To You
Set Location Alerts
710
700

FIG. 7

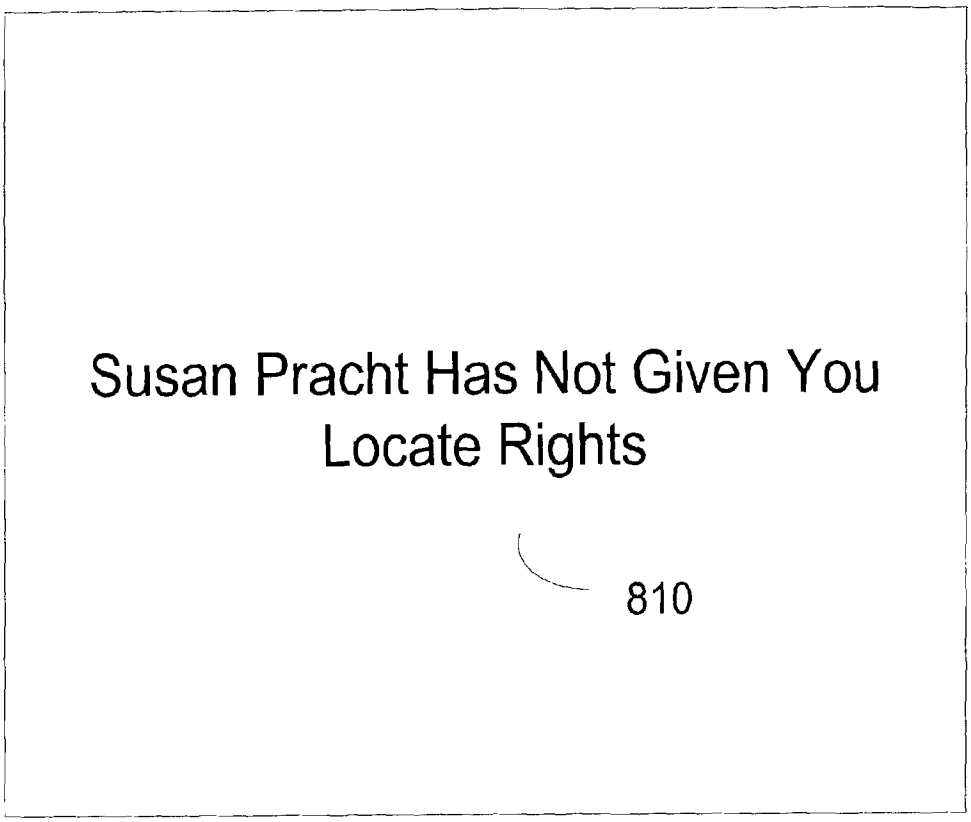


FIG. 8

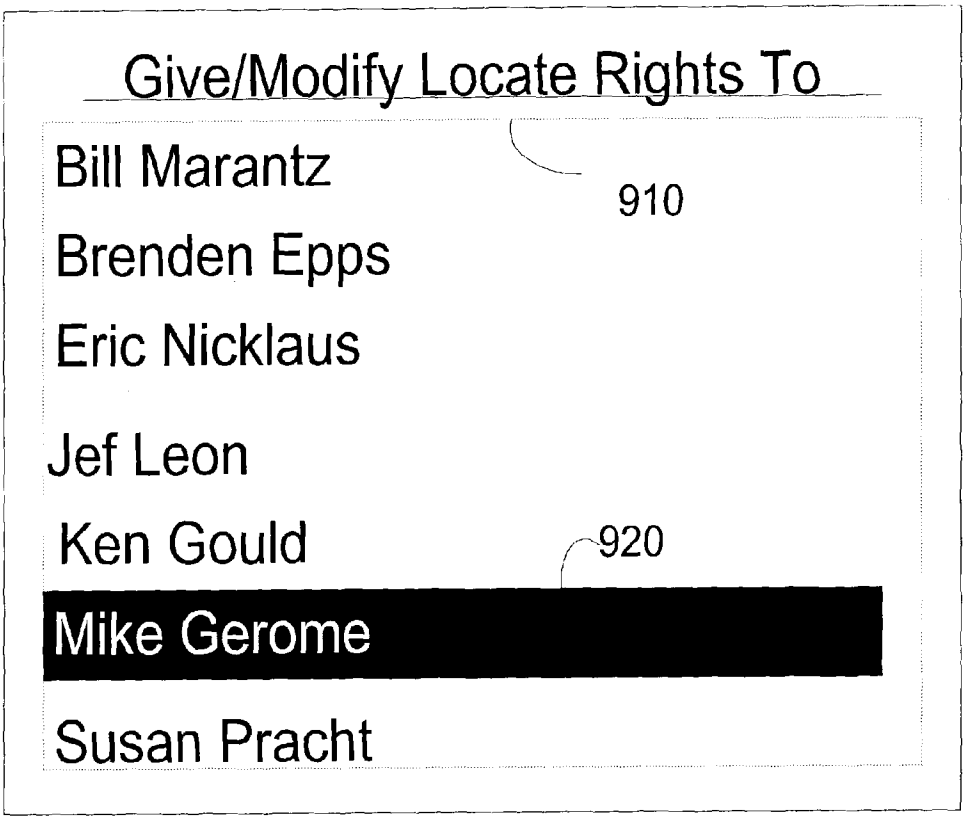

Give/Modify Locate Rights To
Bill Marantz
Brenden Epps
Eric Nicklaus
Jef Leon
Ken Gould
Mike Gerome
Susan Pracht
910
920
900

FIG. 9

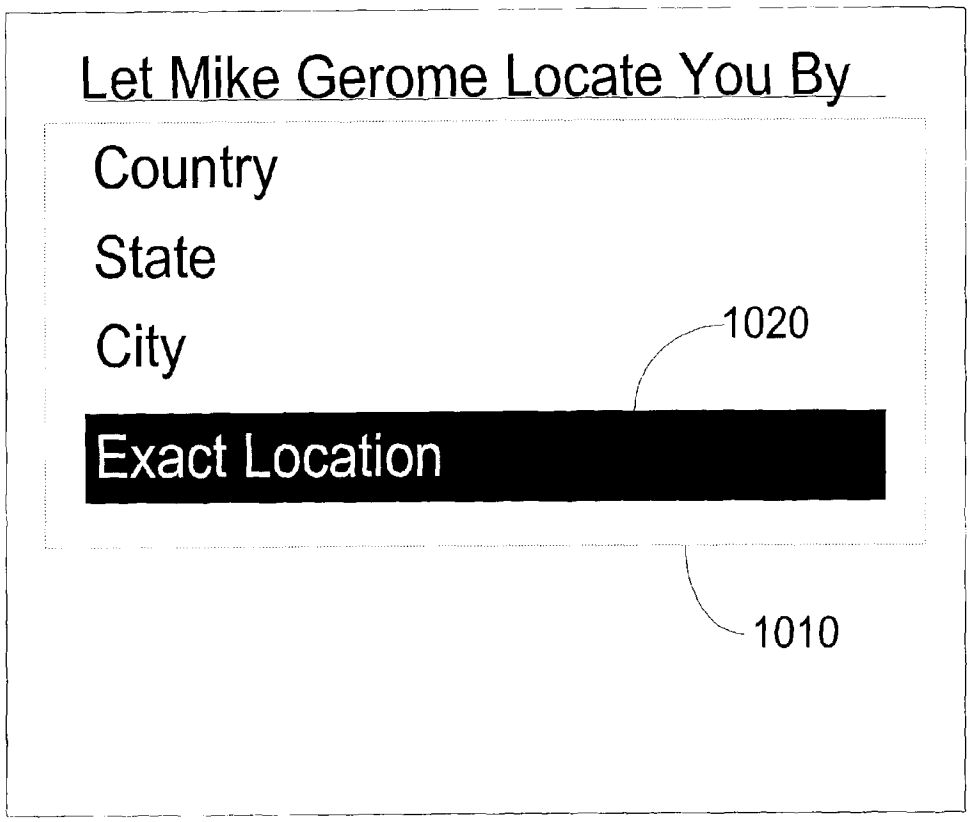

Let Mike Gerome Locate You By
Country
State
City
Exact Location
1020
1010
1000

FIG. 10

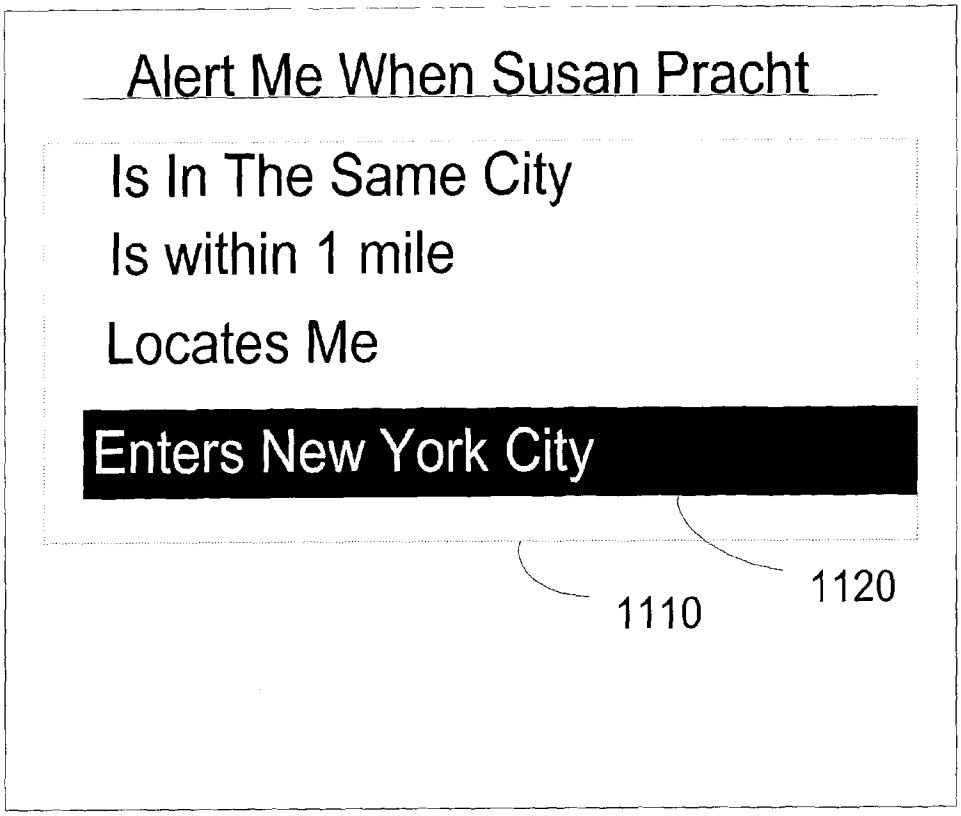

Alert Me When Susan Pracht
Is In The Same City
Is within 1 mile
Locates Me
Enters New York City
1110
1120
1100

FIG. 11

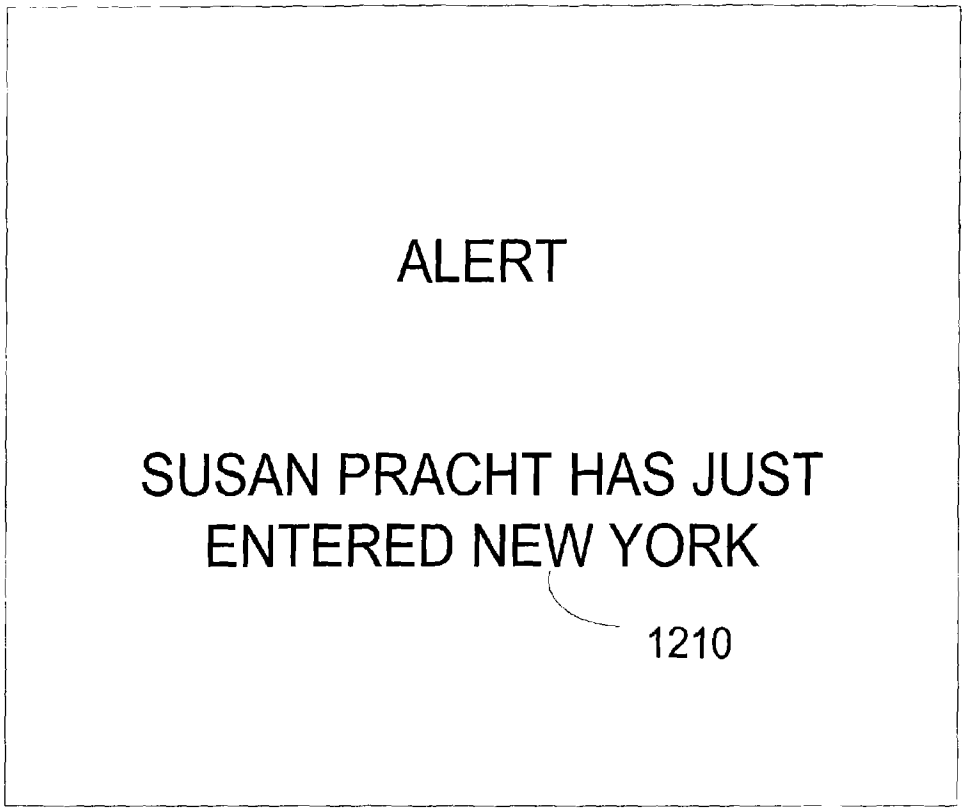


FIG. 12

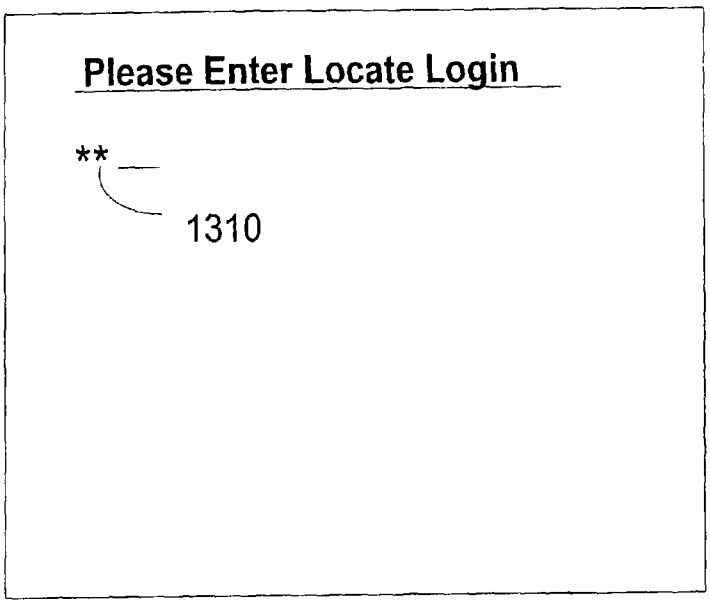

Please Enter Locate Login
**
1310
1300

FIG. 13

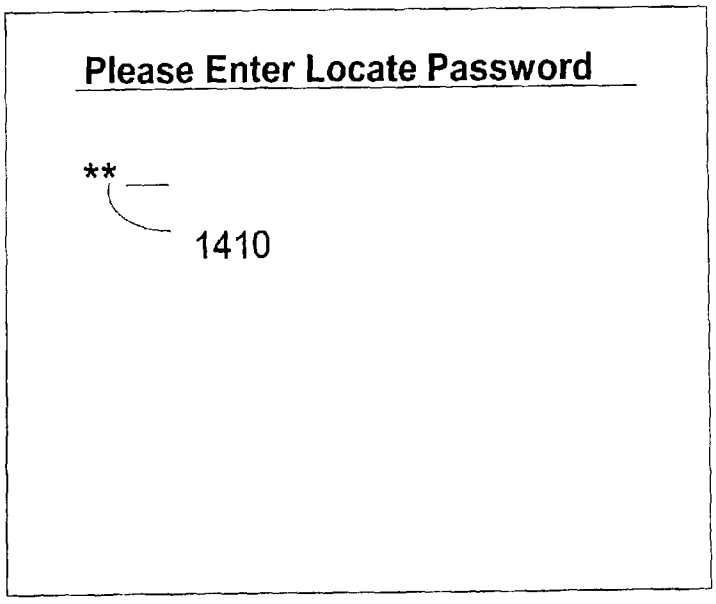

Please Enter Locate Password
**
1410
1400

FIG. 14

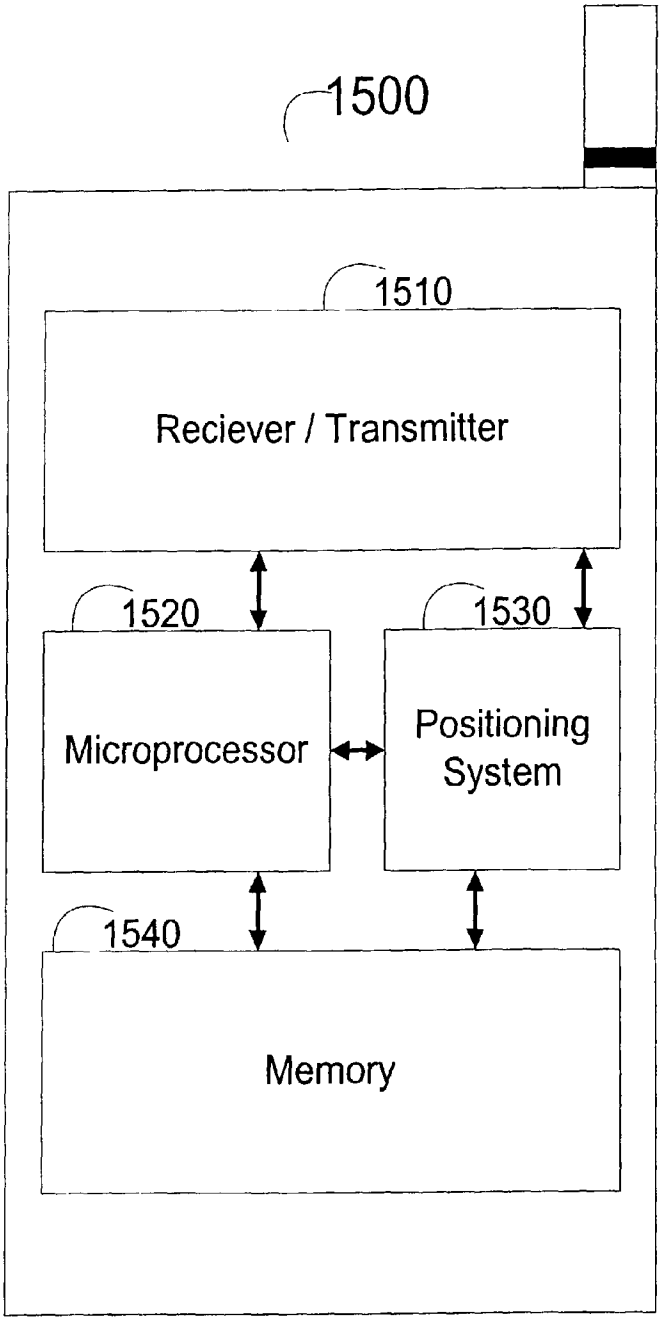

1500
1510
Reciever / Transmitter
1520
1530
Microprocessor
Positioning System
1540
Memory

FIG. 15

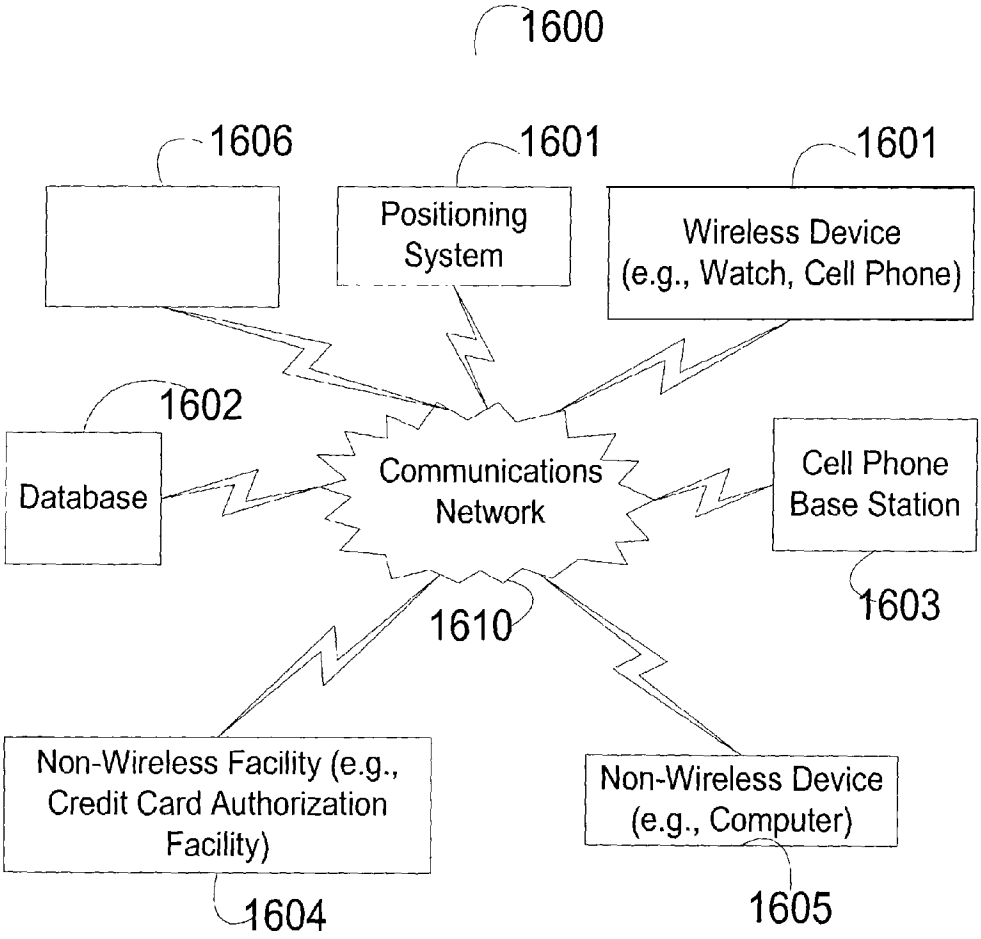

1600
1606
1601
1601
Positioning System
Wireless Device (e.g., Watch, Cell Phone)
1602
Database
Communications Network
Cell Phone Base Station
1603
1610
Non-Wireless Facility (e.g., Credit Card Authorization Facility)
Non-Wireless Device (e.g., Computer)
1604
1605

FIG. 16

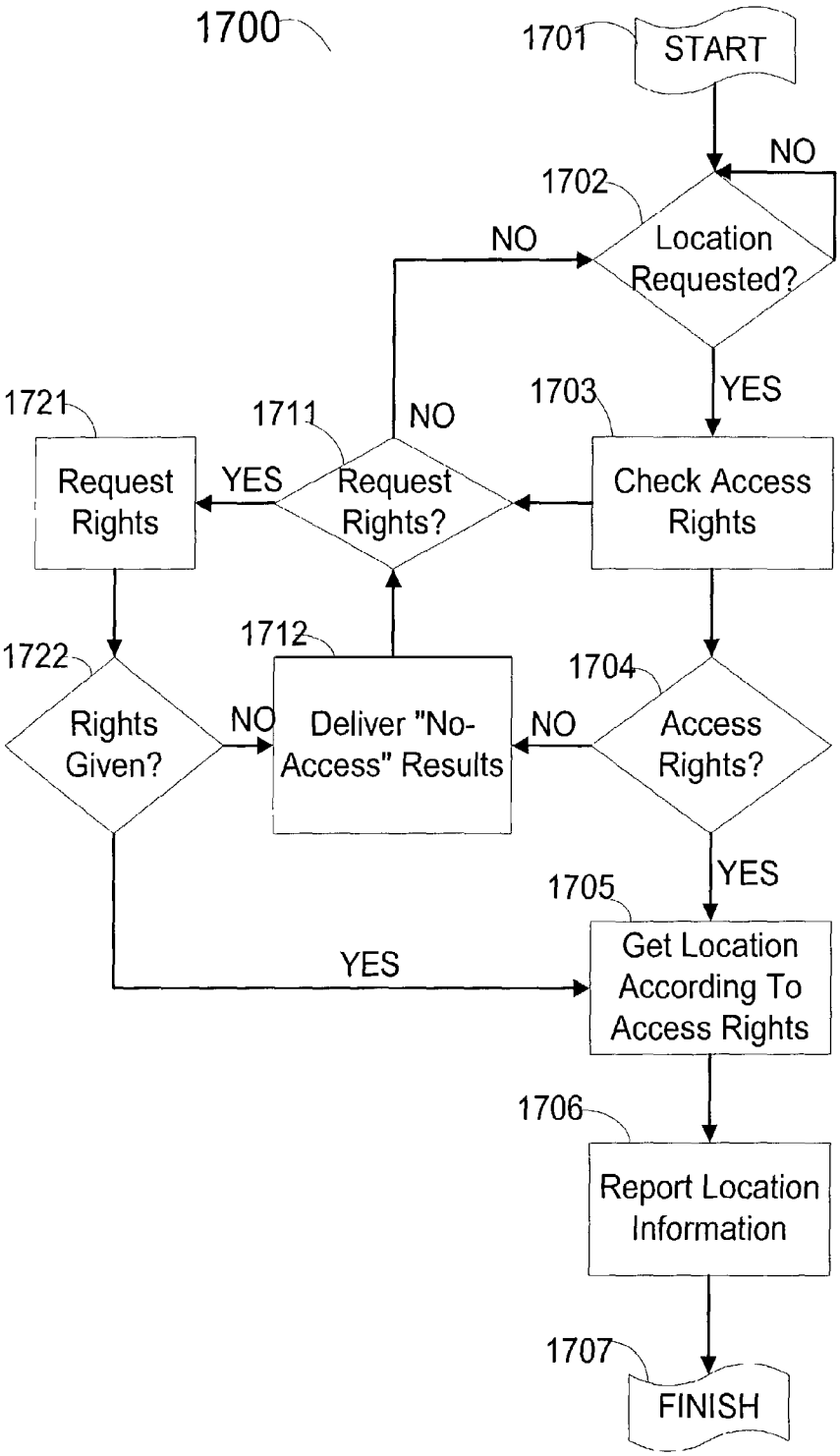

1700
1701
START
NO
1702
Location Requested?
NO
YES
1703
1721
1711
NO
Request Rights
YES
Request Rights?
Check Access Rights
1722
1712
1704
Rights Given?
NO
Deliver "No-Access" Results
NO
Access Rights?
YES
1705
YES
Get Location According To Access Rights
1706
Report Location Information
1707
FINISH

FIG. 17

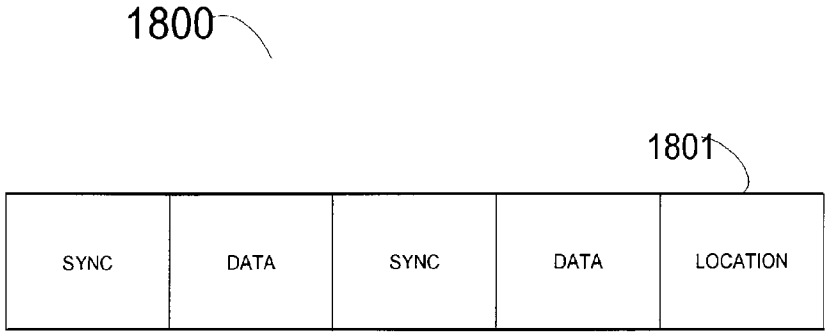


FIG. 18

SYSTEMS AND METHODS FOR LOCATING CELLULAR PHONES AND SECURITY MEASURES FOR THE SAME

CROSS-REFERENCE TO RELATED APPLICATIONS

This application is a continuation of U.S. patent application Ser. No. 10/400,296, filed on Mar. 25, 2003, which claims the benefit of U.S. Provisional Application No. 60/367,967, filed on Mar. 25, 2002, both of which are incorporated by reference herein in their entirety.

BACKGROUND OF THE INVENTION

This invention relates to systems and methods for determining a device's location. More particularly, this invention relates to systems and methods for remotely determining a device's location.

The Global Positioning System (GPS) has been developed in which a ground-based system can receive GPS signals from satellites and determine its location based on the time that it takes the GPS signals to reach the ground-based system. Generally, three satellite signals are needed to determine where in the world a receiver is located (i.e., position triangulation).

GPS systems have been integrated into cellular phones. However, these systems are deficient because the location of a device that is determined by these GPS signals are only minimally utilized. It is therefore desirable to provide systems and methods which better utilize the information about a device's location.

SUMMARY OF THE INVENTION

In accordance with the present invention, systems and methods are provided for locating cellular phones. More particularly, the present invention provides systems and methods for allowing a user of a cellular phone (e.g., a requesting user or a requester) to locate the position of a different user's cellular phone (e.g., a requested user) based upon requestor-assigned access rights.

One object of the present invention is to provide a security feature which allows a user to limit and/or deny location access to a particular user. In preferred embodiments, only the users that have been granted access to the location of a user's cellular phone can actually locate that user's cellular phone. Furthermore, different types of access levels may be provided that allow a user to filter location information to a different user. In this manner, a cell phone user may give access, through his or her cell phone, to a friend so that the friend can locate him or her dependent on the level of access that is granted to that friend.

For example, suppose that Phil tells Bill that he will be shopping in Manhattan and that Bill should locate him when Bill gets to Manhattan through their cell phones. In such an example, Phil may grant Bill access the exact location of his cell phone for a specific period of time (e.g., the next two hours). As a result, when Bill tries to access Phil's location, Bill will be told exactly where in Manhattan Phil's cell phone is located. Thus, Bill does not have to contact Phil directly to see where he is and, therefore, Phil does not have to spend any time giving Bill verbal directions; Bill can simply see what store Phil is currently in and go to it.

As mentioned previously, levels in the scope of access may be controlled by a user such that, for example, only a user's exact location, approximate location, city, state, or country can be accessed by a particular user.

Location alerts and monitoring features are also provided. For example, Phil may give Jen, a resident of Pittsburgh, city access so that when Phil travels into Pittsburgh, Jen will be alerted of Phil's presence. Such an alert may take the form of, for example, a display on Jen's cell phone that communicates to Jen "Phil is in Pittsburgh."

Locating a cellular phone may be accomplished in several ways. For example, satellite positioning systems such as the Global Positional System and the soon to be deployed Galileo system may be used to locate a user's cell phone.

User positions and security settings may be regularly or manually transmitted to a remote system, such a remote database so that requesting users can locate a requested user's position even if the requested user turns his/her cell phone OFF. Placing the security measures on a remote system (e.g., remote database, computer, or server) provides an information brokering scheme such that the system is still operable even when cell phones are added, removed, or modified from the system.

Additionally, the present invention may be configured to provide additional information about the location of a user. Such additional information may be, for example, a map, a location marker on a map, a map that changes as the user moves, a compass, coordinates of the located cell phone, directions to the located cell phone, where a user is in relation to another user, and information about the location the located user is currently positioned in or nearby locations such as landmarks. Such information may be provided by a remote information provider (e.g., a remote map information provider) and accessed by an information broker through a communications network.

Many other features are also employed that realizes advantageous locating functionality. As per an example, suppose that a wife wants to see if her husband has left work yet. She can locate her husband, without having to talk to him, and realize that he is driving home on a highway. Thus, a travel time option may be provided to the user. This option would compute the distance between the wife's location and husband's location by taking multiple location readings of the husband's location to see how fast the husband is traveling. Alternatively, because the husband's position will map to a highway, the system may assume that the user is driving and may provide the wife with an estimate on the husband's arrival time based on an assumed route. In this manner, the present invention may determine how much time it will take the husband to reach the wife and display this information to the wife.

As per other examples, a "see my friends" option may also be provided that brings up a map of a desired area. Dots or symbols may be present on the map to signify the location of all user's from which the requesting user has location information for. Similarly, a "find closest friend" option may be employed which finds the closest user with which the requesting user has location access to.

A cell phone location may by accessed by a variety of other devices. Alternatively, a cell phone may be used to access the location of a variety of other devices. For example, if the wife was at home, that wife may connect to the internet and access a remote database to either provide the most recent location information about the husband's cell phone to her or request a location update from the husband's cell phone. The wife's location may be already stored in such a database by associating the location to the IP address of the computer or by a manual input of the wife's location. The wife's identity may be determined by, for example, a login and password on a

website. Thus, the above-identified security measures are not limited to device to-device locating rather user to user locating; the wife may only access the husband's location if the husband has granted access for the wife to do so. If, by accident, the wife's cell phone breaks, she may login on a friend's cell phone and determine the husband's location according to the device that the husband is logged into.

Security is preferably taken into account in the present invention and, therefore, location rights for a specific user may be given to a different user only by that specific user. However, a user may request location access rights from a different user. For example, a user may be provided with a request location screen on his cell phone and that user (e.g., user "X") may enter in the cell phone number of the cell phone whose location is desired. The user associated to the entered cell phone number may then receive an alert that says "user X has requested access to your location." Location access may then be given or denied on multiple levels and the requesting user notified of the decision.

The location feature of the present invention may be turned ON or OFF at any time. Users may be added, individually or in groups, to a list of users with location access rights to a specific user by that specific user. A specific user may, at any time, modify, delete, or add users allowed to access his or her location. Login and password information may be included to increase security or to create a user profile, allowing a specific user to log into any cell phone and be recognize by the present invention (and thereby be located with that cell phone or locatable device).

BRIEF DESCRIPTION OF THE DRAWINGS

The principles and advantages of the present invention can be more clearly understood from the following detailed description considered in conjunction with the following drawings, in which the same reference numerals denote the same structural elements throughout, and in which:

FIG. **1** is a network topology of a cell phone locating network in accordance with the principles of the present invention;

FIG. **2** is a flow chart of the locating feature in accordance with the principles of the present invention;

FIG. **3** is an illustration of a cell phone in accordance with the principles of the present invention;

FIG. **4** is a display screen for a locate feature in accordance with the principles of the present invention;

FIG. **5** is a display screen for a retrieving location status feature in accordance with the principles of the present invention;

FIG. **6** is a display screen for a displaying location feature in accordance with the principles of the present invention;

FIG. **7** is a display screen listing options for a locate feature in accordance with the principles of the present invention;

FIG. **8** is a display screen of a failed locate feature due to insufficient rights in accordance with the principles of the present invention;

FIG. **9** is a display screen of adding and modifying locate rights and options to a user in accordance with the principles of the present invention;

FIG. **10** is a display screen of assigning location rights to a user in accordance with the principles of the present invention;

FIG. **11** is a display screen of alert options in accordance with the principles of the present invention;

FIG. **12** is a display screen of an alert feature in accordance with the principles of the present invention;

FIG. **13** is a display screen of a login feature in accordance with the principles of the present invention;

FIG. **14** is a display screen of a login feature in accordance with the principles of the present invention;

FIG. **15** is a wireless device in accordance with the principles of the present invention;

FIG. **16** is an embodiment of a network topology in accordance with the principles of the present invention;

FIG. **17** is an embodiment of a locating feature in accordance with the principles of the present invention; and

FIG. **18** is an embodiment of a communications signal in accordance with the principles of the present invention.

DETAILED DESCRIPTION OF THE INVENTION

FIG. **1** depicts a network topology of device location network **100** incorporating principles of the present invention. Network **100** includes one or more positioning satellites **110**, **112**, and **114** that can locate the position of one or more cell phones **120**, **122**, **126**, and **124** (and other locatable devices) on Earth **101**. Positioning satellites **110**, **112**, and **114** may be, for example, the Global Positioning System (GPS) or the upcoming Galileo satellite network.

Preferably, any cell phone in network **100** may locate a different cell phone, as long as access to location information is allowed, through the utilization of positioning satellites **110**, **112**, and **114**. Persons skilled in the art will appreciate that other positioning systems and methods may be used in locating the position of a user on a cell phone of network **100**.

To route information to and from a cell phone of network **100** additional facilities and communication paths may be included. For example, a main facility (not shown in FIG. **1**) containing user location access rights may be included in network **100**. Such a main facility may retrieve location information directly from a positioning system or a cellular phone and then route this information to a cellular phone or positioning system.

Persons skilled in the art will appreciate that if the Global Positioning System (GPS) is used as the positioning system then GPS receivers will be incorporated into cellular phones of the present invention. Persons skilled in the art will also appreciate that devices other than cellular phones may include positioning features. For example, watches, clothing, laptop computers, personal digital assistants (PDAs), may all contain location systems (e.g., GPS) and utilize the security principles of the present invention to allow different user's to access these locations.

FIG. **2** shows flow chart **200** of a simplified locating feature constructed in accordance with the principles of the present invention. Step **202** initiates when a user requests the location of another user's cell phone. Step **206** evaluates if the user initiating the location request has the rights to access the location of the desired user. If no access rights for the requesting user have been granted then step **204** will preferably inform the requesting user that he/she has not been given access to the requested location. In this manner, every user may assign rights (e.g. govern the security) to whom may or may not locate him/her. In preferred embodiments, these rights will be stored in, or functionality executed from, a remote facility and accessed and utilized by a user's cell phone or other requesting device (e.g., a watch or PDA).

If access has been given by a particular user that allows for the requesting user to locate that particular user, step **208** is initiated and the allowed location information is provided to the user in step **210**. Step **208** may optionally filter the location information such that only a portion information is passed to the requesting user. The requested user may have,

for example, defined that the requesting user only can obtain the city, state, or country of his/her location. Persons skilled in the art will appreciate that only the location of the desired user needs to have a cell phone or a positioning system. The requesting user may user other means (e.g., the internet) to request the location of the desired user.

Persons skilled in the art will appreciate that the location of a user's cell phone may be retrieved, in step **208**, from a remote database, facility, distribution center, or any other system. More particularly, a remote database may periodically request the location of a cell phone user with a positioning system and store this information. This database may also keep a record of those people allowed to access that user's location, the extent to which access is allowed, and the extent to which a user has requested a user's location. A user may update, add, manipulate, or remove access at any time by doing so at this database. Thus, a requesting user only has to contact the remote database, have his/her identity recognized, have his/her access rights for the requested user location determined, and, if the requesting user has the correct access rights, be provided with the requested user's location.

Instead of a remote database periodically obtaining location information for a user, the database can obtain a user's locations when a request is made for that user's location, providing the requesting user has access to the requested user's location. However, persons skilled in the art will recognize that a remote database is utilized in the above examples that contains the locations, in most circumstances, of a multitude of users. Thus, to increase security even more, a requesting user's cell phone may directly request a user's location from the requested user's cell phone without the need for a database. In such an example a user adds, manipulates, or removes access rights locally on his/her cell phone and does not have to worry about security issues that surround placing his location on a remote database. Furthermore, in such an embodiment a user's location does not have to be saved anywhere, a positioning system can just be "read" by a requesting user with the appropriate access rights.

However, by recording a user's location on a device, e.g., a cell phone's memory or in a remote database, novel applications may be utilized. For example, whenever a user makes a credit card purchase, a credit card authorization system can record the location of a cell phone associated to the purchasing user. In this manner, a new system and method of fraud protection is introduced. The credit card authorization system may, for example, reject a purchase if the purchaser's cell phone (or watch, clothing, PDA, or other positioning enabled device) is not in the vicinity of the purchase. Alternatively, the credit card authorization system may request a second form of identification if the purchaser's cell phone location does not correlate to the location of the purchase. Additionally, the credit card authorization system may call the purchaser's cell phone and request authorization for the credit card purchase. However, such features would preferably first involve the user/purchaser giving the credit card authorization system access to the location of his/her cell phone.

As per another application, a unique dating/matching service could be embodied. For example, a user may store a number of preferences in a matching profile. These preferences may describe what type of person he is interested in meeting. Additionally, a user may store, preferably locally (for the dating/matching feature) but alternatively at a remote location, his/her own profile that has data describing similar attributes for what he/she is looking for. For example, an entry in a user's profile may be "male" and an entry in "looking for" profile may be "female." When a user comes within a certain distance of a user (determined by comparing locations of a user) that fits his/her "looking for" profile, the user may be alerted of the proximity of a matching user. Preferably, the particular user is only alerted if the "looking for" user has entered in attributes similar to the particular user's attributes and is also alerted of the particular user. The next stages of such an application could include, for example, requesting access to a form of communication. Such a form of communication could be for example, talking on the phone, instant messaging, or delivering an email address. Persons skilled in the art will therefore appreciate that many useful applications may be constructed using the principles of the present invention.

FIG. **3** depicts cell phone **300** constructed in accordance with the principles of the present invention. Cell Phone **300** preferably includes speaker **330**, antenna **310**, display screen **320**, control keys **360**, alpha-numeric keys **350**, and microphone **340**. Cell phone **300** also preferably may include, for example, a communications transmitter (not shown), communications receiver (not shown), memory (not shown), positioning device (not shown) and a microprocessor (not shown).

Cell phone **300** may also include locate button **380**. Cell phone **300** may be configured such that if locate button **380** is pressed, a locate feature is initiated (e.g., display screen **400** of FIG. **4** is initiated). Alternatively, cell phone **300** may be configured such that if locate button **380** is pressed, a location signal is sent to a remote storage area (e.g., a remote database), thus manually updating the user's location. This latter functionality may be useful when a user does not want his/her location accessed. As in another alternative embodiment, cell phone **380** may be configured such that if locate button **380** is pressed, the locating features of cell phone **300** are toggled between ON and OFF. Person skilled in the art will appreciate that locate button **380** may be configured to produce a variety of useful functionalities.

FIG. **4** depicts display screen **400** that is displaying a locate feature constructed in accordance with the principles of the present invention. The locate feature of display screen **400** may be included, for example, in cell phone **300** of FIG. **3** and displayed to the user of cell phone **300** of FIG. **3** when that user requests the location of a different user of the present invention. The programming for the feature may, for example, be stored in the memory of the cell phone and executed by the processor at a user's request. Locate Feature **400** includes identifier list **410** of alpha-numeric identifiers for users stored in the memory on cell phone **300** (FIG. **3**) or at a remote location. More particularly the user of display **410** may locate a user contained in identifier list **410** by selecting an appropriate user identifier **420**.

The user identifiers (e.g., "Susan Pracht") in identifier list **410** are selectable and may be selected by control keys **360** of FIG. **3**. Highlight window **410** may be used to prompt the user what identifier from list **410** is currently selected any may be controlled, for example, by the input keys of the cell phone (e.g., keys **350** and **360** of FIG. **3**). Identifiers may be associated to, for example, cellular telephone number, user profiles, or any other identifier that may be associated to a locatable device or user interacting with a locatable device.

Persons skilled in the art will appreciate that display screen **400** may be provided to a user of devices other than wireless devices. For example, display screen **410** may be provided to a user of a personal computer with no positioning system. Preferably, however, the security measures in accordance with the principles of the present invention are still abided to (e.g., access has been granted to the identifier associated to the requesting user). In this manner, a user can control who can access his/her wireless device (e.g., cell phone).

Persons skilled in the art will appreciate that identifier list **410** may be configured, for example, to contain only those users in which the user of cell phone **300** (FIG. **3**) has locate access rights to or any user stored in cell phone **300**. Persons skilled in the art will also appreciate that devices other than cell phone **300** may be used to incorporate the features of the present invention. Such devices could include, for example, personal digital assistants (PDAs), laptop, GPS pagers, GPS watches, car positioning devices, or any other devices that can be located. One advantage of the present invention is that it allows a mobile device with a positioning system to locate a different mobile device with a positioning system while still retaining a high level of location security and privacy.

FIG. **5** is display screen **500** for retrieving location status feature in accordance with the principles of the present invention. The selected identifier may be incorporated into display screen **500** through location status display **510** to inform the user of the status of the location retrieval. For example, display screen **500** may display "locating user" while a request is being processed by a remote facility or database.

FIG. **6** shoes display screen **600** for a display location feature constructed in accordance with the principles of the present invention. When a location is retrieved for the requested user, the location may be displayed on Display Screen **600** through primary location information **610**. Depending on what scope the requesting user has access to primary location information **610** may include, for example, the country, state, city, exact location, or any combination thereof of location information to the user. For example, if the user requesting the location of a desired user has been given unlimited location access by the desired user, primary information **610** may include the exact location of the user.

Secondary location information **620** may be included to supplement the requested users exact location so that the requesting user may have more of an idea of where the requested user is located. For example, if the desired user is located in a mall, primary location information **610** may be the address of the mall. In such an example, secondary location information **620** may be included and display, to the requesting user, the name of the mall.

Directional information **630** may also be included on display **600** or any other display of the present invention. Directional information **630** may include a digital compass **632** so that the user of cell phone **300** (FIG. **3**) knows what direction he or she is facing in. Digital compass **632** may be connected to a direction sensitive device (e.g, mechanical compass) in order to gather directional information. Directional arrow **633** may also be included in Display **600** to indicate where the requested user's location is relative to the location and direction of cell phone **300** (FIG. **3**) (e.g, the requesting user). Persons skilled in the art will appreciate that for some directional information **630** the location of the requesting user must be obtained. This information may be obtained either from cell phone **300**, a remote facility, or by any other suitable means. If the information is gathered from a location gathering device other than the requesting user's device (e.g, cell phone **300** (FIG. **3**)), then the user's device may communicate from this other location gathering device. Once both the locations of the requesting and requested/desired users are known, this information may be utilized in a number of features incorporating the principles of the present invention.

Distance information **634** is one such feature that displays the distance between the locations of the requested and requesting users (e.g., distance between the locations of the requested and requesting devices). Directional information **630** may contain many other elements to enhance the utility of the present invention. For example, a map (not shown in FIG. **6**) may be included in display **600**. This map may be of the area surrounding either the requested, the requesting user's location or both. Information may be included on the map to show the shortest path between the location as well as information about the surrounding area (e.g, area names, store names, etc.). Other information may include, for example, time to reach the destination according to specific types of travel (e.g, subway, walking, running, driving) and the direction the requested user is traveling in.

Many uses for this information may be utilized by a user. For example, if Jane calls Bill and Bill says "I am roaming midtown manhattan shopping why don't you join me", no other call to Bill is needed. Bill simply has to give Jane access to his location and Bill can continue shopping without having to worry about meeting up with Jane at a specific location.

In some instances, it may be beneficial to find the speed and direction of a requested user. For example, if a wife wants to see how long before her husband arrives home, the wife can use this feature of the present invention. This feature may find the husbands location multiple times in a determined amount of time. Through this information the feature may determine the speed and direction that the user is traveling. Using this speed, for example, this feature may display to the wife that the husband "is 10 minutes away" in directional information **630**. In doing so, the need for a call to the husband to determine his location is eliminated.

Persons skilled in the art that the location of multiple users may be displayed on display screen **600**. For example, suppose Jeff, Susan, and Chrissy are at a concert. If all three of these users have unlimited access to the other users, principles of the present invention would allow for a map to be displayed on each of the three locating devices with locator designations for each of the users. Using such map, the group may be able to find themselves in relative location to one another and decide, if need be, on the easiest location for them to meet. Thus map **660** may be included on display screen **600** and display the locations of multiple users (e.g., user's **621** and **622**).

More region **640** designates that more options or information may be retrieved or performed using principles of the present invention. A user may use control keys **340** (FIG. **3**) on cell phone **300** (FIG. **3**) to perform the functionality associated with more region **640**.

FIG. **7** shows display screen **700** for locate listing options in accordance with the principles of the present invention. Display screen **700** includes selectable options list **710** and highlight window **720** and may be displayed to the user, for example, through the activation of functionality associated by more region **640** (FIG. **6**). Options list **710** may include any of the features of the present invention. For example, options list **710** may include options activating a display screen of a map of the requesting user's location, a map of the requested user's location, directions to the requested user's location from the requesting user's location, travel time for the requesting user, travel time for the requested user, and options to set location alerts.

FIG. **8** shows display screen **800** of a failed locate feature due to insufficient rights in accordance with the principles of the present invention. Display screen **800** may be displayed if a requesting user attempts to located a requested user but has not been given access rights by the request user to his or her location. In such an instance insufficient rights message **801** may be prompted on display screen **800**.

FIG. **9** shows display screen **900** of adding and modifying locate rights and options to a user in accordance with the principles of the present invention. A user may give or modify access rights through display **900** to a user identifier in select-

able user identifier listing **910**. Highlight window **920** may be included to enhance the selecting process.

FIG. **10** shows display screen **1000** of assigning location rights to a user in accordance with the principles of the present invention. Display screen **1000** may be displayed, for example, after a user has been selected to be given location rights. Display screen **1000** contains selectable location rights listing **1010**, in which the selecting process may be enhanced by highlight window **1020**. Possible location access rights may be, for example, by country, state, city, exact location, or any other scope of location. Other rights may be assigned such as particular times in the day or time periods at which locations may be accessed.

FIG. **11** shows display screen **1100** of alert options in accordance with the principles of the present invention. Display screen **1100** allows for a user to set up alerts depending on the location of specific users. Selectable alert listings **1110** are included and may be selectable with highlight window **1120**. Examples of alerts that may be included in display screen **1100** may occur, for example, if the requested user is in a specific city or the same city as the user of display **1100**, is within a certain distance, or if a user located the user of display **1100**.

The alerts of the present invention may realize useful functionality. For example, suppose Susan Pracht lives in Pittsburgh and rarely comes to the city of the user of display screen **1100** on cell phone **300** (FIG. **3**) which is New York City. The user of cell phone **300** (FIG. **3**) may then use display screen **1100** and set an alert such that if Susan Pracht ever enters New York City, he or she would be alerted of Susan Pracht's presence.

FIG. **12** shows display screen **1200** of an alert feature in accordance with the principles of the present invention. Display screen **1200** includes an alert message and is displayed to a user when an event occurs that is designated by the user in display screen **1100** (FIG. **11**). Continuing the example from FIG. **11**, if Susan Pracht enters New York City, alert message **1210** would prompt the user that this event has occurred.

FIG. **13** shows display screen **1300** of a login feature in accordance with the principles of the present invention. In order for users to be identified by other user's cell phones or locating devices a user profile may need to be stored remotely from such devices. In such instances user profiles would be used as the locating identifier and the devices into which these profiles are logged into (recognized by) would allow for the user to be located. Display screen **1300** allows for a user to log into a locating device of the present invention. Logging into a device also adds a level of security to the present invention, especially when combined with a password. A user may use the controls of the device of the present invention to enter login **1310** of display **1300**.

In this manner a user may use another user's location device (e.g., cell phone) to locate a user or may use, for example, the internet to locate a user. Additionally, in this manner, a user may change the device being located. For example, a user may use his or her car GPS system or other systems in accordance with the principles of the present invention to be located instead of his or her cell phone. To further this example, a user may log into a web site on the internet and designate his or her current location as home, or any other location, thus eliminating the need for locatable device entirely.

FIG. **14** shows display screen **1400** of a login feature in accordance with the principles of the present invention. Display screen **1400** may be used by a user to enter a password associated to his profile, identity, or cell phone functionality access. A user may enter password **1410** using the controls of the device of display screen **1400** (e.g., cell phone **300** of FIG. **3**). By including a login/password scheme a user can be identified by a remote facility (e.g., a remote database) so that the user's location can be recorded/updated by multiple devices. Additionally, a login/password adds an extra level of security.

FIG. **15** shows cell phone **1500** that may be utilized to carry out the functionality in accordance with the principles of the present invention. Cell phone **1500** includes receiver/transmitter **1510**, microprocessor **1520**, positioning system **1530**, and memory **1540**.

Persons skilled in the art will appreciate that receiver/transmitter **1510** may directly communicate with memory **1540** if receiver/transmitter **1510** does not have its own memory (e.g., if receiver/transmitter **1510** are configured to utilize a buffer for capturing incoming communications bursts before demodulation and decryptions).

Positioning system **1530** may be, for example, a GPS system or a similar positioning system. Positioning system **1530** may include its own receiver for receiving particular signals utilized in positioning cell phone **1500**.

FIG. **16** shows network topology **1600**, in which all components of, or a part of the components of, may be utilized to carry out the features in accordance with the principles of the present invention. In this manner, persons skilled in the art will appreciate that multiple system configurations may be utilized. Topology **1600** introduces the diversity of systems that can be utilized to realize such configurations.

Generally, topology **1600** includes multiple mobile devices (e.g., multiple instances of mobile device **1601**), access control devices and location broker devices (e.g., database **1602** and cell phone base station **1603**), and non-mobile devices (e.g., grounded non-wireless device **1605**). Persons skilled in the art will appreciate that other devices or facilities may be included in topology **1600**. For example, one or more positioning systems **1601** may be included in topology **1600** in order to locate particular devices. For example, a positioning receiver (e.g., GPS receiver) may be included in wireless device **1601** with positing system **1601** being a positioning transmitter (e.g., GPS satellite network).

One or more wireless devices **1601** may be included in topology **1600** and may be, for example, watches, PDAs, cellular phones, radios, cars, or any other mobile device whose location can be determined.

As previously mentioned, access control and location broker devices may be included in topology **1600**. Such devices may be utilized, for example, to store user access rights for a particular user and may contain functionality to request and route a device's location. These devices may be considered information broker's such that devices may be added, removed, or modified without creating the necessity of having to modify the other devices of topology **1600**.

Database **1602** is one such information broker. Database **1602** may, for example, be located in cell phone base station **1603** if database **1602** is utilized to assist in cell phone locating. Database **1602** may be utilized, for example, to store a history a of a device's locations, a user's list of assigned access rights to other users, a log of a user's call activity, a log of a location initiations, a user profile, login/password information, or any other sort of information. Many features may be provided that utilize such information, For example, n approximate location may be determined for a device that is turned OFF (e.g., by utilizing the device's location history). As per another example, if a cell phone is lost and a new one replaced, information such as, for example, phone books, activity logs, and assigned user access rights may be downloaded/flashed into the cell phone.

Database **1602** may be accessed either directly (e.g., manually by an user of the device) or indirectly (e.g., periodically) by a cell phone or other device. Alternatively, a device or cell phone may access database **1602** directly (e.g., manually by an administrator of the database) or indirectly (e.g., periodically) by database **1602**.

A credit card authorization system is an example of additional system **1606** that may be added to topology **1600** to realize new features. Such a credit card authorization system, as described above, could utilize a devices location in order to decrease credit card fraud. System **1600** may also be, for example, systems needed to realize the described dating functionalities or another information provider (e.g., a map information provider).

Non-wireless devices **1605** (e.g., a personal computer) may be included in topology **1600**. Such devices may have locations associated to them or contain a positioning system. These locations may then be associated to a user that is recognized as using the device. For example, if a particular user logs into a non-mobile personal computer, that user's location will be recognized as being the location associated to the personal computer.

The devices of topology **1600** communicate with each other through communications network **1610**. Communications network **1610** may include, for example, any type of communications, routing, amplification, encryption, decryption, parsing, modulation, or demodulation technologies. For example, positioning system **1601** may communicate with wireless device **1601** by sending multiple wireless positioning signals. At the same time, database **1602** may be providing non-wireless device **1605** with a device's location over conventional telephone wires.

FIG. **17** shows locating feature **1700** in accordance with the principles of the present invention. Locating feature **1701** starts at step **1701** and waits at step **1702** until a location is requested. As stated, a location can be requested in a number of instances and by a variety of different means.

For example, a location may be requested by a user of a cell phone that desires to locate a friend by locating that friend's cell phone. Alternatively, a device may be triggered to request a location of a mobile device when an event occurs. For example, a credit card authorization system may request the location of a user's cell phone and the location of a store that just used a credit card associated to the requested user.

If a location is requested, access rights to the requested location for the requesting device and/or user are obtained at step **1703**. Step **1703** may be employed for example, as a call to a database storing a list of assigned access rights for the requested device/user and finding if any access rights were assigned to the requestor's identity. As per another example, step **1703** may be employed as a direct call to the requested device/user.

Step **1704** determines if the requestor has been assigned access rights to obtain the requested device/user's location. Persons skilled in the art will appreciate that some devices may always have access to a user's location regardless if a user has assigned access rights to the requesting device. In this manner, a device may be set up to always let a user access a location. For example, a mother may purchase a cell phone for a minor and may configure the cell phone to always allow her location information.

If access rights do exist for the requesting device/user at step **1704** then step **1705** may be initiated and location information may be provided to the requester. Such location information may be filtered according to the assigned access rights. For example, if a user has only been assigned access rights to obtain the requested user's city location, only the city that the requested user/device is currently located in (or the last city location available) may be obtained. The process then finishes at step **1707** after the assigned location information has been delivered to the requester at step **1705**. Persons skilled in the art will appreciate that steps may be added to, removed, or modified from locating feature **1700**. For example, instead of finish step **1707**, step **1702** may be initiated after step **1706** has completed.

If a requester has not been assigned rights to access the requested user/device's location as determined by step **1704**, then step **1712** may be initiated. Step **1712** informs the requester that the requester does not have access rights to obtain the location of a user/device. Step **1711** may follow and provide an opportunity for the requester to obtain the access rights. More particularly, step **1711** asks the requester if the requestor would like to request access rights. If the requester does not want to request access rights, locating feature **1700** may, for example, return to step **1702**. Else, access rights may be requested at step **1721**. Step **1722** follows and if access rights were given then step **1705** may be initiated. Else, step **1712** may, for example, be re-initiated.

FIG. **18** shows one embodiment of a cell phone burst that has been configured to embed a device or user's location **1801** between control signals (e.g., synchronization signals) and data signals. Persons skilled in the art will appreciate that some cell phone burst standards (e.g., TDMA and CDMA) have signal portions that are reserved for future technologies. In one embodiment, this reserved portion is utilized to house location information **1801**. A cell phone tower or base information may then strip received signals **1800** of location information **1801**, store location information **1801** into a database or other storage device, and deliver the received signals to its desired location. In this manner, a user may refresh his/her location information every time that a cell phone base station receives or routes information for the user. By stripping location information **1801** from signal **1800**, the intended receiver does not have access to the location of the device transmitting signal **1800**. A signal similar to signal **1800** may be sent to a cell phone that has requested, and has the appropriate location access rights, to location **1801**. Location **1701** may also be stored in other portions of signal **1700** that are not reserved portions. For example, a received signal **1800** may store location information in the data portions of signal **1800**. In embodiments where additional information is sent about location **1801** (e.g., a map associated with location **1801**) utilizing a main data portion of signal **1800** is preferred. Persons skilled in the art will appreciate that signal burst **1800** may actually be any type of communication signal such as, for example, information returned from a database inquiry.

Persons skilled in the art will also appreciate that the systems and methods of the present invention may be implemented using other locating features and configurations. For example, a user may be manually requested to allow location access rights every time his/her location is requested. As per another example, a user may organize his/her user list into groups and assign access rights to that group (e.g., family member user group, close friend user group). All such modifications are within the scope of the present invention, which is limited only by the claims that follow.

What is claimed is:

1. A method comprising:

displaying on a first wireless telephonic device a plurality of users, wherein each one of said plurality of users is associated to a different one of a plurality of wireless telephonic devices;

receiving on said first wireless telephonic device a first manual input in a form of a selection of one of said plurality of users;

receiving on said first wireless telephonic device an input in a form of a login and a second manual input in a form of a password;

determining whether to allow access of location information for said one of said plurality of wireless telephonic devices associated to said selected one of said plurality of users, wherein said determination includes identifying said user of said first wireless telephonic device from said plurality of users using said login and determining said password is associated with said login and determining whether said selected one of said plurality of users has provided access rights for said location information to said user of said first wireless telephonic device, and said first wireless telephonic device is operable to assign location access rights to said one of said plurality of wireless telephonic devices associated with said selected one of said plurality of users for obtaining a location of said first wireless telephonic device;

transmitting said location information from a server to said first wireless telephonic device; and

displaying said location information on said first wireless device.

2. The method of claim **1**, wherein a positioning system is utilized to provide said location information.

3. The method of claim **1**, wherein said selection occurs on a first display screen and a second display screen is provided on said first wireless telephonic device during said determination.

4. The method of claim **1**, wherein said selection occurs on a first display screen, a second display screen is provided on said first wireless telephonic device during said determination, and a third display screen is provided on said first wireless device after said location information is transmitted to said first wireless telephonic device.

5. The method of claim **1**, wherein said selection occurs on a first display screen, a second display screen is provided on said first wireless telephonic device during said determination, a third display screen is provided on said first wireless device after said location information is transmitted to said first wireless telephonic device, and a fourth display screen is provided that includes an option to obtain directions from said first wireless telephonic device to said one of said plurality of wireless telephonic devices associated to said selected one of said plurality of users.

6. The method of claim **1**, further comprising receiving a third manual input, wherein said first wireless telephonic device assigned location access rights to said one of said plurality of wireless telephonic devices associated with said selected one of said plurality of users for obtaining a location of said first wireless telephonic device and said third manual input modifies said location access rights.

7. The method of claim **1**, wherein a triangulation process is utilized to provide said location information.

8. A method comprising:

displaying on a wireless device a first name associated to a first wireless telephonic device and a second name associated to a second wireless telephonic device;

accepting a selection of said first name on said wireless device;

receiving manual input entered into said wireless device that includes a login and a password;

determining whether to transmit location information associated to said first wireless telephonic device from a server to said wireless device, wherein said determining includes performing an identification process based, at least in part, on said manual input to identify the user of said wireless device and determining whether said first wireless telephonic device has provided access rights for said location information for said identified user and said server is located remotely from said wireless device, said first wireless telephonic device, and said second wireless telephonic device, and said wireless device is operable to assign location access rights to said first wireless telephonic device for obtaining a location of said wireless device;

transmitting said location information to said wireless device based on said determination; and

displaying said location information on said wireless device.

9. The method of claim **8**, wherein a positioning system is utilized to provide said location information.

10. The method of claim **8**, wherein said selection occurs on a first display screen and a second display screen is provided on said wireless device during said determination.

11. The method of claim **8**, wherein said selection occurs on a first display screen, a second display screen is provided on said wireless device during said determination, and a third display screen is provided on said wireless device after said location information is transmitted to said wireless device.

12. The method of claim **8**, wherein said selection occurs on a first display screen, a second display screen is provided on said wireless device during said determination, a third display screen is provided on said wireless device after said location information is transmitted to said wireless device, and a fourth display screen is provided that includes an option to obtain directions from said wireless telephonic device to said first wireless telephonic device.

13. The method of claim **8**, further comprising receiving a third manual input, wherein said wireless device assigned location access rights to said first wireless telephonic device for obtaining a location of said wireless device and said third manual input modifies said location access rights.

14. The method of claim **3**, further comprising receiving a third manual input, wherein said wireless device assigned location access rights to said first wireless telephonic device for obtaining a location of said wireless device, said third manual input modifies said location access rights, and determining a travel time between said wireless device and said first wireless telephonic device.

15. A method comprising:

accepting on a first wireless device a manual selection representative of a second wireless device from a list representative of a plurality of wireless devices;

locating said second wireless device;

determining on a server whether said second wireless device has provided permission for said first wireless device to locate said second wireless device based, at least in part, on an identification of a login, that identifies the user of said first wireless device from a plurality of users, and password received by said first wireless device that is associated with said login and determining whether said user is associated with said permission, and said first wireless device is operable to assign a second permission to said second wireless device for obtaining second location information of said first wireless device;

providing location information to said first wireless device based on said determination; and

displaying a map on said first wireless device with a marker representative of the location of said second wireless device.

16. The method of claim **15**, wherein a positioning system is utilized to provide said location information.

17. The method of claim **15**, wherein said password is received on a first display screen.

18. The method of claim **15**, wherein said password is received on a first display screen and said login is received on a second display screen.

19. The method of claim **15**, wherein said manual selection occurs on a first display screen and a second display screen is provided on said first wireless device during said determination.

20. The method of claim **15**, wherein said manual selection occurs on a first display screen, a second display screen is provided on said first wireless device during said determination, and a third display screen is provided on said first wireless device after said location information is transmitted to said first wireless device.

* * * * *

EXHIBIT 8

US008374575B2

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Mullen

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(54) **SYSTEMS AND METHODS FOR LOCATING CELLULAR PHONES AND SECURITY MEASURES FOR THE SAME**

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(58) **Field of Classification Search** 455/404.1, 455/404.2, 410, 456.1–456.3, 457
See application file for complete search history.

(56) **References Cited**

U.S. PATENT DOCUMENTS

4,654,879	A	3/1987	Goldman et al.
5,043,736	A	8/1991	Darnell et al.
5,086,390	A	2/1992	Matthews
5,097,416	A	3/1992	Matthews
5,197,092	A	3/1993	Bamburak
5,305,201	A	4/1994	Matthews
5,327,144	A	7/1994	Stilp et al.
5,337,344	A	8/1994	Alvesalo
5,341,410	A	8/1994	Aron et al.
5,384,824	A	1/1995	Alvesalo
5,388,147	A	2/1995	Grimes
5,442,805	A	8/1995	Sagars et al.
5,479,482	A	12/1995	Grimes
5,502,757	A	3/1996	Bales et al.
5,519,760	A	5/1996	Borkowski et al.
5,537,460	A	7/1996	Holliday, Jr. et al.
5,548,816	A	8/1996	DeVaney
5,551,058	A	8/1996	Hutcheson et al.
5,555,286	A	9/1996	Tendler
5,719,563	A	2/1998	Thompson

(Continued)

FOREIGN PATENT DOCUMENTS

WO	WO 99/00717	2/1999
WO	WO 99/09775	2/1999

(Continued)

OTHER PUBLICATIONS

ETSI TS 101 513. "Digital Cellular Telecommunications System (Phase 2): Location Services (LCS)," GSM 12.71, version 8.0.1. 1999.

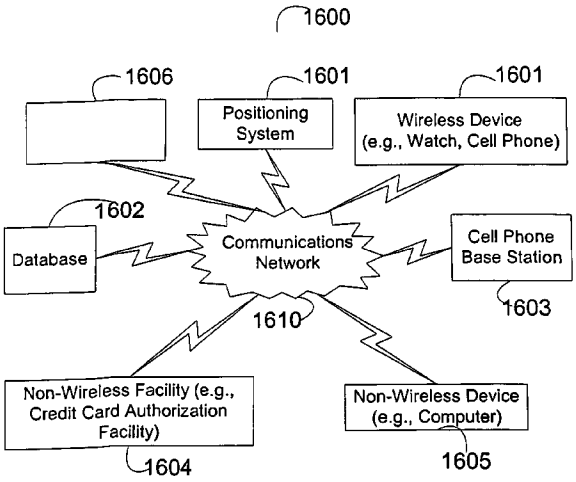
(Continued)

Primary Examiner — Quynh Nguyen

(57) **ABSTRACT**

Systems and methods for locating a cellular phone are provided. More particularly, systems and methods for providing the location of a requested user's cellular phone from a requesting user's device (e.g., a second cellular phone) based on access rights defined by the requested user. Location descriptions may be provided at a multitude of levels. For example, if a cellular phone, or an identity associated to (e.g., logged into) a cellular phone, has been given access rights to a cell phone's exact location for an indefinite amount of time, that cell phone can receive, on command, the exact location of the approved cell phone. Other levels of location information that can be granted include, for example, proximities, states, and countries.

46 Claims, 17 Drawing Sheets



U.S. PATENT DOCUMENTS

5,767,788	A	6/1998	Ness	
5,778,315	A	7/1998	Proietti	
5,796,634	A	8/1998	Craport et al.	
5,805,999	A	9/1998	Inoue	
5,815,538	A	9/1998	Grell et al.	
5,832,381	A	11/1998	Kauppi	
5,847,976	A	12/1998	Lescourret	
5,875,398	A	2/1999	Snapp	
5,890,062	A	3/1999	Courtney et al.	
5,920,820	A	7/1999	Qureshi et al.	
5,929,752	A	7/1999	Janky et al.	
5,950,125	A	9/1999	Buhrmann et al.	
5,961,569	A	10/1999	Craport et al.	
5,961,572	A	10/1999	Craport et al.	
5,978,747	A	11/1999	Craport et al.	
6,023,241	A	2/2000	Clapper	
6,028,537	A	2/2000	Suman et al.	
6,032,042	A	2/2000	Kauppi	
6,035,189	A	3/2000	All-Vehmas	
6,035,198	A	3/2000	Wiehe	
6,038,446	A	3/2000	Courtney et al.	
6,047,051	A	4/2000	Ginzboorg	
6,049,711	A	4/2000	Ben-Yehezkel	
6,061,561	A	5/2000	Alanara et al.	
6,078,578	A	6/2000	Matsumoto	
6,091,959	A	7/2000	Souissi et al.	
6,138,003	A	10/2000	Kingdon et al.	
6,144,336	A	11/2000	Preston et al.	
6,157,841	A	12/2000	Bolduc et al.	
6,166,626	A	12/2000	Janky et al.	
6,173,182	B1	1/2001	Cha	
6,201,803	B1	3/2001	Munday et al.	
6,208,866	B1	3/2001	Rouhollahzadeh et al.	
6,215,863	B1	4/2001	Bennett et al.	
6,236,359	B1	5/2001	Watters et al.	
6,236,858	B1	5/2001	Griffith	
6,240,069	B1	5/2001	Alperovich	
6,246,376	B1	6/2001	Bork et al.	
6,246,861	B1	6/2001	Messier et al.	
6,252,543	B1	6/2001	Camp	
6,256,498	B1	7/2001	Ludwig	
6,259,923	B1	7/2001	Lim et al.	
6,275,771	B1	8/2001	Berstis et al.	
6,311,060	B1	10/2001	Evans et al.	
6,314,365	B1	11/2001	Smith	
6,317,718	B1	11/2001	Fano	
6,321,092	B1	11/2001	Fitch et al.	
6,324,404	B1	11/2001	Dennison et al.	
6,330,452	B1	12/2001	Fattouche et al.	
6,360,101	B1	3/2002	Irvin	
6,360,102	B1 *	3/2002	Havinis et al.	455/457
6,360,167	B1	3/2002	Millington et al.	
6,374,306	B1	4/2002	Tognazzini	
6,377,810	B1	4/2002	Geiger et al.	
6,393,274	B1	5/2002	Peltonen	
6,397,065	B1	5/2002	Huusko et al.	
6,400,946	B1	6/2002	Vazvan	
6,400,956	B1	6/2002	Richton	
6,408,186	B1	6/2002	Park et al.	
6,421,009	B2	7/2002	Suprunov	
6,438,376	B1	8/2002	Elliott et al.	
6,438,381	B1	8/2002	Alberth, Jr. et al.	
6,446,118	B1	9/2002	Gottlieb	
6,449,486	B1	9/2002	Rao	
6,456,854	B1	9/2002	Chern	
D464,033	S	10/2002	Piano Poirier	
6,466,788	B1	10/2002	Carlsson	
6,532,360	B1	3/2003	Shaffer	
6,564,064	B1	5/2003	Ciganer et al.	
6,580,914	B1	6/2003	Smith	
6,580,918	B1	6/2003	Leickel	
6,584,314	B1	6/2003	Haumont	
6,587,691	B1	7/2003	Granstam	
6,603,969	B1	8/2003	Vuoristo	
6,603,977	B1	8/2003	Walsh et al.	
6,611,687	B1	8/2003	Clark	
6,618,593	B1	9/2003	Drutman et al.	
6,618,671	B2	9/2003	Dooley et al.	
6,622,020	B1	9/2003	Seki	
6,628,938	B1	9/2003	Rachabathuni et al.	
6,647,257	B2	11/2003	Owensby	
6,662,014	B1 *	12/2003	Walsh	455/456.2
6,665,389	B1	12/2003	Haste, III	
6,677,894	B2	1/2004	Sheynblat	
6,714,791	B2	3/2004	Friedman	
6,716,101	B1 *	4/2004	Meadows et al.	455/456.1
6,735,564	B1	5/2004	Puhakainen	
6,778,837	B2	8/2004	Bade et al.	
6,795,710	B1	9/2004	Creemer	
6,798,358	B2	9/2004	Joyce et al.	
6,799,094	B1	9/2004	Vaida et al.	
6,806,813	B1	10/2004	Cheng et al.	
6,816,735	B1	11/2004	Rayburn et al.	
6,826,398	B1	11/2004	Lagerstrom et al.	
6,836,667	B1	12/2004	Smith	
6,870,822	B2	3/2005	Balogh	
6,879,838	B2	4/2005	Rankin et al.	
6,882,837	B2	4/2005	Fernandez et al.	
6,882,856	B1	4/2005	Alterman	
6,885,874	B2 *	4/2005	Grube et al.	455/520
6,912,398	B1	6/2005	Domnitz	
6,912,545	B1	6/2005	Lundy et al.	
6,920,319	B2	7/2005	Knutsson et al.	
6,920,328	B2	7/2005	Wollrab	
6,928,279	B2	8/2005	Seligmann et al.	
6,932,698	B2	8/2005	Sprogis	
6,944,447	B2	9/2005	Portman et al.	
6,968,179	B1	11/2005	De Vries	
6,975,998	B1 *	12/2005	Jones	705/8
6,999,777	B1 *	2/2006	Ganesh	455/456.1
7,013,148	B1	3/2006	Ganesh	
7,072,956	B2	7/2006	Parupudi	
7,130,630	B1	10/2006	Enzmann	
7,177,651	B1 *	2/2007	Almassy	455/456.1
7,203,674	B2	4/2007	Cohen	
7,215,965	B2 *	5/2007	Fournier et al.	455/456.1
7,248,872	B2 *	7/2007	Bassett et al.	455/433
7,269,426	B2	9/2007	Kokkonen et al.	
7,269,428	B1	9/2007	Wallenius	
7,272,220	B1	9/2007	Zhang	
7,324,823	B1	1/2008	Rosen	
7,409,429	B2	8/2008	Kaufman	
7,570,958	B2	8/2009	Krasner	
2001/0029184	A1	10/2001	L'Anson et al.	
2002/0042277	A1 *	4/2002	Smith	455/456
2002/0086683	A1	7/2002	Kohar et al.	
2002/0102989	A1 *	8/2002	Calvert et al.	455/456
2002/0115453	A1	8/2002	Poulin et al.	
2002/0141434	A1	10/2002	Grundvig	
2002/0164998	A1 *	11/2002	Younis	455/456
2002/0183059	A1 *	12/2002	Noreen et al.	455/427
2003/0013456	A1 *	1/2003	Bates et al.	455/456
2003/0023726	A1	1/2003	Rice et al.	
2003/0045301	A1	3/2003	Wollrab	
2003/0119522	A1	6/2003	Barclay et al.	
2004/0054428	A1	3/2004	Sheha	
2004/0077359	A1 *	4/2004	Bernas et al.	455/456.1
2004/0127231	A1	7/2004	Dorr	
2004/0180669	A1 *	9/2004	Kall	455/456.1
2008/0288355	A1	11/2008	Rosen	
2009/0029717	A1	1/2009	Bates et al.	

FOREIGN PATENT DOCUMENTS

WO	WO 99/51051	3/1999
WO	WO 00/28760	5/2000
WO	WO 00/35228	6/2000
WO	WO 00/38350	6/2000
WO	WO 00/64075	10/2000
WO	WO 00/76194	12/2000
WO	WO 00/76243	12/2000
WO	WO 01/01711	1/2001
WO	WO 01/01718	1/2001
WO	WO 01/03406	1/2001
WO	WO 01/03454	1/2001
WO	WO 01/03461	1/2001
WO	WO 01/10718	1/2001
WO	WO 01/20938	3/2001

WO	WO 01/33885	5/2001
WO	WO 01/39525	5/2001
WO	WO 01/39528	5/2001
WO	WO 01/41468	6/2001
WO	WO 01/50544	7/2001
WO	WO 01/86880	11/2001
WO	WO 01/89251	11/2001
WO	WO 02/03718	1/2002

OTHER PUBLICATIONS

ETSI TS 101 527 "Digital Cellular Telecommunications System (Phase 2+): Location Services (LCS): Mobile Station (MS): Serving Mobile Location Centre (SMLC)," Radio Resource LCS Protocol (RRLP), GSM 04.31, version 8.1.0. 1999.

Wrolstad, Jay, "Sprint Claims First With E911-Capable Phone," newsfactor.com (as viewed at http://www.newsfactor.com/perl/story/13952.html on Jan. 22, 2007), Oct. 4, 2001).

Wrolstad, Jay, "Sprint Rolls Out E911 Services," newsfactor.com (as viewed at http://www.newsfactor.com/perl/story/15506.html on Jan. 22, 2007), Dec. 26, 2001).

"Sprint PCS First Quarterly E911 Implementation Report," Before the Federal Communications Commission, In the Matter of Revision of the Commission's Rules to Ensure Compatibility With Enhanced 911 Emergency Calling Systems , Feb. 1, 2002.

"Who is Integrated Data Communications?," presented at the FCC E911 Automatic Location Identification Round Table, Jun. 28, 1999.

"Wireless Telecommunications Bureau Seeks Comment on Request to Commence Rulemaking to Establish Fair Location Information Practices," DA 01-696, (as viewed at http://www.fcc.gov.Bureaus/Wireless/PublicNotices/9001/da010696.html on Jan. 22, 2007), Mar. 16, 2001.

"Go2 Systems & Integrated Data Communications to Deliver Location Services Automatically to Wireless Phones; Alliance Enables Automatic Recognition of Wireless Caller's Location," Business Wire (as viewed at http://www.findarticles.com/p/articles/mi_m0EIN/is_2000_Feb_28/ai/59621222 on Jan. 22, 2007), Feb. 28, 2000.

"Before the Federal Communications Commission: In the Matter of: E911 Automatic Location Identification Round Table," Transcript, Jun. 28, 1999.

"Pulver.com's Location Based Services Report," pulver.com (as visited at http://pulver.com/lbareport/lastlbareport.16jan01.txt on Jan. 22, 2007), Jan. 2001.

"Pulver.com's Location Based Services Report," pulver.com (as visited at http://pulver.com/lbareport/lastlbareport.26feb01.txt on Jan. 22, 2007), Feb. 2001.

"Pulver.com's Location Based Services Report," pulver.com (as visited at http://pulver.com/lbareport/lastlbareport.26mar01.txt on Jan. 22, 2007), Mar. 2001.

"Pulver.com's Location Based Services Report," pulver.com (as visited at http://pulver.com/lbareport/lastlbareport.05apr01.txt on Jan. 22, 2007), Apr. 2001.

"Pulver.com's Location Based Services Report," pulver.com (as visited at http://pulver.com/lbareport/lastlbareport.01may01.txt on Jan. 22, 2007), May, 2001.

"Pulver.com's Location Based Services Report," pulver.com (as visited at http://pulver.com/lbareport/lastlbareport.10jun01.txt on Jan. 22, 2007), Jun. 2001.

"Pulver.com's Location Based Services Report," pulver.com (as visited at http://pulver.com/lbareport/lastlbareport.05jul01.txt on Jan. 22, 2007), Jul. 2001.

"Pulver.com's Location Based Services Report," pulver.com (as visited at http://pulver.com/lbareport/lastlbareport.01aug01.txt on Jan. 22, 2007), Aug. 2001.

"Pulver.com's Location Based Services Report," pulver.com (as visited at http://pulver.com/lbareport/lastlbareport.04sep01.txt on Jan. 22, 2007) Sep. 2001.

"Pulver.com's Location Based Services Report," pulver.com (as visited at http://pulver.com/lbareport/lastlbareport.02oct01.txt on Jan. 22, 2007), Oct. 2001.

"Pulver.com's Location Based Services Report," pulver.com (as visited at http://pulver.com/lbareport/lastlbareport.02nov01.txt on Jan. 22, 2007), Nov. 2001.

"Pulver.com's Location Based Services Report," pulver.com (as visited at http://pulver.com/lbareport/lastlbareport.03dec01.txt on Jan. 22, 2007), Dec. 2001.

"Pulver.com's Location Based Services Report," pulver.com (as visited at http://pulver.com/lbareport/lastlbareport.07jan02.txt on Jan. 22, 2007), Jan. 2002.

"Pulver.com's Location Based Services Report," pulver.com (as visited at http://pulver.com/lbareport/lastlbareport.04feb02.txt on Jan. 22, 2007), Feb. 2002.

"Pulver.com's Location Based Services Report," pulver.com (as visited at http://pulver.com/lbareport/lastlbareport.04mar02.txt on Jan. 22, 2007), Mar. 2002.

"Spring PCS First Quarterly E911 Implementation Report," Before the Federal Communications Commission, In the Matter of Revison of the Commission's Rules To Ensure Compatibility With Enhanced 911 Emergency Calling Systems, Feb. 1, 2002.

"Who is Integrated Data Communications?, " presented at the FCC E-911 Automatic Location Identification Round Table, Jun. 28, 1999.

"Wireless Telecommunications Bureau Seeks Comment On Request To Commence Rulemaking To Establish Fair Location Information Practices," DA 01-696 (as viewed at http://www.fcc.gov.Bureaus/Wireless/PublicNotices/9001/da010696.html on Jan. 22, 2007), Mar. 16, 2001.

"Go2 Systems & Integrated Data Communications to Deliver Location Services Automatically to Wireless Phones; Alliance Enables Automatic Recognition of Wireless Caller's Location," Business Wire (as viewed at http://www.findarticles.com/p/articles/mi_m0EIN/is_2000_Feb_28/ai/59621222 on Jan. 22, 2007), Feb. 28, 2000.

"Before the Federal Communications Commission: In the Matter of: E-911 Automatic Location Identification Round Table," Transcript, Jun. 28, 1999.

"Pulver.com's Location Based Services Report," pulver.com (as viewed at http://pulver.com/lbareport/lastlbareport.16jan01.txt on Jan. 22, 2007), Jan. 2001.

"Pulver.com's Location Based Services Report," pulver.com (as visited at http://pulver.com/lbareport/lastlbareport.01may01.txt on Jan. 22, 2007), May 2001.

"Pulver.com's Location Based Services Report," pulver.com (as visited at http://pulver.com/lbareport/lastlbareport.04sep01.txt on Jan. 22, 2007), Sep. 2001.

* cited by examiner

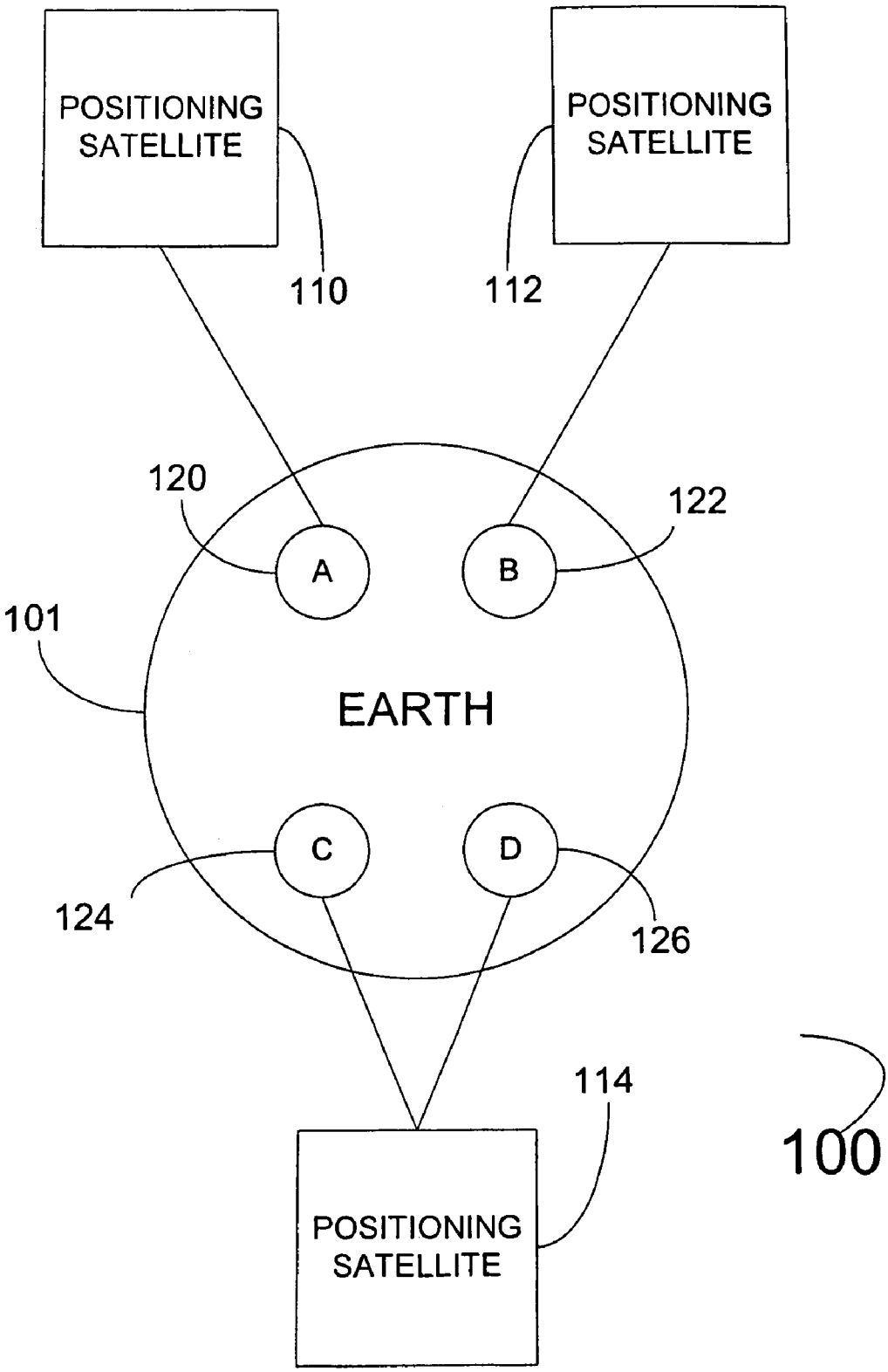

POSITIONING SATELLITE
POSITIONING SATELLITE
110
112
120
122
A
B
101
EARTH
C
D
124
126
114
100
POSITIONING SATELLITE

FIG. 1

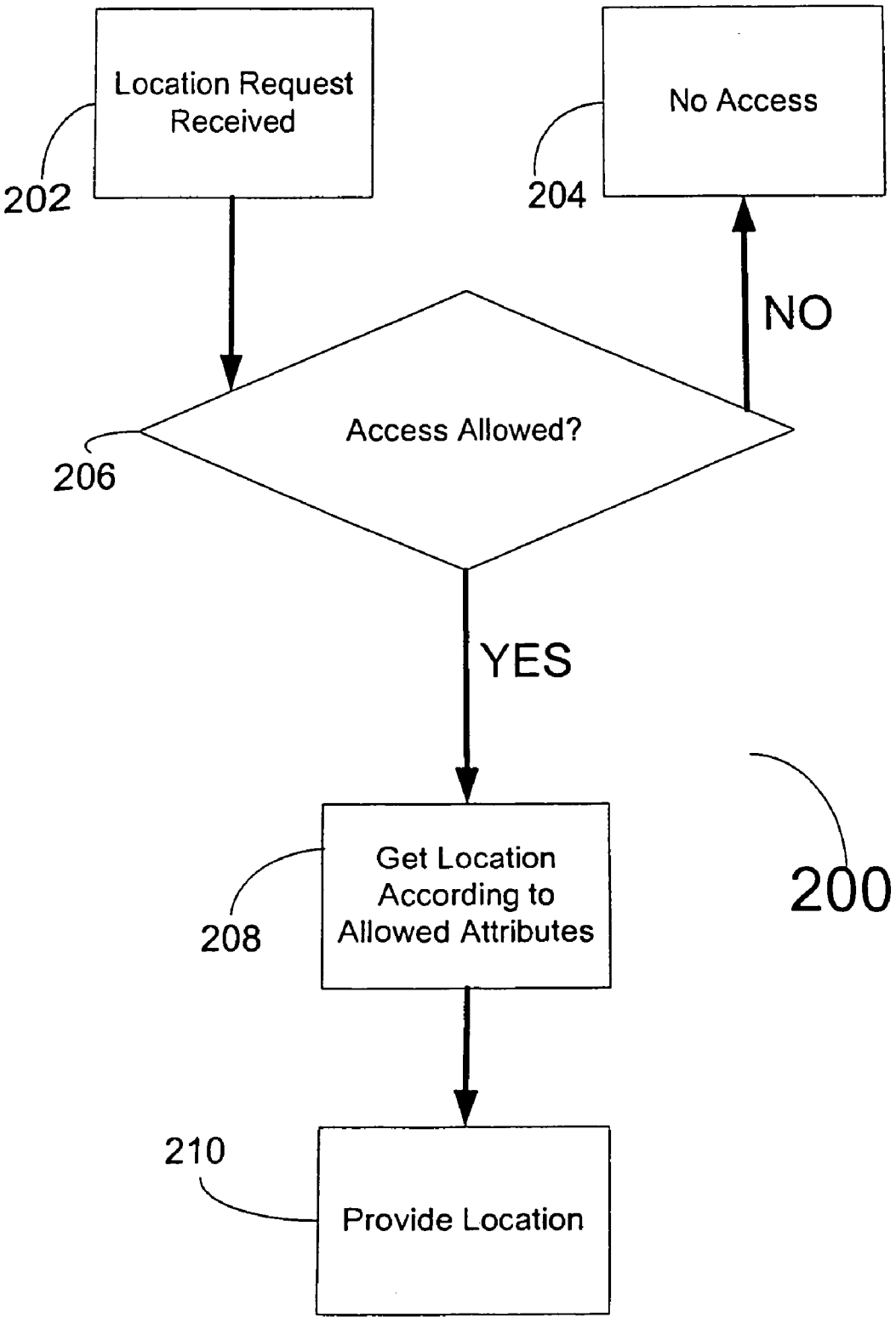

Location Request Received
202
No Access
204
NO
Access Allowed?
206
YES
Get Location According to Allowed Attributes
208
200
210
Provide Location

FIG. 2

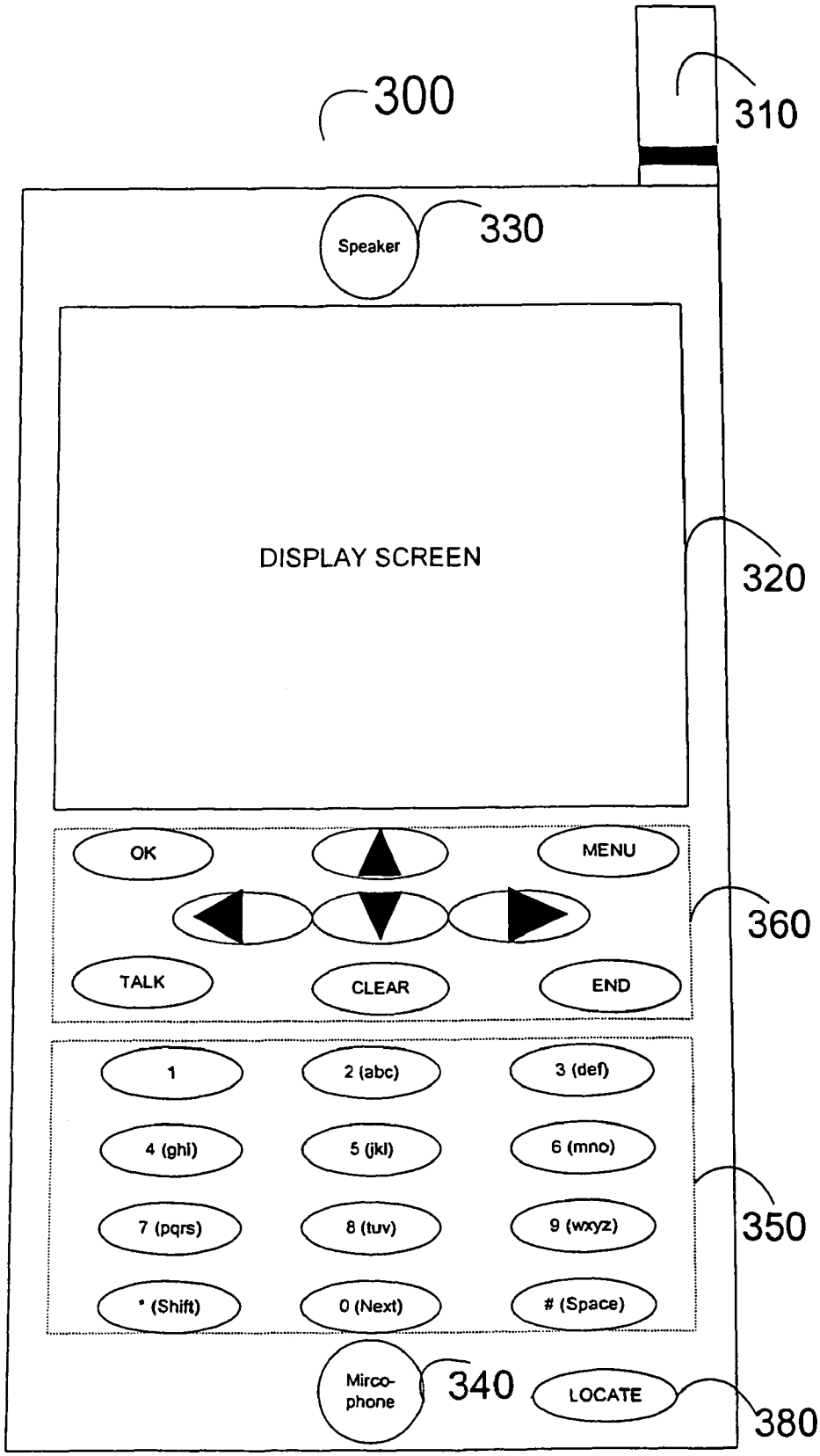

300
310
Speaker
330
DISPLAY SCREEN
320
OK
MENU
360
TALK
CLEAR
END
1
2 (abc)
3 (def)
4 (ghi)
5 (jkl)
6 (mno)
7 (pqrs)
8 (tuv)
9 (wxyz)
* (Shift)
0 (Next)
(Space)
350
Mirco-phone
340
LOCATE
380

FIG. 3

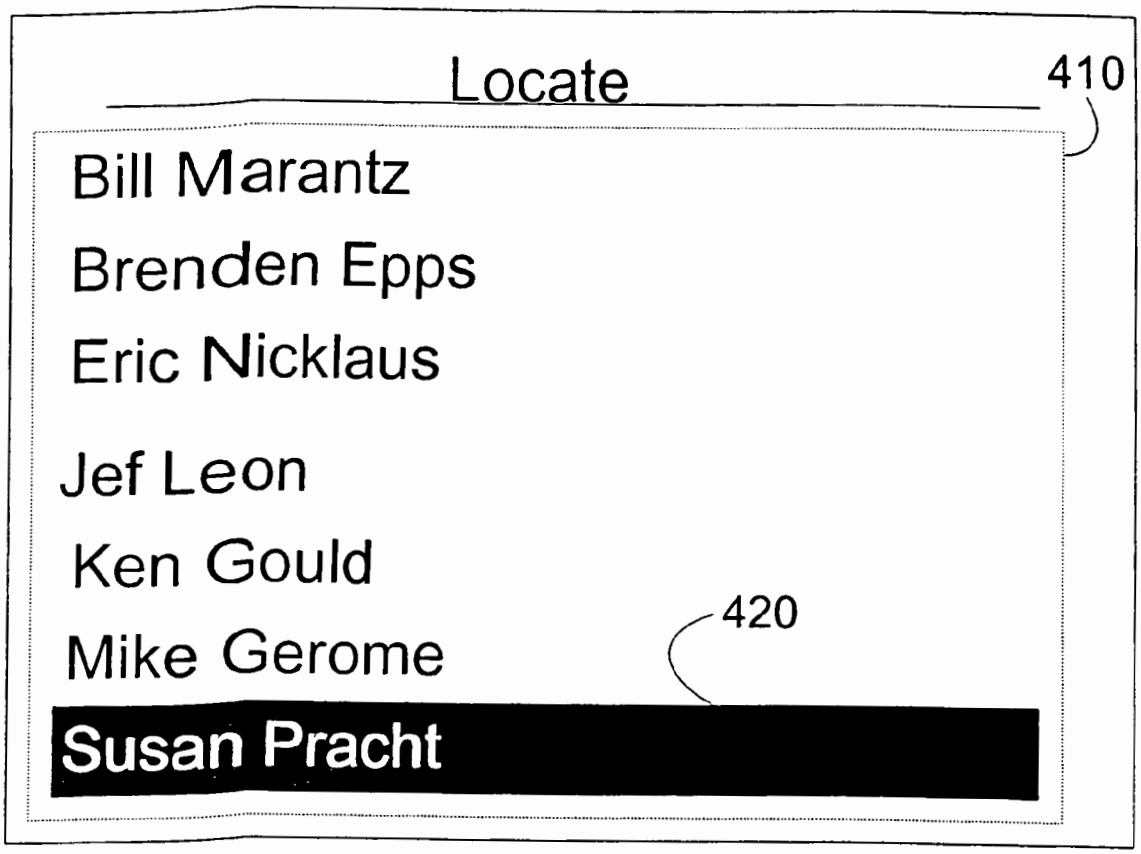

Locate
410
Bill Marantz
Brenden Epps
Eric Nicklaus
Jef Leon
Ken Gould
Mike Gerome
420
Susan Pracht

FIG. 4

400

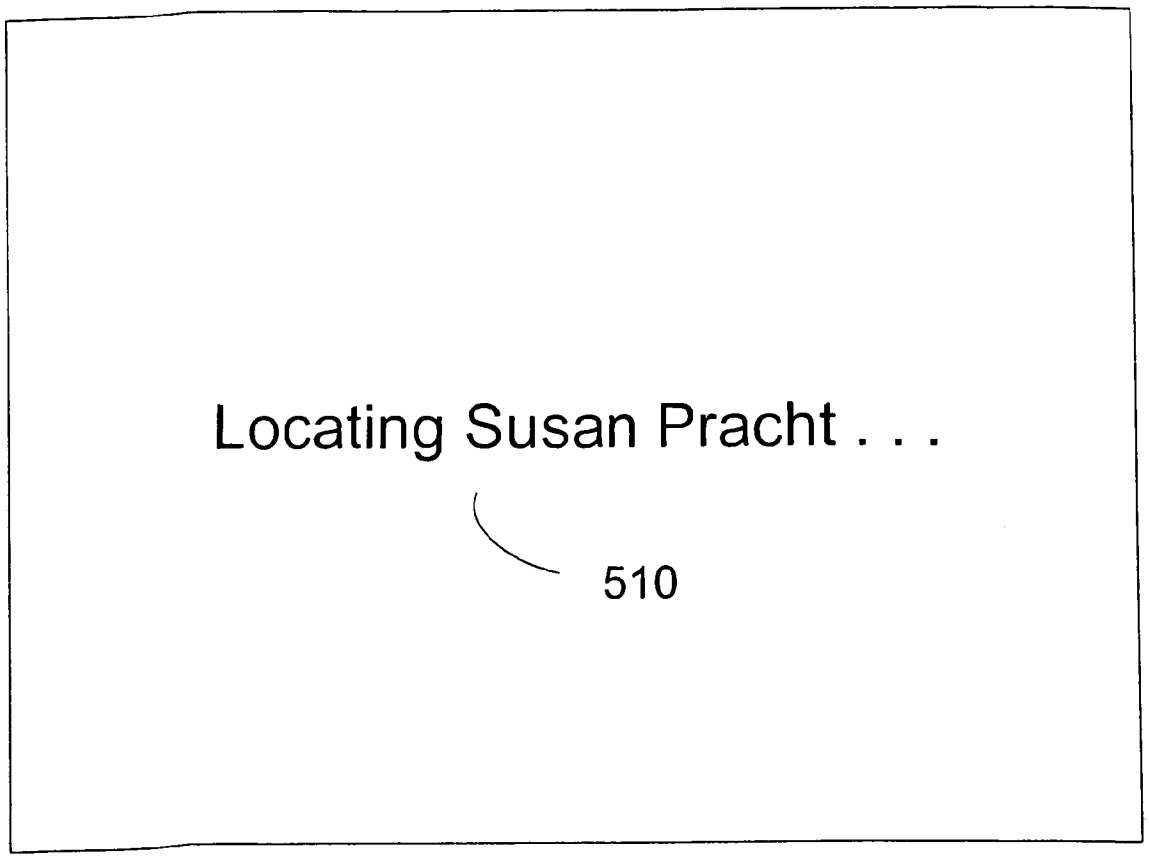


FIG. 5

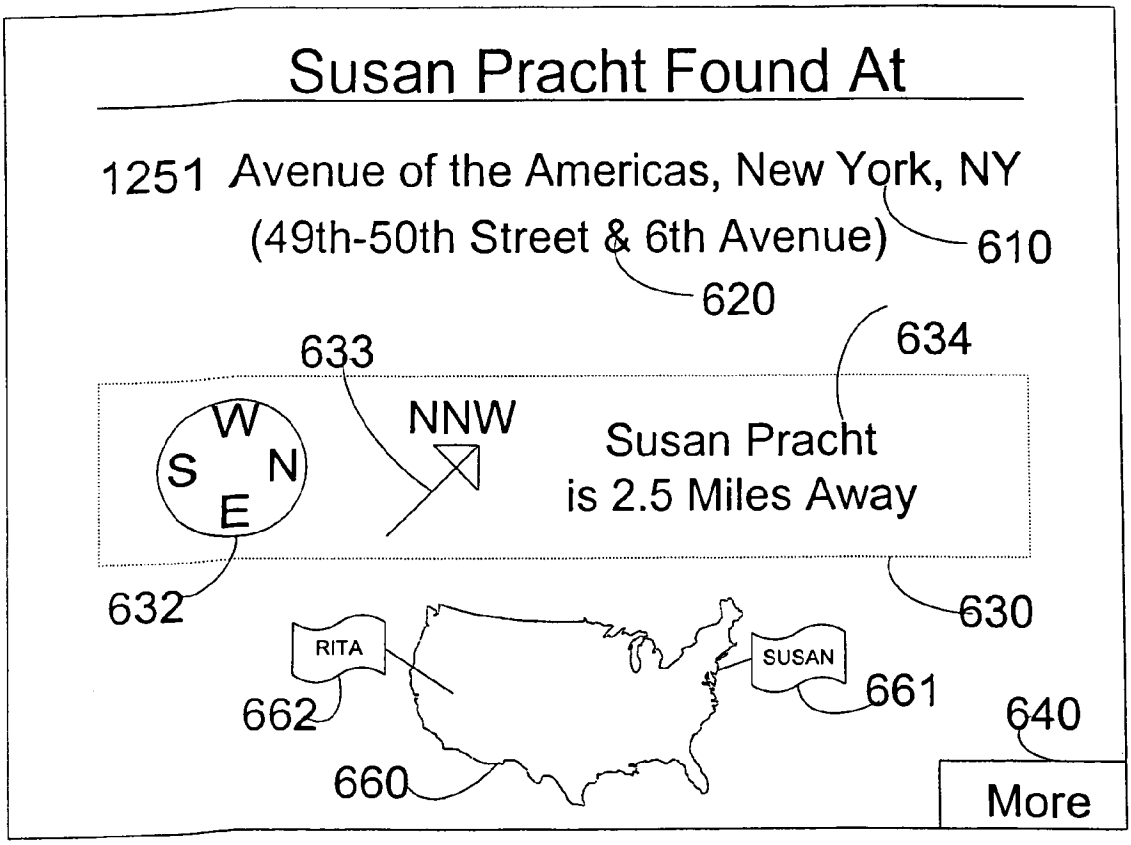

Susan Pracht Found At
1251 Avenue of the Americas, New York, NY
(49th-50th Street & 6th Avenue)
610
620
633
634
W
S
N
E
NNW
Susan Pracht
is 2.5 Miles Away
632
630
RITA
SUSAN
662
661
640
660
More
600

FIG. 6

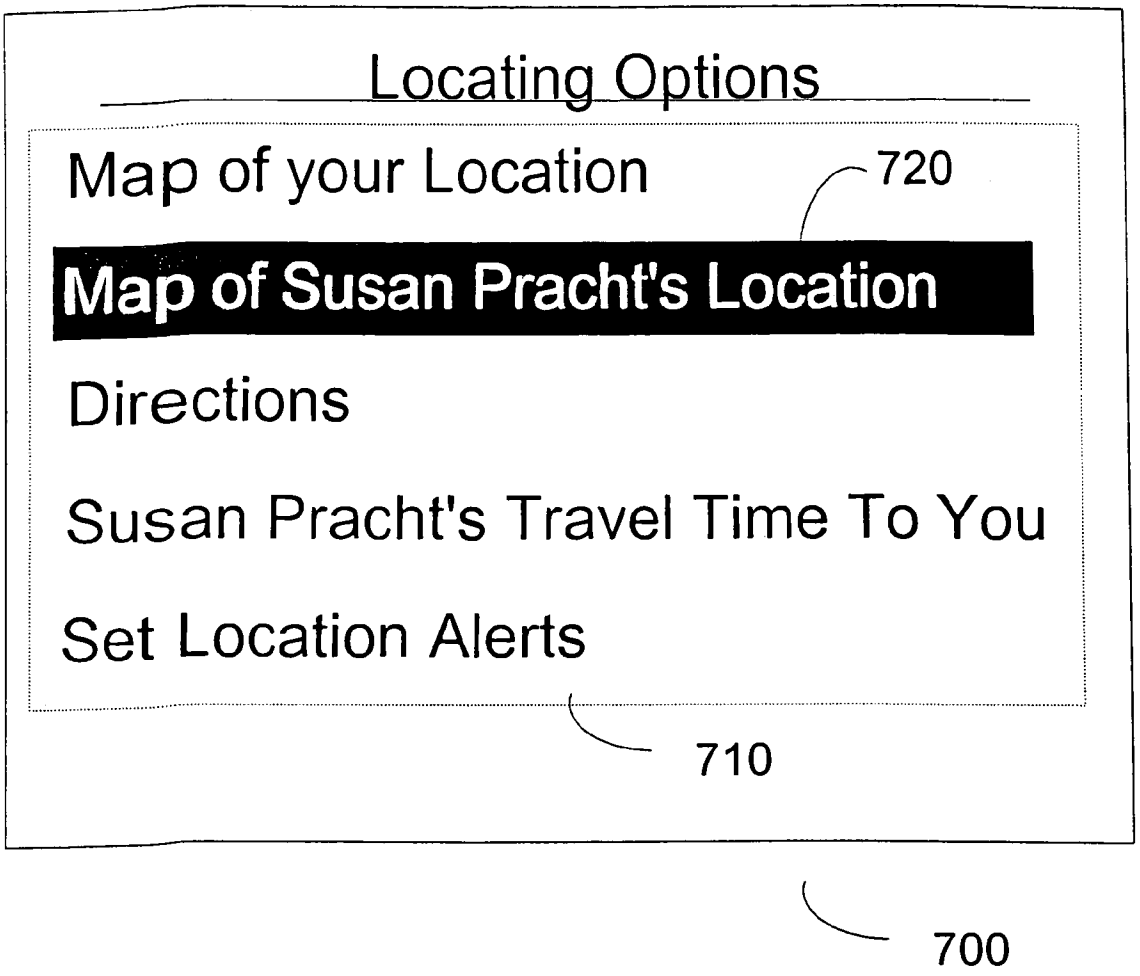

Locating Options
Map of your Location
720
Map of Susan Pracht's Location
Directions
Susan Pracht's Travel Time To You
Set Location Alerts
710
700

FIG. 7

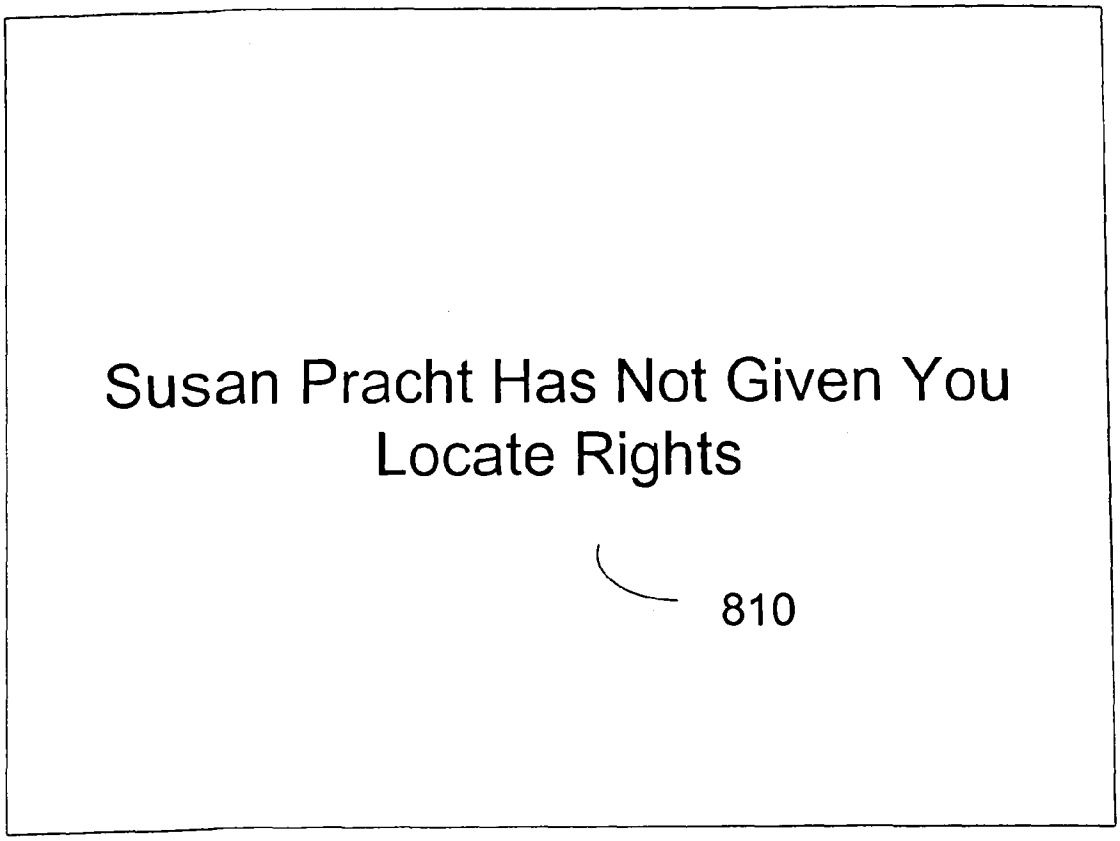


FIG. 8

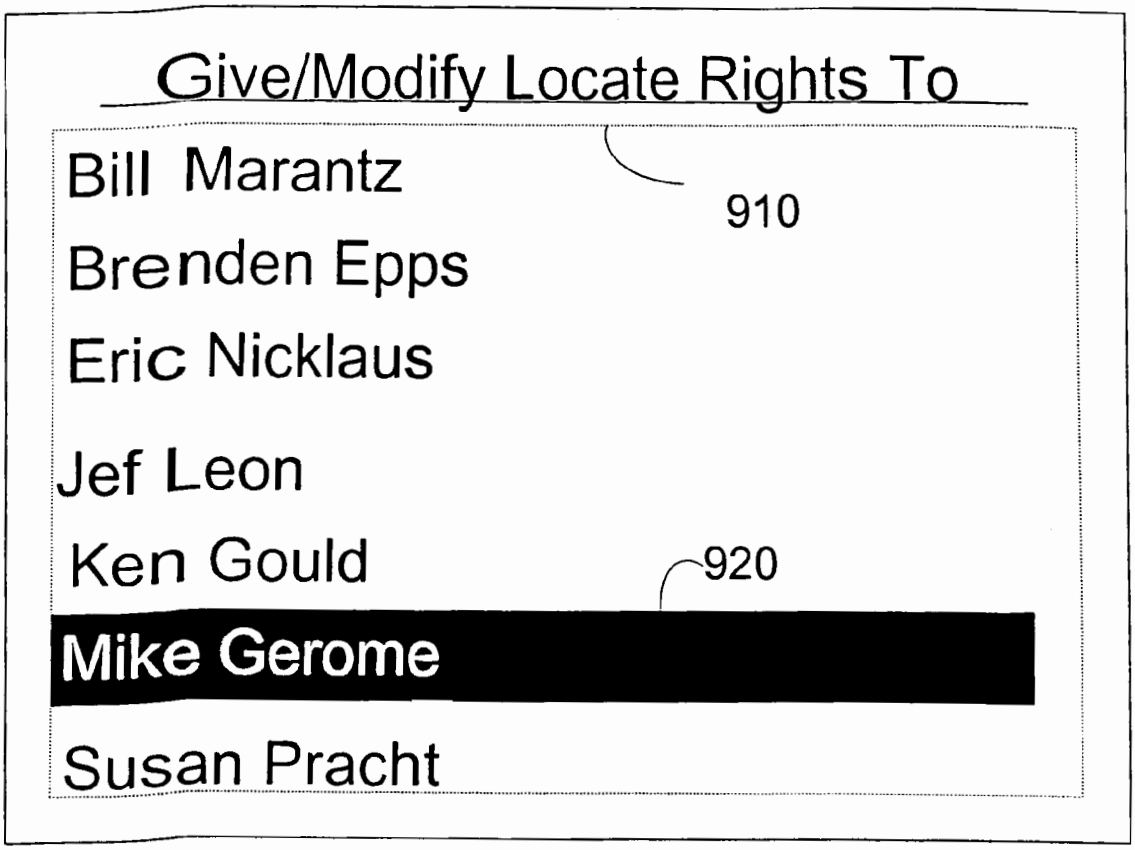

Give/Modify Locate Rights To
Bill Marantz
910
Brenden Epps
Eric Nicklaus
Jef Leon
Ken Gould
920
Mike Gerome
Susan Pracht
900

FIG. 9

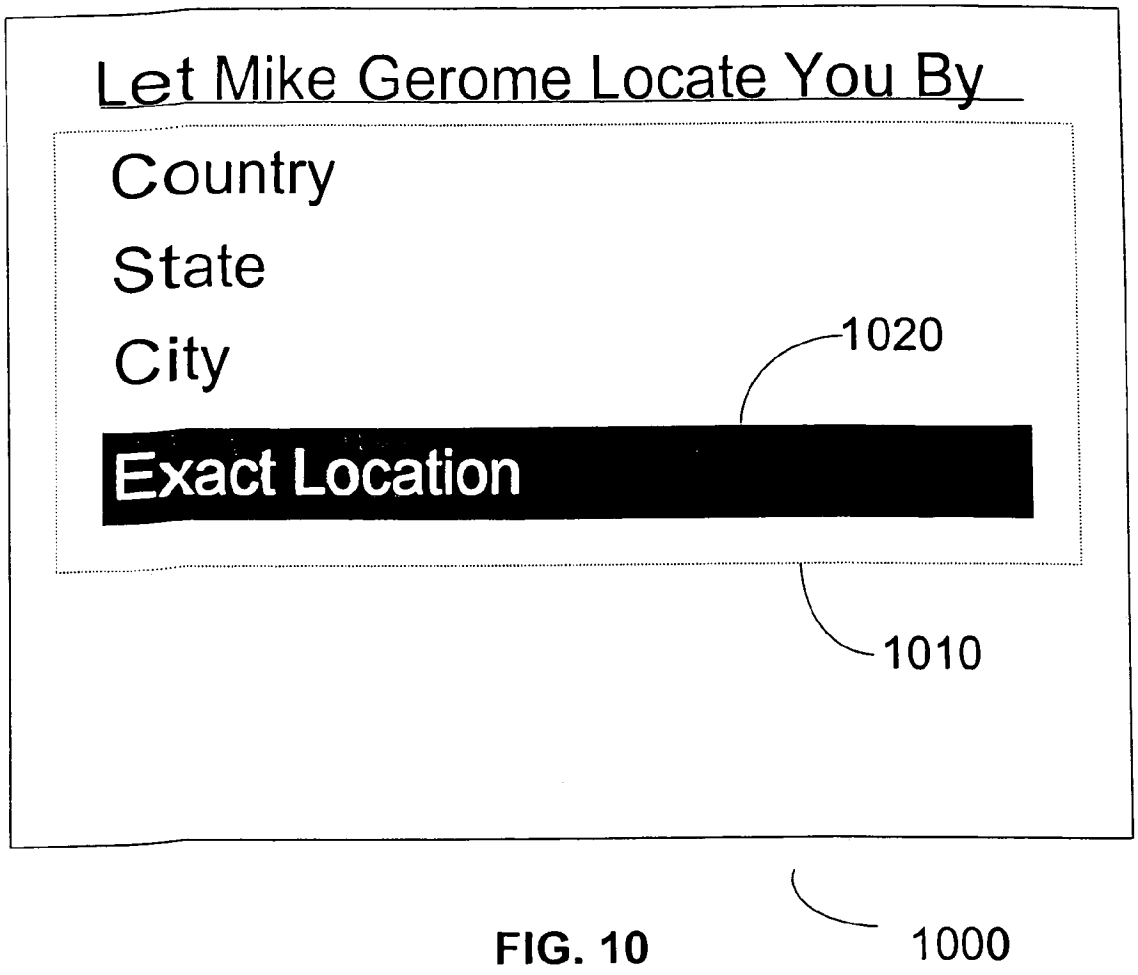

Let Mike Gerome Locate You By
Country
State
City
Exact Location
1020
1010
1000

FIG. 10

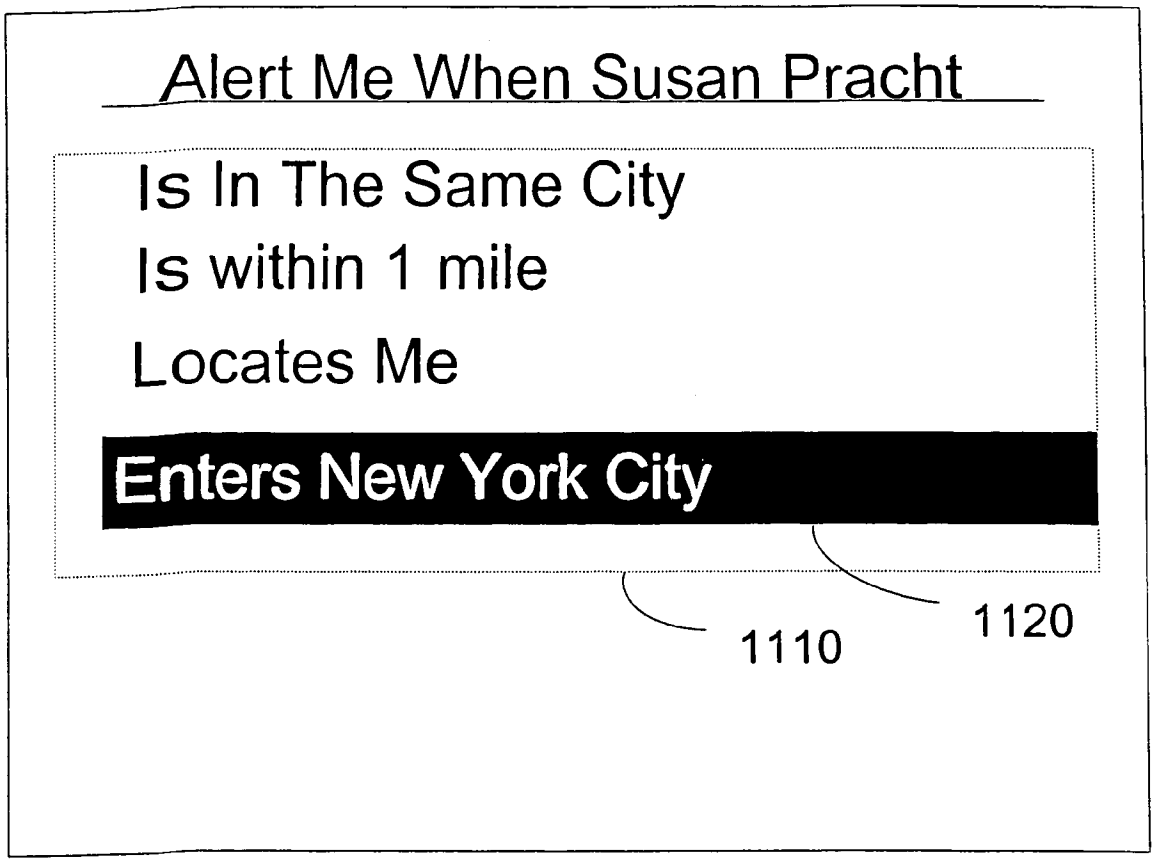

Alert Me When Susan Pracht
Is In The Same City
Is within 1 mile
Locates Me
Enters New York City
1110
1120
1100

FIG. 11

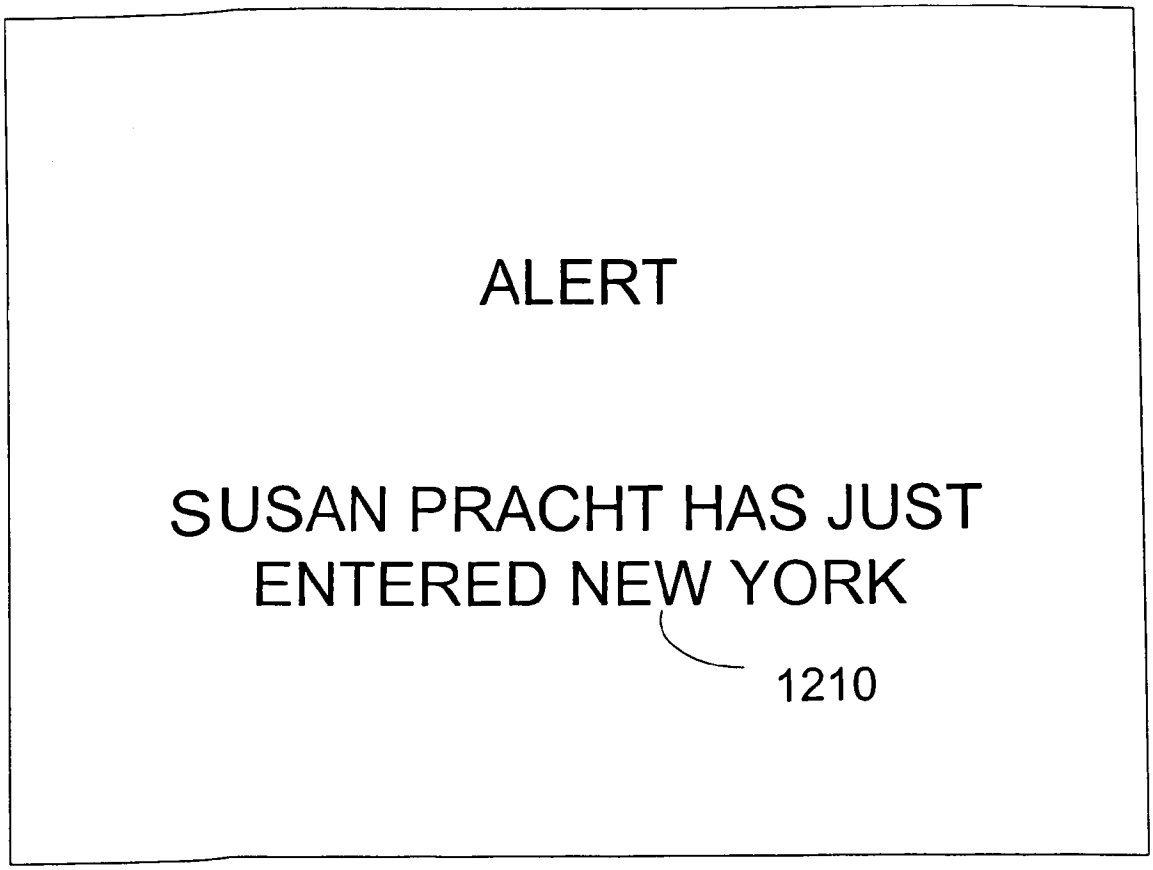


FIG. 12

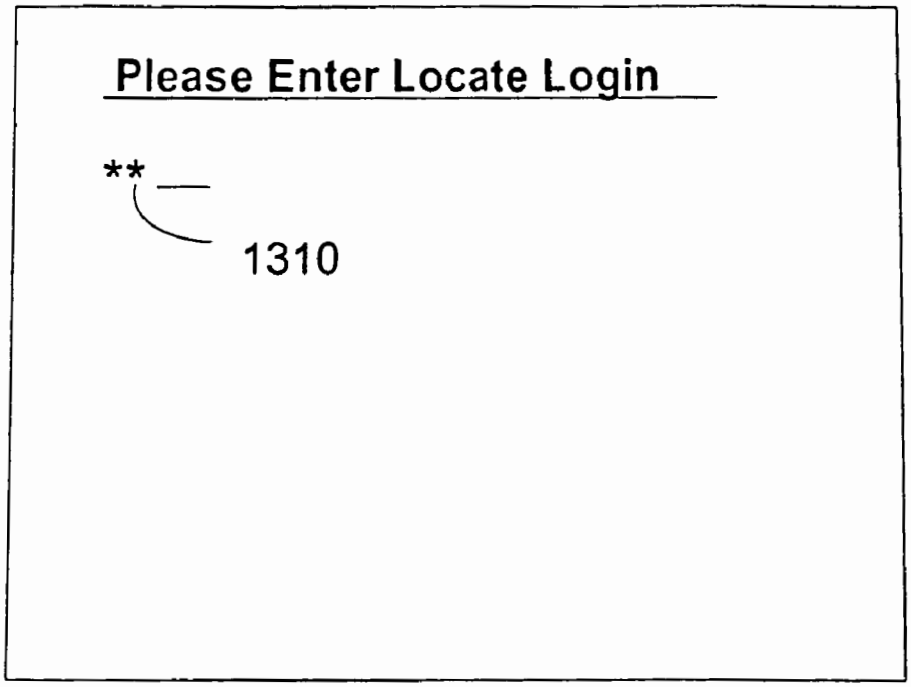


FIG. 13 1300

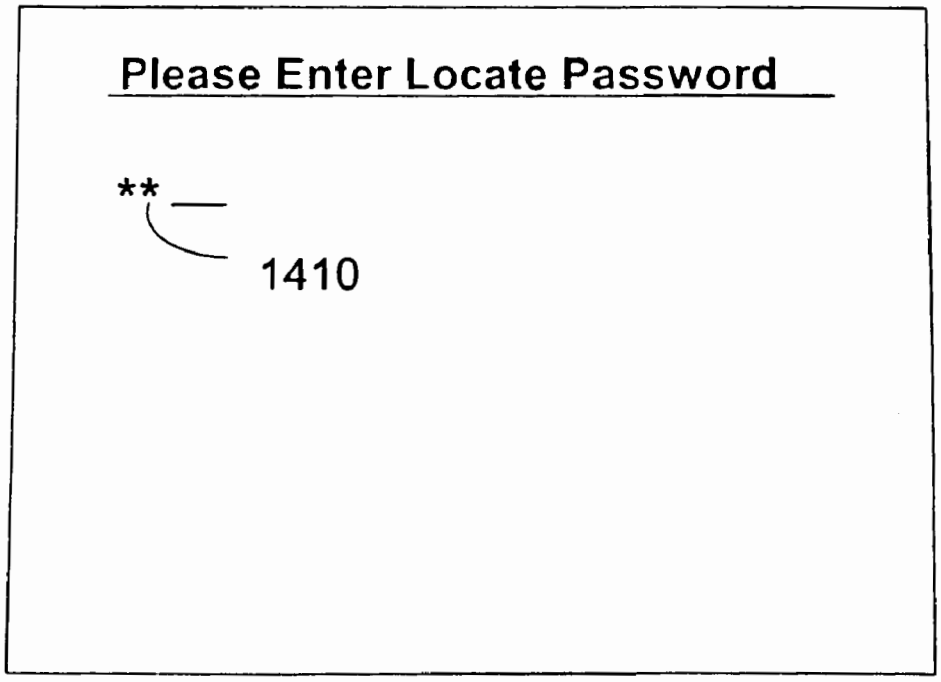


FIG. 14 1400

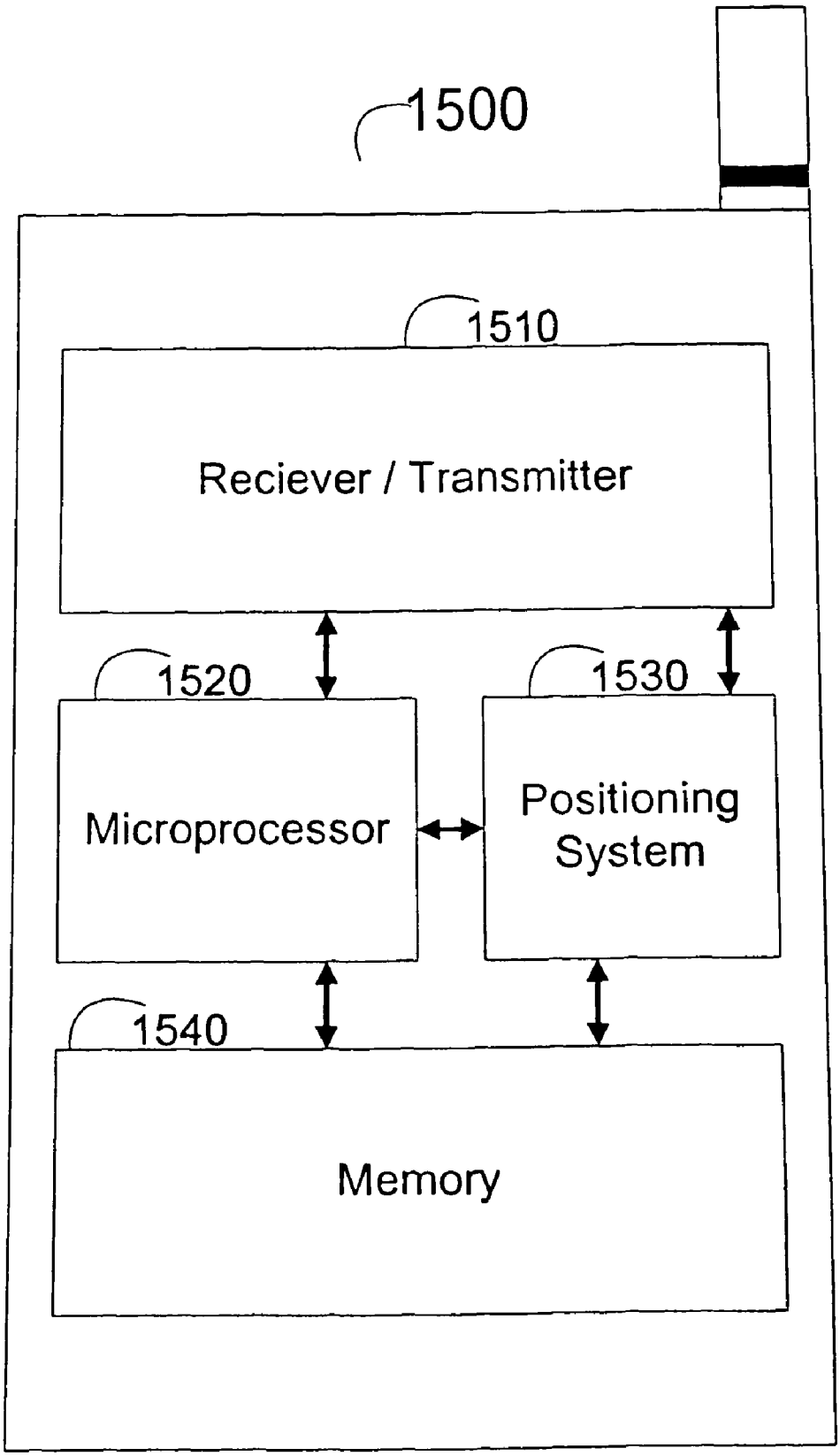

1500
1510
Reciever / Transmitter
1520
1530
Microprocessor
Positioning System
1540
Memory

FIG. 15

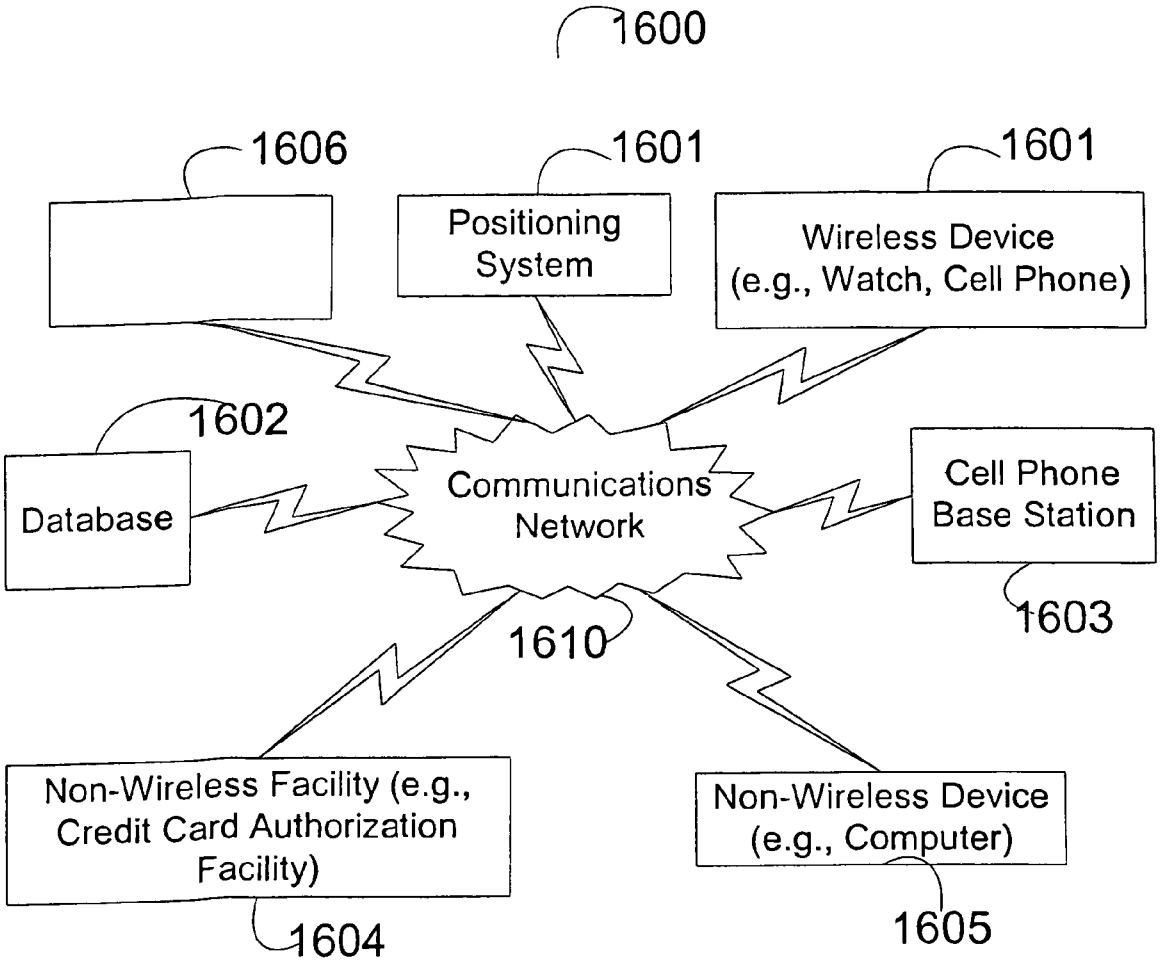

1600
1606
1601
1601
Positioning System
Wireless Device (e.g., Watch, Cell Phone)
1602
Database
Communications Network
Cell Phone Base Station
1603
1610
Non-Wireless Facility (e.g., Credit Card Authorization Facility)
Non-Wireless Device (e.g., Computer)
1604
1605

FIG. 16

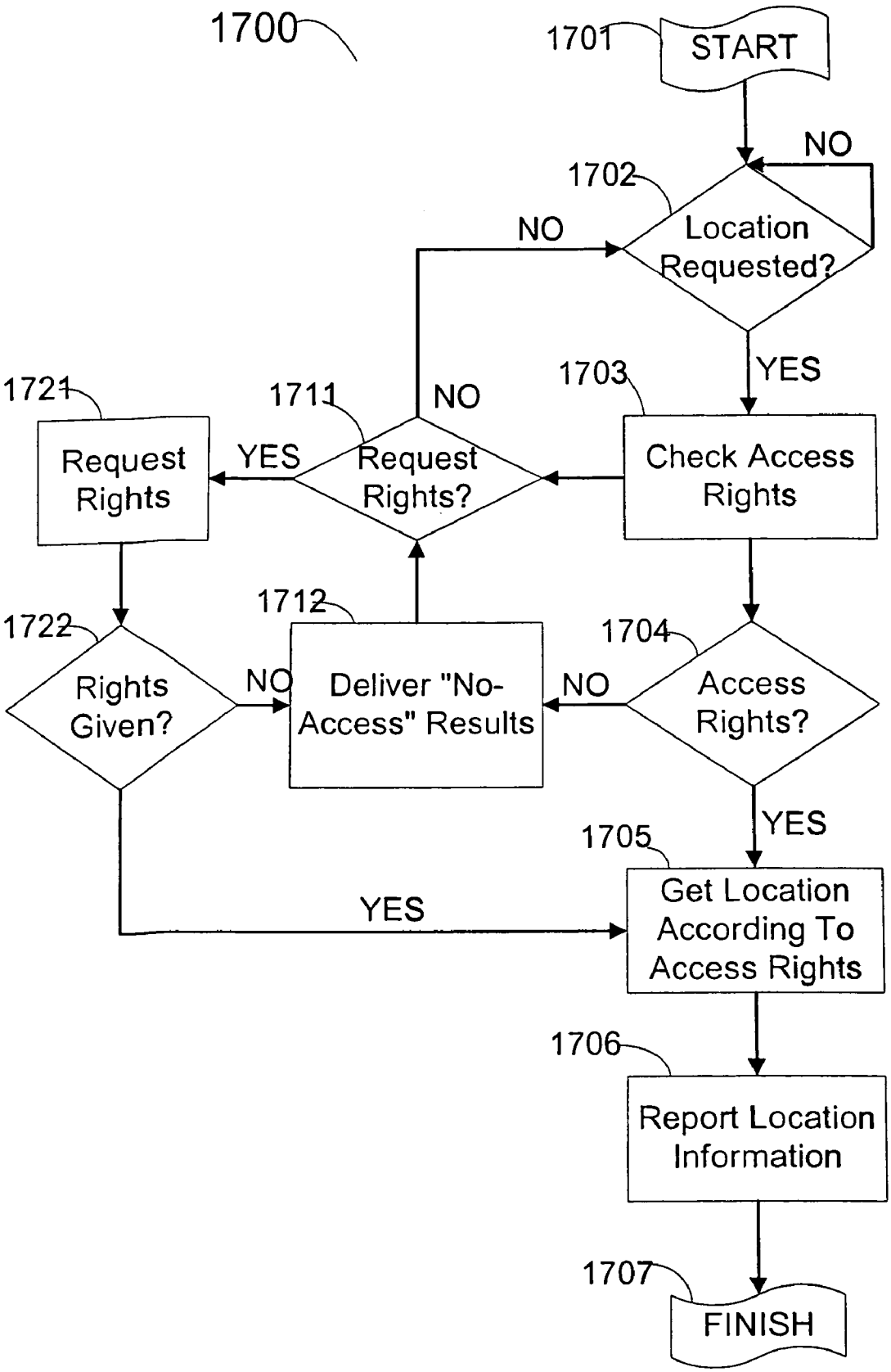

1700
1701
START
1702
Location Requested?
NO
NO
YES
1703
Check Access Rights
1704
Access Rights?
NO
1705
Get Location According To Access Rights
1706
Report Location Information
1707
FINISH
1711
Request Rights?
NO
YES
1712
Deliver "No-Access" Results
1721
Request Rights
1722
Rights Given?
NO
YES

FIG. 17

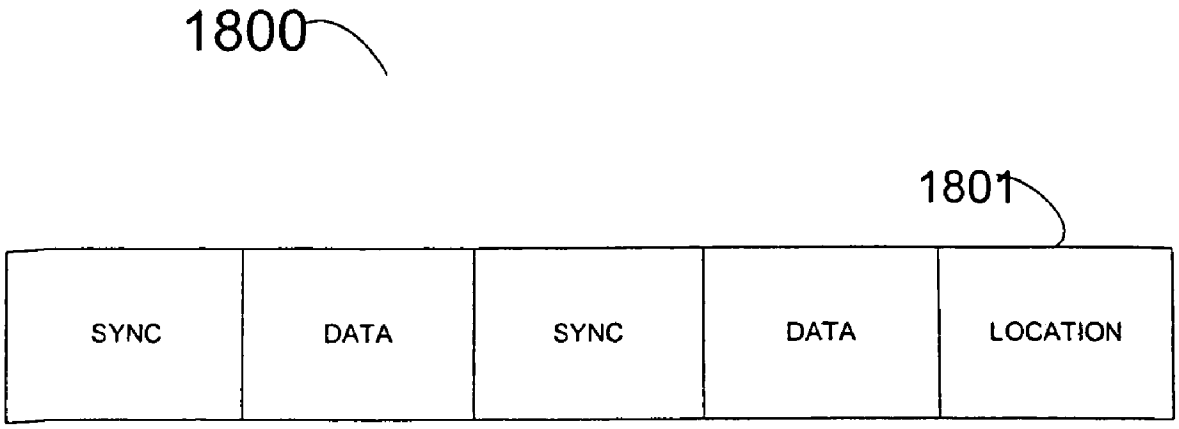


FIG. 18

SYSTEMS AND METHODS FOR LOCATING CELLULAR PHONES AND SECURITY MEASURES FOR THE SAME

CROSS-REFERENCE TO RELATED APPLICATIONS

This application is a continuation of U.S. patent application Ser. No. 10/400,196, filed on Mar. 25, 2003, which claims the benefit of U.S. Provisional Application No. 60/367,967, filed on Mar. 25, 2002, both of which are incorporated by reference herein in their entirety.

BACKGROUND OF THE INVENTION

This invention relates to systems and methods for determining a device's location. More particularly, this invention relates to systems and methods for remotely determining a device's location.

The Global Positioning System (GPS) has been developed in which a ground-based system can receive GPS signals from satellites and determine its location based on the time that it takes the GPS signals to reach the ground-based system. Generally, three satellite signals are needed to determine where in the world a receiver is located (i.e., position triangulation).

GPS systems have been integrated into cellular phones. However, these systems are deficient because the location of a device that is determined by these GPS signals are only minimally utilized. It is therefore desirable to provide systems and methods which better utilize the information about a device's location.

SUMMARY OF THE INVENTION

In accordance with the present invention, systems and methods are provided for locating cellular phones. More particularly, the present invention provides systems and methods for allowing a user of a cellular phone (e.g., a requesting user or a requestor) to locate the position of a different user's cellular phone (e.g., a requested user) based upon requestor-assigned access rights.

One object of the present invention is to provide a security feature which allows a user to limit and/or deny location access to a particular user. In preferred embodiments, only the users that have been granted access to the location of a user's cellular phone can actually locate that user's cellular phone. Furthermore, different types of access levels may be provided that allow a user to filter location information to a different user. In this manner, a cell phone user may give access, through his or her cell phone, to a friend so that the friend can locate him or her dependent on the level of access that is granted to that friend.

For example, suppose that Phil tells Bill that he will be shopping in Manhattan and that Bill should locate him when Bill gets to Manhattan through their cell phones. In such an example, Phil may grant Bill access the exact location of his cell phone for a specific period of time (e.g., the next two hours). As a result, when Bill tries to access Phil's location, Bill will be told exactly where in Manhattan Phil's cell phone is located. Thus, Bill does not have to contact Phil directly to see where he is and, therefore, Phil does not have to spend any time giving Bill verbal directions; Bill can simply see what store Phil is currently in and go to it.

As mentioned previously, levels in the scope of access may be controlled by a user such that, for example, only a user's exact location, approximate location, city, state, or country can be accessed by a particular user.

Location alerts and monitoring features are also provided. For example, Phil may give Jen, a resident of Pittsburgh, city access so that when Phil travels into Pittsburgh, Jen will be alerted of Phil's presence. Such an alert may take the form of, for example, a display on Jen's cell phone that communicates to Jen "Phil is in Pittsburgh."

Locating a cellular phone may be accomplished in several ways. For example, satellite positioning systems such as the Global Positional System and the soon to be deployed Galileo system may be used to locate a user's cell phone.

User positions and security settings may be regularly or manually transmitted to a remote system, such a remote database so that requesting users can locate a requested user's position even if the requested user turns his/her cell phone OFF. Placing the security measures on a remote system (e.g., remote database, computer, or server) provides an information brokering scheme such that the system is still operable even when cell phones are added, removed, or modified from the system.

Additionally, the present invention may be configured to provide additional information about the location of a user. Such additional information may be, for example, a map, a location marker on a map, a map that changes as the user moves, a compass, coordinates of the located cell phone, directions to the located cell phone, where a user is in relation to another user, and information about the location the located user is currently positioned in or nearby locations such as landmarks. Such information may be provided by a remote information provider (e.g., a remote map information provider) and accessed by an information broker through a communications network.

Many other features are also employed that realizes advantageous locating functionality. As per an example, suppose that a wife wants to see if her husband has left work yet. She can locate her husband, without having to talk to him, and realize that he is driving home on a highway. Thus, a travel time option may be provided to the user. This option would compute the distance between the wife's location and husband's location by taking multiple location readings of the husband's location to see how fast the husband is traveling. Alternatively, because the husband's position will map to a highway, the system may assume that the user is driving and may provide the wife with an estimate on the husband's arrival time based on an assumed route. In this manner, the present invention may determine how much time it will take the husband to reach the wife and display this information to the wife.

As per other examples, a "see my friends" option may also be provided that brings up a map of a desired area. Dots or symbols may be present on the map to signify the location of all user's from which the requesting user has location information for. Similarly, a "find closest friend" option may be employed which finds the closest user with which the requesting user has location access to.

A cell phone location may by accessed by a variety of other devices. Alternatively, a cell phone may be used to access the location of a variety of other devices. For example, if the wife was at home, that wife may connect to the internet and access a remote database to either provide the most recent location information about the husband's cell phone to her or request a location update from the husband's cell phone. The wife's location may be already stored in such a database by associating the location to the IP address of the computer or by a manual input of the wife's location. The wife's identity may be determined by, for example, a login and password on a

website. Thus, the above-identified security measures are not limited to device-to-device locating rather user to user locating; the wife may only access the husband's location if the husband has granted access for the wife to do so. If, by accident, the wife's cell phone breaks, she may login on a friend's cell phone and determine the husband's location according to the device that the husband is logged into.

Security is preferably taken into account in the present invention and, therefore, location rights for a specific user may be given to a different user only by that specific user. However, a user may request location access rights from a different user. For example, a user may be provided with a request location screen on his cell phone and that user (e.g., user "X") may enter in the cell phone number of the cell phone whose location is desired. The user associated to the entered cell phone number may then receive an alert that says "user X has requested access to your location." Location access may then be given or denied on multiple levels and the requesting user notified of the decision.

The location feature of the present invention may be turned ON or OFF at any time. Users may be added, individually or in groups, to a list of users with location access rights to a specific user by that specific user. A specific user may, at any time, modify, delete, or add users allowed to access his or her location. Login and password information may be included to increase security or to create a user profile, allowing a specific user to log into any cell phone and be recognize by the present invention (and thereby be located with that cell phone or locatable device).

BRIEF DESCRIPTION OF THE DRAWINGS

The principles and advantages of the present invention can be more clearly understood from the following detailed description considered in conjunction with the following drawings, in which the same reference numerals denote the same structural elements throughout, and in which:

FIG. **1** is a network topology of a cell phone locating network in accordance with the principles of the present invention;

FIG. **2** is a flow chart of the locating feature in accordance with the principles of the present invention;

FIG. **3** is an illustration of a cell phone in accordance with the principles of the present invention;

FIG. **4** is a display screen for a locate feature in accordance with with the principles of the present invention;

FIG. **5** is a display screen for a retrieving location status feature in accordance with the principles of the present invention;

FIG. **6** is a display screen for a displaying location feature in accordance with the principles of the present invention;

FIG. **7** is a display screen listing options for a locate feature in accordance with the principles of the present invention;

FIG. **8** is a display screen of a failed locate feature due to insufficient rights in accordance with the principles of the present invention;

FIG. **9** is a display screen of adding and modifying locate rights and options to a user in accordance with the principles of the present invention;

FIG. **10** is a display screen of assigning location rights to a user in accordance with the principles of the present invention;

FIG. **11** is a display screen of alert options in accordance with the principles of the present invention;

FIG. **12** is a display screen of an alert feature in accordance with the principles of the present invention;

FIG. **13** is a display screen of a login feature in accordance with the principles of the present invention;

FIG. **14** is a display screen of a login feature in accordance with the principles of the present invention;

FIG. **15** is a wireless device in accordance with the principles of the present invention;

FIG. **16** is an embodiment of a network topology in accordance with the principles of the present invention;

FIG. **17** is an embodiment of a locating feature in accordance with the principles of the present invention; and

FIG. **18** is an embodiment of a communications signal in accordance with the principles of the present invention.

DETAILED DESCRIPTION OF THE INVENTION

FIG. **1** depicts a network topology of device location network **100** incorporating principles of the present invention. Network **100** includes one or more positioning satellites **110**, **112**, and **114** that can locate the position of one or more cell phones **120**, **122**, **126**, and **124** (and other locatable devices) on Earth **101**. Positioning satellites **110**, **112**, and **114** may be, for example, the Global Positioning System (GPS) or the upcoming Galileo satellite network.

Preferably, any cell phone in network **100** may locate a different cell phone, as long as access to location information is allowed, through the utilization of positioning satellites **110**, **112**, and **114**. Persons skilled in the art will appreciate that other positioning systems and methods may be used in locating the position of a user on a cell phone of network **100**.

To route information to and from a cell phone of network **100** additional facilities and communication paths may be included. For example, a main facility (not shown in FIG. **1**) containing user location access rights may be included in network **100**. Such a main facility may retrieve location information directly from a positioning system or a cellular phone and then route this information to a cellular phone or positioning system.

Persons skilled in the art will appreciate that if the Global Positioning System (GPS) is used as the positioning system then GPS receivers will be incorporated into cellular phones of the present invention. Persons skilled in the art will also appreciate that devices other than cellular phones may include positioning features. For example, watches, clothing, laptop computers, personal digital assistants (PDAs), may all contain location systems (e.g., GPS) and utilize the security principles of the present invention to allow different user's to access these locations.

FIG. **2** shows flow chart **200** of a simplified locating feature constructed in accordance with the principles of the present invention. Step **202** initiates when a user requests the location of another user's cell phone. Step **206** evaluates if the user initiating the location request has the rights to access the location of the desired user. If no access rights for the requesting user have been granted then step **204** will preferably inform the requesting user that he/she has not been given access to the requested location. In this manner, every user may assign rights (e.g. govern the security) to whom may or may not locate him/her. In preferred embodiments, these rights will be stored in, or functionality executed from, a remote facility and accessed and utilized by a user's cell phone or other requesting device (e.g., a watch or PDA).

If access has been given by a particular user that allows for the requesting user to locate that particular user, step **208** is initiated and the allowed location information is provided to the user in step **210**. Step **208** may optionally filter the location information such that only a portion information is passed to the requesting user. The requested user may have,

for example, defined that the requesting user only can obtain the city, state, or country of his/her location. Persons skilled in the art will appreciate that only the location of the desired user needs to have a cell phone or a positioning system. The requesting user may user other means (e.g., the internet) to request the location of the desired user.

Persons skilled in the art will appreciate that the location of a user's cell phone may be retrieved, in step **208**, from a remote database, facility, distribution center, or any other system. More particularly, a remote database may periodically request the location of a cell phone user with a positioning system and store this information. This database may also keep a record of those people allowed to access that user's location, the extent to which access is allowed, and the extent to which a user has requested a user's location. A user may update, add, manipulate, or remove access at any time by doing so at this database. Thus, a requesting user only has to contact the remote database, have his/her identity recognized, have his/her access rights for the requested user location determined, and, if the requesting user has the correct access rights, be provided with the requested user's location.

Instead of a remote database periodically obtaining location information for a user, the database can obtain a user's locations when a request is made for that user's location, providing the requesting user has access to the requested user's location. However, persons skilled in the art will recognize that a remote database is utilized in the above examples that contains the locations, in most circumstances, of a multitude of users. Thus, to increase security even more, a requesting user's cell phone may directly request a user's location from the requested user's cell phone without the need for a database. In such an example a user adds, manipulates, or removes access rights locally on his/her cell phone and does not have to worry about security issues that surround placing his location on a remote database. Furthermore, in such an embodiment a user's location does not have to be saved anywhere, a positioning system can just be "read" by a requesting user with the appropriate access rights.

However, by recording a user's location on a device, e.g., a cell phone's memory or in a remote database, novel applications may be utilized. For example, whenever a user makes a credit card purchase, a credit card authorization system can record the location of a cell phone associated to the purchasing user. In this manner, a new system and method of fraud protection is introduced. The credit card authorization system may, for example, reject a purchase if the purchaser's cell phone (or watch, clothing, PDA, or other positioning enabled device) is not in the vicinity of the purchase. Alternatively, the credit card authorization system may request a second form of identification if the purchaser's cell phone location does not correlate to the location of the purchase. Additionally, the credit card authorization system may call the purchaser's cell phone and request authorization for the credit card purchase. However, such features would preferably first involve the user/purchaser giving the credit card authorization system access to the location of his/her cell phone.

As per another application, a unique dating/matching service could be embodied. For example, a user may store a number of preferences in a matching profile. These preferences may describe what type of person he is interested in meeting. Additionally, a user may store, preferably locally (for the dating/matching feature) but alternatively at a remote location, his/her own profile that has data describing similar attributes for what he/she is looking for. For example, an entry in a user's profile may be "male" and an entry in "looking for" profile may be "female." When a user comes within a certain distance of a user (determined by comparing locations of a user) that fits his/her "looking for" profile, the user may be alerted of the proximity of a matching user. Preferably, the particular user is only alerted if the "looking for" user has entered in attributes similar to the particular user's attributes and is also alerted of the particular user. The next stages of such an application could include, for example, requesting access to a form of communication. Such a form of communication could be for example, talking on the phone, instant messaging, or delivering an email address. Persons skilled in the art will therefore appreciate that many useful applications may be constructed using the principles of the present invention.

FIG. **3** depicts cell phone **300** constructed in accordance with the principles of the present invention. Cell Phone **300** preferably includes speaker **330**, antenna **310**, display screen **320**, control keys **360**, alpha-numeric keys **350**, and microphone **340**. Cell phone **300** also preferably may include, for example, a communications transmitter (not shown), communications receiver (not shown), memory (not shown), positioning device (not shown), and a microprocessor (not shown).

Cell phone **300** may also include locate button **380**. Cell phone **300** may be configured such that if locate button **380** is pressed, a locate feature is initiated (e.g., display screen **400** of FIG. **4** is initiated). Alternatively, cell phone **300** may be configured such that if locate button **380** is pressed, a location signal is sent to a remote storage area (e.g., a remote database), thus manually updating the user's location. This latter functionality may be useful when a user does not want his/her location accessed. As in another alternative embodiment, cell phone **380** may be configured such that if locate button **380** is pressed, the locating features of cell phone **300** are toggled between ON and OFF. Person skilled in the art will appreciate that locate button **380** may be configured to produce a variety of useful functionalities.

FIG. **4** depicts display screen **400** that is displaying a locate feature constructed in accordance with the principles of the present invention. The locate feature of display screen **400** may be included, for example, in cell phone **300** of FIG. **3** and displayed to the user of cell phone **300** of FIG. **3** when that user requests the location of a different user of the present invention. The programming for the feature may, for example, be stored in the memory of the cell phone and executed by the processor at a user's request. Locate Feature **400** includes identifier list **410** of alpha-numeric identifiers for users stored in the memory on cell phone **300** (FIG. **3**) or at a remote location. More particularly the user of display **410** may locate a user contained in identifier list **410** by selecting an appropriate user identifier **420**.

The user identifiers (e.g., "Susan Pracht") in identifier list **410** are selectable and may be selected by control keys **360** of FIG. **3**. Highlight window **410** may be used to prompt the user what identifier from list **410** is currently selected any may be controlled, for example, by the input keys of the cell phone (e.g., keys **350** and **360** of FIG. **3**). Identifiers may be associated to, for example, cellular telephone number, user profiles, or any other identifier that may be associated to a locatable device or user interacting with a locatable device.

Persons skilled in the art will appreciate that display screen **400** may be provided to a user of devices other than wireless devices. For example, display screen **410** may be provided to a user of a personal computer with no positioning system. Preferably, however, the security measures in accordance with the principles of the present invention are still abided to (e.g., access has been granted to the identifier associated to the requesting user). In this manner, a user can control who can access his/her wireless device (e.g., cell phone).

Persons skilled in the art will appreciate that identifier list **410** may be configured, for example, to contain only those users in which the user of cell phone **300** (FIG. **3**) has locate access rights to or any user stored in cell phone **300**. Persons skilled in the art will also appreciate that devices other than cell phone **300** may be used to incorporate the features of the present invention. Such devices could include, for example, personal digital assistants (PDAs), laptop, GPS pagers, GPS watches, car positioning devices, or any other devices that can be located. One advantage of the present invention is that it allows a mobile device with a positioning system to locate a different mobile device with a positioning system while still retaining a high level of location security and privacy.

FIG. **5** is display screen **500** for retrieving location status feature in accordance with the principles of the present invention. The selected identifier may be incorporated into display screen **500** through location status display **510** to inform the user of the status of the location retrieval. For example, display screen **500** may display "locating user" while a request is being processed by a remote facility or database.

FIG. **6** shoes display screen **600** for a display location feature constructed in accordance with the principles of the present invention. When a location is retrieved for the requested user, the location may be displayed on Display Screen **600** through primary location information **610**. Depending on what scope the requesting user has access to primary location information **610** may include, for example, the country, state, city, exact location, or any combination thereof of location information to the user. For example, if the user requesting the location of a desired user has been given unlimited location access by the desired user, primary information **610** may include the exact location of the user.

Secondary location information **620** may be included to supplement the requested users exact location so that the requesting user may have more of an idea of where the requested user is located. For example, if the desired user is located in a mall, primary location information **610** may be the address of the mall. In such an example, secondary location information **620** may be included and display, to the requesting user, the name of the mall.

Directional information **630** may also be included on display **600** or any other display of the present invention. Directional information **630** may include a digital compass **632** so that the user of cell phone **300** (FIG. **3**) knows what direction he or she is facing in. Digital compass **632** may be connected to a direction sensitive device (e.g, mechanical compass) in order to gather directional information. Directional arrow **633** may also be included in Display **600** to indicate where the requested user's location is relative to the location and direction of cell phone **300** (FIG. **3**) (e.g, the requesting user). Persons skilled in the art will appreciate that for some directional information **630** the location of the requesting user must be obtained. This information may be obtained either from cell phone **300**, a remote facility, or by any other suitable means. If the information is gathered from a location gathering device other than the requesting user's device (e.g, cell phone **300** (FIG. **3**)), then the user's device may communicate from this other location gathering device. Once both the locations of the requesting and requested/desired users are known, this information may be utilized in a number of features incorporating the principles of the present invention.

Distance information **634** is one such feature that displays the distance between the locations of the requested and requesting users (e.g., distance between the locations of the requested and requesting devices). Directional information **630** may contain many other elements to enhance the utility of the present invention. For example, a map (not shown in FIG. **6**) may be included in display **600**. This map may be of the area surrounding either the requested, the requesting user's location or both. Information may be included on the map to show the shortest path between the location as well as information about the surrounding area (e.g, area names, store names, etc.). Other information may include, for example, time to reach the destination according to specific types of travel (e.g, subway, walking, running, driving) and the direction the requested user is traveling in.

Many uses for this information may be utilized by a user. For example, if Jane calls Bill and Bill says "I am roaming midtown manhattan shopping why don't you join me", no other call to Bill is needed. Bill simply has to give Jane access to his location and Bill can continue shopping without having to worry about meeting up with Jane at a specific location.

In some instances, it may be beneficial to find the speed and direction of a requested user. For example, if a wife wants to see how long before her husband arrives home, the wife can use this feature of the present invention. This feature may find the husbands location multiple times in a determined amount of time. Through this information the feature may determine the speed and direction that the user is traveling. Using this speed, for example, this feature may display to the wife that the husband "is 10 minutes away" in directional information **630**. In doing so, the need for a call to the husband to determine his location is eliminated.

Persons skilled in the art that the location of multiple users may be displayed on display screen **600**. For example, suppose Jeff, Susan, and Chrissy are at a concert. If all three of these users have unlimited access to the other users, principles of the present invention would allow for a map to be displayed on each of the three locating devices with locator designations for each of the users. Using such map, the group may be able to find themselves in relative location to one another and decide, if need be, on the easiest location for them to meet. Thus map **660** may be included on display screen **600** and display the locations of multiple users (e.g., user's **621** and **622**).

More region **640** designates that more options or information may be retrieved or performed using principles of the present invention. A user may use control keys **340** (FIG. **3**) on cell phone **300** (FIG. **3**) to perform the functionality associated with more region **640**.

FIG. **7** shows display screen **700** for locate listing options in accordance with the principles of the present invention. Display screen **700** includes selectable options list **710** and highlight window **720** and may be displayed to the user, for example, through the activation of functionality associated by more region **640** (FIG. **6**). Options list **710** may include any of the features of the present invention. For example, options list **710** may include options activating a display screen of a map of the requesting user's location, a map of the requested user's location, directions to the requested user's location from the requesting user's location, travel time for the requesting user, travel time for the requested user, and options to set location alerts.

FIG. **8** shows display screen **860** of a failed locate feature due to insufficient rights in accordance with the principles of the present invention. Display scree **800** may be displayed if a requesting user attempts to located a requested user but has not been given access rights by the request user to his or her location. In such an instance insufficient rights message **801** may be prompted on display screen **800**.

FIG. **9** shows display screen **900** of adding and modifying locate rights and options to a user in accordance with the principles of the present invention. A user may give or modify access rights through display **900** to a user identifier in select-

able user identifier listing **910**. Highlight window **920** may be included to enhance the selecting process.

FIG. **10** shows display screen **1000** of assigning location rights to a user in accordance with the principles of the present invention. Display screen **1000** may be displayed, for example, after a user has been selected to be given location rights. Display screen **1000** contains selectable location rights listing **1010**, in which the selecting process may be enhanced by highlight window **1020**. Possible location access rights may be, for example, by country, state, city, exact location, or any other scope of location. Other rights may be assigned such as particular times in the day or time periods at which locations may be accessed.

FIG. **11** shows display screen **1100** of alert options in accordance with the principles of the present invention. Display screen **1100** allows for a user to set up alerts depending on the location of specific users. Selectable alert listings **1110** are included and may be selectable with highlight window **1120**. Examples of alerts that may be included in display screen **1100** may occur, for example, if the requested user is in a specific city or the same city as the user of display **1100**, is within a certain distance, or if a user located the user of display **1100**.

The alerts of the present invention may realize useful functionality. For example, suppose Susan Pracht lives in Pittsburgh and rarely comes to the city of the user of display screen **1100** on cell phone **300** (FIG. **3**) which is New York City. The user of cell phone **300** (FIG. **3**) may then use display screen **1100** and set an alert such that if Susan Pracht ever enters New York City, he or she would be alerted of Susan Pracht's presence.

FIG. **12** shows display screen **1200** of an alert feature in accordance with the principles of the present invention. Display screen **1200** includes an alert message and is displayed to a user when an event occurs that is designated by the user in display screen **1100** (FIG. **11**). Continuing the example from FIG. **11**, if Susan Pracht enters New York City, alert message **1210** would prompt the user that this event has occured.

FIG. **13** shows display screen **1300** of a login feature in accordance with the principles of the present invention. In order for users to be identified by other user's cell phones or locating devices a user profile may need to be stored remotely from such devices. In such instances user profiles would be used as the locating identifier and the devices into which these profiles are logged into (recognized by) would allow for the user to be located. Display screen **1300** allows for a user to log into a locating device of the present invention. Logging into a device also adds a level of security to the present invention, especially when combined with a password. A user may use the controls of the device of the present invention to enter login **1310** of display **1300**.

In this manner a user may use another user's location device (e.g., cell phone) to locate a user or may use, for example, the internet to locate a user. Additionally, in this manner, a user may change the device being located. For example, a user may use his or her car GPS system or other systems in accordance with the principles of the present invention to be located instead of his or her cell phone. To further this example, a user may log into a web site on the internet and designate his or her current location as home, or any other location, thus eliminating the need for locatable device entirely.

FIG. **14** shows display screen **1400** of a login feature in accordance with the principles of the present invention. Display screen **1400** may be used by a user to enter a password associated to his profile, identity, or cell phone functionality access. A user may enter password **1410** using the controls of the device of display screen **1400** (e.g., cell phone **300** of FIG. **3**). By including a login/password scheme a user can be identified by a remote facility (e.g., a remote database) so that the user's location can be recorded/updated by multiple devices. Additionally, a login/password adds an extra level of security.

FIG. **15** shows cell phone **1500** that may be utilized to carry out the functionality in accordance with the principles of the present invention. Cell phone **1500** includes receiver/transmitter **1510**, microprocessor **1520**, positioning system **1530**, and memory **1540**.

Persons skilled in the art will appreciate that receiver/transmitter **1510** may directly communicate with memory **1540** if receiver/transmitter **1510** does not have its own memory (e.g., if receiver/transmitter **1510** are configured to utilize a buffer for capturing incoming communications bursts before demodulation and decryptions).

Positioning system **1530** may be, for example, a GPS system or a similar positioning system. Positioning system **1530** may include its own receiver for receiving particular signals utilized in positioning cell phone **1500**.

FIG. **16** shows network topology **1600**, in which all components of, or a part of the components of, may be utilized to carry out the features in accordance with the principles of the present invention. In this manner, persons skilled in the art will appreciate that multiple system configurations may be utilized. Topology **1600** introduces the diversity of systems that can be utilized to realize such configurations.

Generally, topology **1600** includes muliple mobile devices (e.g., multiple instances of mobile device **1601**), access control devices and location broker devices (e.g., database **1602** and cell phone base station **1603**), and non-mobile devices (e.g., grounded non-wireless device **1605**). Persons skilled in the art will appreciate that other devices or facilities may be included in topology **1600**. For example, one or more positioning systems **1601** may be included in topology **1600** in order to locate particular devices. For example, a positioning receiver (e.g., GPS receiver) may be included in wireless device **1601** with positing system **1601** being a positioning transmitter (e.g., GPS satellite network).

One or more wireless devices **1601** may be included in topology **1600** and may be, for example, watches, PDAs, cellular phones, radios, cars, or any other mobile device whose location can be determined.

As previously mentioned, access control and location broker devices may be included in topology **1600**. Such devices may be utilized, for example, to store user access rights for a particular user and may contain functionality to request and route a device's location. These devices may be considered information broker's such that devices may be added, removed, or modified without creating the necessity of having to modify the other devices of topology **1600**.

Database **1602** is one such information broker. Database **1602** may, for example, be located in cell phone base station **1603** if database **1602** is utilized to assist in cell phone locating. Database **1602** may be utilized, for example, to store a history a of a device's locations, a user's list of assigned access rights to other users, a log of a user's call activity, a log of a location initiations, a user profile, login/password information, or any other sort of information. Many features may be provided that utilize such information, For example, n approximate location may be determined for a device that is turned OFF (e.g., by utilizing the device's location history). As per another example, if a cell phone is lost and a new one replaced, information such as, for example, phone books, activity logs, and assigned user access rights may be downloaded/flashed into the cell phone.

Database **1602** may be accessed either directly (e.g., manually by an user of the device) or indirectly (e.g., periodically) by a cell phone or other device. Alternatively, a device or cell phone may access database **1602** directly (e.g., manually by an administrator of the database) or indirectly (e.g., periodically) by database **1602**.

A credit card authorization system is an example of additional system **1606** that may be added to topology **1600** to realize new features. Such a credit card authorization system, as described above, could utilize a devices location in order to decrease credit card fraud. System **1600** may also be, for example, systems needed to realize the described dating functionalities or another information provider (e.g., a map information provider).

Non-wireless devices **1605** (e.g., a personal computer) may be included in topology **1600**. Such devices may have locations associated to them or contain a positioning system. These locations may then be associated to a user that is recognized as using the device. For example, if a particular user logs into a non-mobile personal computer, that user's location will be recognized as being the location associated to the personal computer.

The devices of topology **1600** communicate with each other through communications network **1610**. Communications network **1610** may include, for example, any type of communications, routing, amplification, encryption, decryption, parsing, modulation, or demodulation technologies. For example, positioning system **1601** may communicate with wireless device **1601** by sending multiple wireless positioning signals. At the same time, database **1602** may be providing non-wireless device **1605** with a device's location over conventional telephone wires.

FIG. **17** shows locating feature **1700** in accordance with the principles of the present invention. Locating feature **1701** starts at step **1701** and waits at step **1702** until a location is requested. As stated, a location can be requested in a number of instances and by a variety of different means.

For example, a location may be requested by a user of a cell phone that desires to locate a friend by locating that friend's cell phone. Alternatively, a device may be triggered to request a location of a mobile device when an event occurs. For example, a credit card authorization system may request the location of a user's cell phone and the location of a store that just used a credit card associated to the requested user.

If a location is requested, access rights to the requested location for the requesting device and/or user are obtained at step **1703**. Step **1703** may be employed for example, as a call to a database storing a list of assigned access rights for the requested device/user and finding if any access rights were assigned to the requestor's identity. As per another example, step **1703** may be employed as a direct call to the requested device/user.

Step **1704** determines if the requestor has been assigned access rights to obtain the requested device/user's location. Persons skilled in the art will appreciate that some devices may always have access to a user's location regardless if a user has assigned access rights to the requesting device. In this manner, a device may be set up to always let a user access a location. For example, a mother may purchase a cell phone for a minor and may configure the cell phone to always allow her location information.

If access rights do exist for the requesting device/user at step **1704** then step **1705** may be initiated and location information may be provided to the requester. Such location information may be filtered according to the assigned access rights. For example, if a user has only been assigned access rights to obtain the requested user's city location, only the city that the requested user/device is currently located in (or the last city location available) may be obtained. The process then finishes at step **1707** after the assigned location information has been delivered to the requester at step **1705**. Persons skilled in the art will appreciate that steps may be added to, removed, or modified from locating feature **1700**. For example, instead of finish step **1707**, step **1702** may be initiated after step **1706** has completed.

If a requestor has not been assigned rights to access the requested user/device's location as determined by step **1704**, then step **1712** may be initiated. Step **1712** informs the requestor that the requester does not have access rights to obtain the location of a user/device. Step **1711** may follow and provide an opportunity for the requester to obtain the access rights. More particularly, step **1711** asks the requester if the requestor would like to request access rights. If the requestor does not want to request access rights, locating feature **1700** may, for example, return to step **1702**. Else, access rights may be requested at step **1721**. Step **1722** follows and if access rights were given then step **1705** may be initiated. Else, step **1712** may, for example, be re-initiated.

FIG. **18** shows one embodiment of a cell phone burst that has been configured to embed a device or user's location **1801** between control signals (e.g., synchronization signals) and data signals. Persons skilled in the art will appreciate that some cell phone burst standards (e.g., TDMA and CDMA) have signal portions that are reserved for future technologies. In one embodiment, this reserved portion is utilized to house location information **1801**. A cell phone tower or base information may then strip received signals **1800** of location information **1801**, store location information **1801** into a database or other storage device, and deliver the received signals to its desired location. In this manner, a user may refresh his/her location information every time that a cell phone base station receives or routes information for the user. By stripping location information **1801** from signal **1800**, the intended receiver does not have access to the location of the device transmitting signal **1800**. A signal similar to signal **1800** may be sent to a cell phone that has requested, and has the appropriate location access rights, to location **1801**. Location **1701** may also be stored in other portions of signal **1700** that are not reserved portions. For example, a received signal **1800** may store location information in the data portions of signal **1800**. In embodiments where additional information is sent about location **1801** (e.g., a map associated with location **1801**) utilizing a main data portion of signal **1800** is preferred. Persons skilled in the art will appreciate that signal burst **1800** may actually be any type of communication signal such as, for example, information returned from a database inquiry.

Persons skilled in the art will also appreciate that the systems and methods of the present invention may be implemented using other locating features and configurations. For example, a user may be manually requested to allow location access rights every time his/her location is requested. As per another example, a user may organize his/her user list into groups and assign access rights to that group (e.g., family member user group, close friend user group). All such modifications are within the scope of the present invention, which is limited only by the claims that follow.

What is claimed is:

1. A method comprising:

obtaining a location of a first wireless telephone;

transmitting said location from said first wireless telephone to a remote server;

changing, at the direction of said first wireless telephone, a list of users on said remote server for a profile associated with said first wireless telephone that are allowed to

access said location, wherein each user of said list of users is representative of one of a plurality of wireless telephones;

transmitting said location from said remote server to at least one of said users of said list of users;

determining a second location associated with one of said plurality of wireless telephones; and

providing directional information to said one of said plurality of wireless telephones, wherein said directional information is representative of directions between said location and said second location.

2. The method of claim **1**, wherein said changing comprises adding an additional user to said list of users.

3. The method of claim **1**, further comprising transmitting the address of said location to said at least one of said users of said list of users.

4. The method of claim **1**, further comprising:

obtaining the address of said location from a remote information provider; and

transmitting the address of said location to said at least one of said users of said list of users.

5. The method of claim **1**, further comprising:

receiving said location by at least one of said plurality of wireless telephones; and

displaying said location on said at least one of said plurality of wireless telephones.

6. The method of claim **1**, further comprising determining a third location associated with one of said plurality of wireless telephones.

7. The method of claim **1**, further comprising:

receiving said location by at least one of said plurality of wireless telephones; and

displaying the name of said location on said at least one of said plurality of wireless telephones.

8. The method of claim **1**, further comprising determining the distance between said first wireless telephone and at least one of said plurality of wireless telephones.

9. The method of claim **1**, further comprising:

receiving said location by at least one of said plurality of wireless telephones; and

displaying a map on said at least one of said plurality of wireless telephones with a marker representative of said location.

10. The method of claim **1**, wherein the location is obtained by way of manual input that is received by way of a locate button provided on said first wireless telephone.

11. The method of claim **1**, further comprising:

determining a third location of a device based on the IP address of said device; and

transmitting said location to said device.

12. The method of claim **1**, further comprising:

receiving manual input for a third location wherein said third user is associated with said manually input third location.

13. A method comprising:

determining a location of a first wireless telephone;

transmitting said location from said first wireless telephone to a remote server;

changing a list of users on said remote server for a profile associated with said first wireless telephone that are allowed to access said location, wherein each user of said list of users is representative of one of a plurality of wireless telephones;

transmitting an alert message, comprising information associated with said location, from said remote server to a user of said list of users when said user is within a certain distance of said location;

determining a second location associated with said wireless telephone associated with said one user; and

providing directional information to said wireless telephone associated with said user, wherein said directional information is representative of directions between said location and said second location.

14. A method comprising:

obtaining a location of a first wireless telephone;

transmitting said location from said first wireless telephone to a remote server;

changing, at the direction of said first wireless telephone, a list of users on said remote server for a profile associated with said first wireless telephone that are allowed to access said location, wherein each user of said list of users is representative of one of a plurality of wireless telephones; and

transmitting said location from said remote server to at least one of said users of said list of users;

receiving manual input for a second location;

determining an identity of a second user for a device by way of a login; and

transmitting said location to said device, wherein said second user is associated with said manually input second location.

15. A method comprising:

obtaining a location of said first wireless telephone;

transmitting said location from said first wireless telephone to a remote server;

changing a list of users on said remote server for a profile associated with said first wireless telephone that are allowed to access said location, wherein each user of said list of users is representative of one of a plurality of wireless telephones;

transmitting an alert message, comprising information associated with said location, from said remote server to a user of said list of users when said user is within a certain distance of said location;

determining a second location associated with said wireless telephone associated with said one user; and

providing directional information to said wireless telephone associated with said user, wherein said directional information is representative of directions between said location and said second location.

16. The method of claim **15**, wherein said changing comprises adding an additional user to said list of users.

17. The method of claim **15**, further comprising transmitting the address of said location to at least one of said users of said list of users.

18. The method of claim **15**, further comprising:

obtaining the address of said location from a remote information provider; and

transmitting the address of said location to at least one of said users of said list of users.

19. The method of claim **15**, further comprising determining a third location associated with said wireless telephone associated with said user.

20. The method of claim **15**, further comprising:

receiving said location by said wireless telephone associated with said user; and

displaying the name of said location on said wireless telephone associated with said user.

21. The method of claim **15**, further comprising determining the distance between said first wireless telephone and said wireless telephones associated with said user.

22. The method of claim **15**, further comprising:

receiving said location by said wireless telephone associated with said user; and

displaying a map on said wireless telephone associated with said user, wherein a marker is displayed on said map that is representative of said location.

23. The method of claim **13**, wherein said changing comprises adding an additional user to said list of users.

24. The method of claim **13**, further comprising transmitting the address of said location to at least one of said users of said list of users.

25. The method of claim **13**, further comprising:

obtaining the address of said location from a remote information provider; and

transmitting the address of said location to at least one of said users of said list of users.

26. The method of claim **13**, further comprising determining a third location associated with said wireless telephone associated with said user.

27. The method of claim **13**, further comprising:

receiving said location by said wireless telephone associated with said user; and

displaying the name of said location on said wireless telephone associated with said user.

28. The method of claim **13**, further comprising determining the distance between said first wireless telephone and said wireless telephones associated with said user.

29. The method of claim **13**, further comprising:

receiving said location by said wireless telephone associated with said user; and

displaying a map on said wireless telephone associated with said user, wherein a marker is displayed on said map that is representative of said location.

30. A method comprising:

obtaining a location of said first wireless telephone;

changing, at the direction of said first wireless telephone, a list of users on a remote server for a profile associated with said first wireless telephone that are allowed to access said location, wherein each user of said list of users is representative of one of a plurality of wireless telephones;

transmitting said location from said remote server to at least one of said users of said list of users;

determining a second location associated with one of said plurality of wireless telephones; and

providing directional information to said one of said plurality of wireless telephones, wherein said directional information is representative of directions between said location and said second location.

31. The method of claim **30**, wherein said changing comprises adding an additional user to said list of users.

32. The method of claim **30**, further comprising transmitting the address of said location to said at least one of said users of said list of users.

33. The method of claim **30**, further comprising:

obtaining the address of said location from a remote information provider; and

transmitting the address of said location to said at least one of said users of said list of users.

34. The method of claim **30**, further comprising:

receiving said location by at least one of said plurality of wireless telephones; and

displaying said location on said at least one of said plurality of wireless telephones.

35. The method of claim **30**, further comprising determining a third location associated with one of said plurality of wireless telephones.

36. The method of claim **30**, further comprising:

receiving said location by at least one of said plurality of wireless telephones; and

displaying the name of said location on said at least one of said plurality of wireless telephones.

37. The method of claim **30**, further comprising determining the distance between said first wireless telephone and at least one of said plurality of wireless telephones.

38. A method comprising:

obtaining a location of said first wireless telephone;

changing a list of users on a remote server for a profile associated with said first wireless telephone that are allowed to access said location, wherein each user of said list of users is representative of one of a plurality of wireless telephones;

transmitting an alert message, comprising information associated with said location, from said remote server to a user of said list of users when said user is within a certain distance of said location;

determining a second location associated with said wireless telephone associated with said one user; and

providing directional information to said wireless telephone associated with said user, wherein said directional information is representative of directions between said location and said second location.

39. The method of claim **38**, wherein said changing comprises adding an additional user to said list of users.

40. The method of claim **38**, further comprising transmitting the address of said location to at least one of said users of said list of users.

41. The method of claim **38**, further comprising:

obtaining the address of said location from a remote information provider; and

transmitting the address of said location to at least one of said users of said list of users.

42. The method of claim **38**, further comprising determining a third location associated with said wireless telephone associated with said user.

43. The method of claim **38**, further comprising:

receiving said location by said wireless telephone associated with said user; and

displaying the name of said location on said wireless telephone associated with said user.

44. The method of claim **38**, further comprising determining the distance between said first wireless telephone and said wireless telephones associated with said user.

45. The method of claim **38**, further comprising:

receiving said location by said wireless telephone associated with said user; and

displaying a map on said wireless telephone associated with said user, wherein a marker is displayed on said map that is representative of said location.

46. The method of claim **38**, wherein location is obtained by way of manual input manual input that is received by way of a locate button provided on said first wireless telephone.

* * * * *

UNITED STATES PATENT AND TRADEMARK OFFICE

CERTIFICATE OF CORRECTION

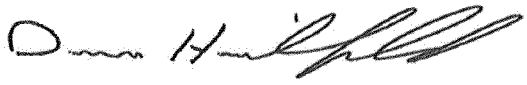
PATENT NO.	: 8,374,575 B2
APPLICATION NO.	: 11/387384
DATED	: February 12, 2013
INVENTOR(S)	: Jeffrey D. Mullen

It is certified that error appears in the above-identified patent and that said Letters Patent is hereby corrected as shown below:

In the Claims

Claim 30, Column 15, Line 32: "said first wireless telephone" should read --a first wireless telephone--.

Signed and Sealed this
Thirtieth Day of November, 2021



Drew Hirshfeld
Performing the Functions and Duties of the
Under Secretary of Commerce for Intellectual Property and
Director of the United States Patent and Trademark Office

EXHIBIT 9

US011246024B2

(12) United States Patent
Mullen

(10) Patent No.: US 11,246,024 B2
(45) Date of Patent: *Feb. 8, 2022

(54) **SYSTEMS AND METHODS FOR LOCATING CELLULAR PHONES AND SECURITY MEASURES FOR THE SAME**

(76) Inventor: **Jeffrey David Mullen**, Pittsburgh, PA (US)

(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 0 days.

This patent is subject to a terminal disclaimer.

(21) Appl. No.: **11/841,765**

(22) Filed: **Aug. 20, 2007**

(65) **Prior Publication Data**

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Related U.S. Application Data

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(51) **Int. Cl.**

H04M 11/00	(2006.01)
H04M 11/04	(2006.01)
H04W 8/14	(2009.01)
H04W 64/00	(2009.01)
H04W 8/16	(2009.01)

(52) **U.S. Cl.**

CPC ***H04W 8/14*** (2013.01); ***H04W 64/00*** (2013.01); *H04W 8/16* (2013.01)

(58) **Field of Classification Search**

CPC H04W 8/14; H04W 64/00; H04W 8/16
USPC 379/456.1–456.3, 457, 410, 404.1, 404.2
See application file for complete search history.

(56) **References Cited**

U.S. PATENT DOCUMENTS

4,654,879	A	3/1987	Goldman et al.
5,043,736	A	8/1991	Darnell et al.
5,086,390	A	2/1992	Matthews
5,097,416	A	3/1992	Matthews
5,197,092	A	3/1993	Bamburak

(Continued)

FOREIGN PATENT DOCUMENTS

WO	WO 99/000717	2/1999
WO	WO 99/009775	2/1999

(Continued)

OTHER PUBLICATIONS

Wrolstad, Jay, "Sprint Claims First With E911-Capable Phone," newsfactor.com (as viewed at http://www.newsfactor.com/perl/story/13952.html on Jan. 22, 2007), Oct. 4, 2001).

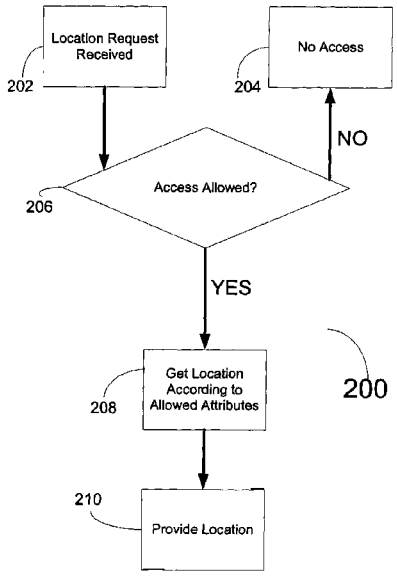
(Continued)

Primary Examiner — William J Deane, Jr.

(57) **ABSTRACT**

Systems and methods for locating a cellular phone are provided. More particularly, systems and methods for providing the location of a requested user's cellular phone from a requesting user's device (e.g., a second cellular phone) based on access rights defined by the requested user. Location descriptions may be provided at a multitude of levels. For example, if a cellular phone, or an identity associated to (e.g., logged into) a cellular phone, has been given access rights to a cell phone's exact location for an indefinite amount of time, that cell phone can receive, on command, the exact location of the approved cell phone. Other levels of location information that can be granted include, for example, proximities, states, and countries.

78 Claims, 17 Drawing Sheets



(56) **References Cited**

U.S. PATENT DOCUMENTS

5,305,201	A		4/1994	Matthews
5,327,144	A		7/1994	Stilp et al.
5,337,334	A		8/1994	Antero Alvesalo
5,338,147	A		8/1994	Kucharczyk et al.
5,341,410	A		8/1994	Aron et al.
5,384,824	A		1/1995	Alvesalo
5,442,805	A		8/1995	Sagars et al.
5,479,482	A		12/1995	Grimes
5,500,887	A	*	3/1996	Jeon H04W 60/00 455/456.2
5,502,757	A		3/1996	Bales et al.
5,519,760	A		5/1996	Borkowski et al.
5,537,460	A		7/1996	Holliday, Jr. et al.
5,548,816	A		8/1996	DeVaney
5,551,058	A		8/1996	Hutcheson et al.
5,555,286	A		9/1996	Tendler
5,719,563	A		2/1998	Thompson
5,767,788	A		6/1998	Ness
5,778,315	A		7/1998	Proietti
5,796,634	A		8/1998	Craport et al.
5,805,999	A		9/1998	Inoue
5,815,538	A		9/1998	Grell et al.
5,832,381	A		11/1998	Kauppi
5,847,976	A		12/1998	Lescourret
5,875,398	A		2/1999	Snapp
5,889,474	A	*	3/1999	LaDue G07C 9/00111 340/10.41
5,890,062	A		3/1999	Courtney et al.
5,920,820	A		7/1999	Qureshi et al.
5,929,752	A		7/1999	Janky et al.
5,950,125	A		9/1999	Buhrmann et al.
5,961,569	A		10/1999	Craport et al.
5,961,572	A		10/1999	Craport et al.
5,978,747	A		11/1999	Craport et al.
5,987,019	A	*	11/1999	Raith et al. 370/347
5,999,124	A		12/1999	Sheynblat
6,023,241	A		2/2000	Clapper
6,028,537	A		2/2000	Suman et al.
6,032,042	A		2/2000	Kauppi
6,035,189	A		3/2000	All-Vehmas
6,035,198	A		3/2000	Wiehe
6,038,446	A		3/2000	Courtney et al.
6,047,051	A		4/2000	Ginzboorg
6,049,711	A		4/2000	Ben-Yehezkel
6,061,561	A		5/2000	Alanara et al.
6,078,578	A	*	6/2000	Matsumoto 370/350
6,088,586	A	*	7/2000	Haverty H04W 64/00 455/422.1
6,091,959	A		7/2000	Souissi et al.
6,138,003	A		10/2000	Kingdon et al.
6,144,336	A		11/2000	Preston et al.
6,157,841	A		12/2000	Bolduc et al.
6,166,626	A		12/2000	Janky et al.
6,173,182	B1		1/2001	Cha
6,201,803	B1		3/2001	Munday et al.
6,208,866	B1		3/2001	Rouhollahzadeh et al.
6,215,863	B1	*	4/2001	Bennett et al. 379/221.09
6,236,359	B1		5/2001	Watters et al.
6,236,858	B1		5/2001	Griffith
6,240,069	B1		5/2001	Alperovich
6,246,376	B1		6/2001	Bork et al.
6,246,861	B1		6/2001	Messier et al.
6,256,543	B1		6/2001	Camp
6,256,498	B1		7/2001	Ludwig
6,259,923	B1		7/2001	Lim et al.
6,275,544	B1	*	8/2001	Aiello et al. 375/326
6,275,771	B1		8/2001	Berstis et al.
6,311,060	B1		10/2001	Evans et al.
6,314,365	B1		11/2001	Smith
6,317,718	B1		11/2001	Fano
6,321,092	B1		11/2001	Fitch et al.
6,324,404	B1		11/2001	Dennison et al.
6,330,452	B1		12/2001	Fattouche et al.
6,360,101	B1		3/2002	Irvin
6,360,102	B1	*	3/2002	Havinis et al. 455/457
6,360,167	B1		3/2002	Millington et al.
6,374,306	B1		4/2002	Tognazzini
6,377,565	B1	*	4/2002	Puckette, IV 370/337
6,377,810	B1	*	4/2002	Geiger et al. 455/456.2
6,393,274	B1		5/2002	Peltonen
6,397,065	B1		5/2002	Huusko et al.
6,400,946	B1		6/2002	Vazvan
6,400,956	B1		6/2002	Richton
6,408,186	B1		6/2002	Park et al.
6,421,009	B2		7/2002	Suprunov
6,438,376	B1		8/2002	Elliott et al.
6,438,381	B1		8/2002	Alberth, Jr. et al.
6,449,486	B1		9/2002	Rao
6,456,854	B1		9/2002	Chern
D464,033	S		10/2002	Poirier
6,466,788	B1	*	10/2002	Carlsson 455/435.2
6,532,360	B1		3/2003	Shaffer
6,564,064	B1	*	5/2003	Ciganer et al. 455/456.1
6,580,914	B1		6/2003	Smith
6,580,918	B1		6/2003	Leickel
6,583,716	B2	*	6/2003	Rangarajan G06F 16/29 340/7.56
6,584,314	B1		6/2003	Haumont
6,587,691	B1		7/2003	Granstam
6,603,969	B1		8/2003	Vuoristo
6,603,977	B1		8/2003	Walsh et al.
6,610,687	B1		8/2003	Clark
6,618,593	B1		9/2003	Drutman et al.
6,618,671	B2		9/2003	Dooley et al.
6,622,020	B1		9/2003	Seki
6,628,938	B1		9/2003	Rachabathuni et al.
6,647,257	B2	*	11/2003	Owensby 455/414.1
6,662,014	B1		12/2003	Walsh et al.
6,662,614	B1	*	12/2003	Lim 72/186
6,665,389	B1		12/2003	Haste, III
6,677,894	B2		1/2004	Sheynblat
6,714,791	B2		3/2004	Friedman
6,716,101	B1	*	4/2004	Meadows et al. 455/456.1
6,725,032	B1	*	4/2004	Sheridan et al. 455/419
6,735,564	B1		5/2004	Puhakainen
6,778,837	B2		8/2004	Bade et al.
6,779,094	B2		8/2004	Selkirk et al.
6,795,710	B1		9/2004	Creemer
6,798,358	B2		9/2004	Joyce et al.
6,806,813	B1		10/2004	Cheng et al.
6,816,735	B1		11/2004	Rayburn et al.
6,826,398	B1		11/2004	Lagerstrom et al.
6,836,667	B1		12/2004	Smith
6,870,822	B2		3/2005	Balogh
6,879,838	B2		4/2005	Rankin et al.
6,882,837	B2		4/2005	Fernandez et al.
6,882,856	B1		4/2005	Alterman
6,885,874	B2	*	4/2005	Grube et al. 455/520
6,912,398	B1		6/2005	Domnitz
6,912,545	B1		6/2005	Lundy et al.
6,920,319	B2		7/2005	Knutsson et al.
6,928,279	B2		8/2005	Seligmann et al.
6,932,698	B2		8/2005	Sprogis
6,944,447	B2		9/2005	Portman et al.
6,968,179	B1	*	11/2005	De Vries 455/414.1
6,975,998	B1		12/2005	Jones
6,983,313	B1	*	1/2006	Korkea-Aho G06F 16/9537 709/219
6,999,777	B1	*	2/2006	Ganesh 455/456.1
7,010,110	B2		3/2006	Jorasch et al.
7,013,148	B1		3/2006	Ganesh
7,072,956	B2		7/2006	Parupudi
7,130,630	B1	*	10/2006	Enzmann et al. 455/435.1
7,177,651	B1	*	2/2007	Almassy 455/456.1
7,215,965	B2		5/2007	Fournier et al.
7,248,872	B2	*	7/2007	Bassett et al. 455/433
7,269,426	B2	*	9/2007	Kokkonen et al. 455/456.1
7,272,220	B1		9/2007	Zhang
7,324,823	B1	*	1/2008	Rosen et al. 455/456.1
7,333,776	B1		2/2008	York
7,409,429	B2		8/2008	Kaufman
7,532,894	B1	*	5/2009	Muhonen H04W 8/10 455/404.2
7,570,958	B2		8/2009	Krasner

(56) **References Cited**

U.S. PATENT DOCUMENTS

7,983,947	B2	7/2011	Kaiwa	
8,073,087	B2 *	12/2011	Casaccia	H04L 1/0045 375/347
8,478,304	B1	7/2013	David et al.	
9,446,118	B2	9/2016	Bublot et al.	
2001/0029184	A1	10/2001	L'Anson et al.	
2001/0048364	A1	12/2001	Kaithoff et al.	
2001/0055328	A1 *	12/2001	Dowling	375/130
2002/0003470	A1	1/2002	Auerbach	
2002/0039904	A1	4/2002	Anderson	
2002/0042277	A1	4/2002	Smith	
2002/0061746	A1 *	5/2002	Jo	H04W 8/12 455/433
2002/0086683	A1 *	7/2002	Kohar et al.	455/456
2002/0102989	A1 *	8/2002	Calvert et al.	455/456
2002/0115453	A1 *	8/2002	Poulin et al.	455/456
2002/0141434	A1 *	10/2002	Grundvig et al.	370/442
2002/0164998	A1	11/2002	Younis	
2002/0177451	A1 *	11/2002	Ogasawara	H04W 64/00 455/456.1
2002/0183059	A1	12/2002	Noreen et al.	
2003/0004743	A1	1/2003	Callegari	
2003/0013456	A1 *	1/2003	Bates et al.	455/456
2003/0013461	A1	1/2003	Mizune et al.	
2003/0023726	A1	1/2003	Rice et al.	
2003/0069692	A1	4/2003	Krasner	
2003/0119522	A1 *	6/2003	Barclay et al.	455/456
2003/0154243	A1 *	8/2003	Crockett	H04L 63/08 709/203
2004/0033795	A1 *	2/2004	Walsh et al.	455/404.1
2004/0038706	A1	2/2004	Wasser et al.	
2004/0054428	A1	3/2004	Sheha	
2004/0077359	A1 *	4/2004	Bernas et al.	455/456.1
2004/0109435	A1 *	6/2004	Alasti	H04L 1/0006 370/350
2004/0127231	A1	7/2004	Dor	
2004/0180669	A1	9/2004	Kall	
2005/0097595	A1 *	5/2005	Lipsanen et al.	725/25
2005/0222756	A1	10/2005	Davis et al.	
2008/0299355	A1	11/2008	Rosen	
2009/0005019	A1	1/2009	Patel et al.	
2009/0029717	A1 *	1/2009	Bates	H04W 4/02 455/456.1
2009/0197612	A1 *	8/2009	Kiiskinen	455/456.1
2010/0151815	A1 *	6/2010	Zellner	H04W 4/02 455/404.2
2012/0106728	A1	5/2012	Ghaffari et al.	

FOREIGN PATENT DOCUMENTS

WO	WO 99/051051	3/1999
WO	WO 00/028760	5/2000
WO	WO 00/035228	6/2000
WO	WO 00/038350	6/2000
WO	WO 00/064075	10/2000
WO	WO 00/076194	12/2000
WO	WO 00/076243	12/2000
WO	WO 01/001711	1/2001
WO	WO 01/001718	1/2001
WO	WO 01/003406	1/2001
WO	WO 01/003454	1/2001
WO	WO 01/003461	1/2001
WO	WO 01/010718	1/2001
WO	WO 01/020938	3/2001
WO	WO 01/033885	5/2001
WO	WO 01/039525	5/2001
WO	WO 01/039528	5/2001
WO	WO 01/041468	6/2001
WO	WO 01/050544	7/2001
WO	WO 01/086880	11/2001
WO	WO 01/089251	11/2001
WO	WO 02/003718	1/2002

OTHER PUBLICATIONS

Wrolstad, Jay, "Sprint Rolls Out E911 Services," newsfactor.com (as viewed at http://www.newsfactor.com/perl/story/15506.html on Jan. 22, 2007), Dec. 26, 2001).

"Sprint PCS First Quarterly E911 Implementation Report," Before the Federal Communications Commission, in the Matter of Revision of the Commission's Rules to Ensure Compatibility With Enhanced 911 Emergency Calling Systems , CC Docket No. 944-102, Feb. 1, 2002.

"Who is Integrated Data Communications?," presented at the FCC E-911 Automatic Location Identification Round Table, Jun. 28, 1999.

"Wireless Telecommunications Bureau Seeks Comment on Request to Commence Rulemaking to Establish Fair Location Information Practices," WT Docket No. 01-72, DA 01-696, (as viewed at http://www.fcc.gov.Bureaus/Wireless/PublicNotices/9001/da010696.html on Jan. 22, 2007), Mar. 16, 2001.

"Go2 Systems & Integrated Data Communications to Deliver Location Services Automatically to Wireless Phones; Alliance Enables Automatic Recognition of Wireless Caller's Location," Business Wire (as viewed at http://www.findarticles.com/p/articles/mi_m0EIN/is_2000_Feb_28/ai/59621222 on Jan. 22, 2007), Feb. 28, 2000.

"Before the Federal Communications Commission: In the Matter of: E-911 Automatic Location Identification Round Table," Transcript, Jun. 28, 1999.

"Pulver.com's Location Based Services Report," pulver.com (as visited at http://pulver.com/lbareport/lastlbareport.16jan01.txt on Jan. 22, 2007), Jan. 2001.

"Pulver.com's Location Based Services Report," pulver.com (as visited at http://pulver.com/lbareport/lastlbareport.26feb01.txt on Jan. 22, 2007), Feb. 2001.

"Pulver.com's Location Based Services Report," pulver.com (as visited at http://pulver.com/lbareport/lastlbareport.26mar01.txt on Jan. 22, 2007), Mar. 2001.

"Pulver.com's Location Based Services Report," pulver.com (as visited at http://pulver.com/lbareport/lastlbareport.05apr01.txt on Jan. 22, 2007), Apr. 2001.

"Pulver.com's Location Based Services Report," pulver.com (as visited at http://pulver.com/lbareport/lastlbareport.01may01.txt on Jan. 22, 2007), May 2001.

"Pulver.com's Location Based Services Report," pulver.com (as visited at http://pulver.com/lbareport/lastlbareport.10jun01.txt on Jan. 22, 2007), Jun. 2001.

"Pulver.com's Location Based Services Report," pulver.com (as visited at http://pulver.com/lbareport/lastlbareport.05jul01.txt on Jan. 22, 2007), Jul. 2001.

"Pulver.com's Location Based Services Report," pulver.com (as visited at http://pulver.com/lbareport/lastlbareport.01aug01.txt on Jan. 22, 2007), Aug. 2001.

"Pulver.com's Location Based Services Report," pulver.com (as visited at http://pulver.com/lbareport/lastlbareport.04sep01.txt on Jan. 22, 2007), Sep. 2001.

"Pulver.com's Location Based Services Report," pulver.com (as visited at http://pulver.com/lbareport/lastlbareport.02oct01.txt on Jan. 22, 2007), Oct. 2001.

"Pulver.com's Location Based Services Report," pulver.com (as visited at http://pulver.com/lbareport/lastlbareport.02nov01.txt on Jan. 22, 2007), Nov. 2001.

"Pulver.com's Location Based Services Report," pulver.com (as visited at http://pulver.com/lbareport/lastlbareport.03dec01.txt on Jan. 22, 2007), Dec. 2001.

"Pulver.com's Location Based Services Report," pulver.com (as visited at http://pulver.com/lbareport/lastlbareport.07jan02.txt on Jan. 22, 2007), Jan. 2002.

"Pulver.com's Location Based Services Report," pulver.com (as visited at http://pulver.com/lbareport/lastlbareport.04feb02.txt on Jan. 22, 2007), Feb. 2002.

"Pulver.com's Location Based Services Report," pulver.com (as visited at http://pulver.com/lbareport/lastlbareport.04mar02.txt on Jan. 22, 2007), Mar. 2002.

(56) **References Cited**

OTHER PUBLICATIONS

ETSI TS 101 513. "Digital Cellular Telecommunications System (Phase 2): Location Services (LCS)," GSM 12.71, version 8.0.1. 1999.
ETSI TS 101 527 "Digital Cellular Telecommunications System (Phase 2+): Location Services (LCS): Mobile Station (MS): Serving Mobile Location Centre (SMLC)," Radio Resource LCS Protocol (RRLP), GSM 04.31, version 8.1.0. 1999.

* cited by examiner

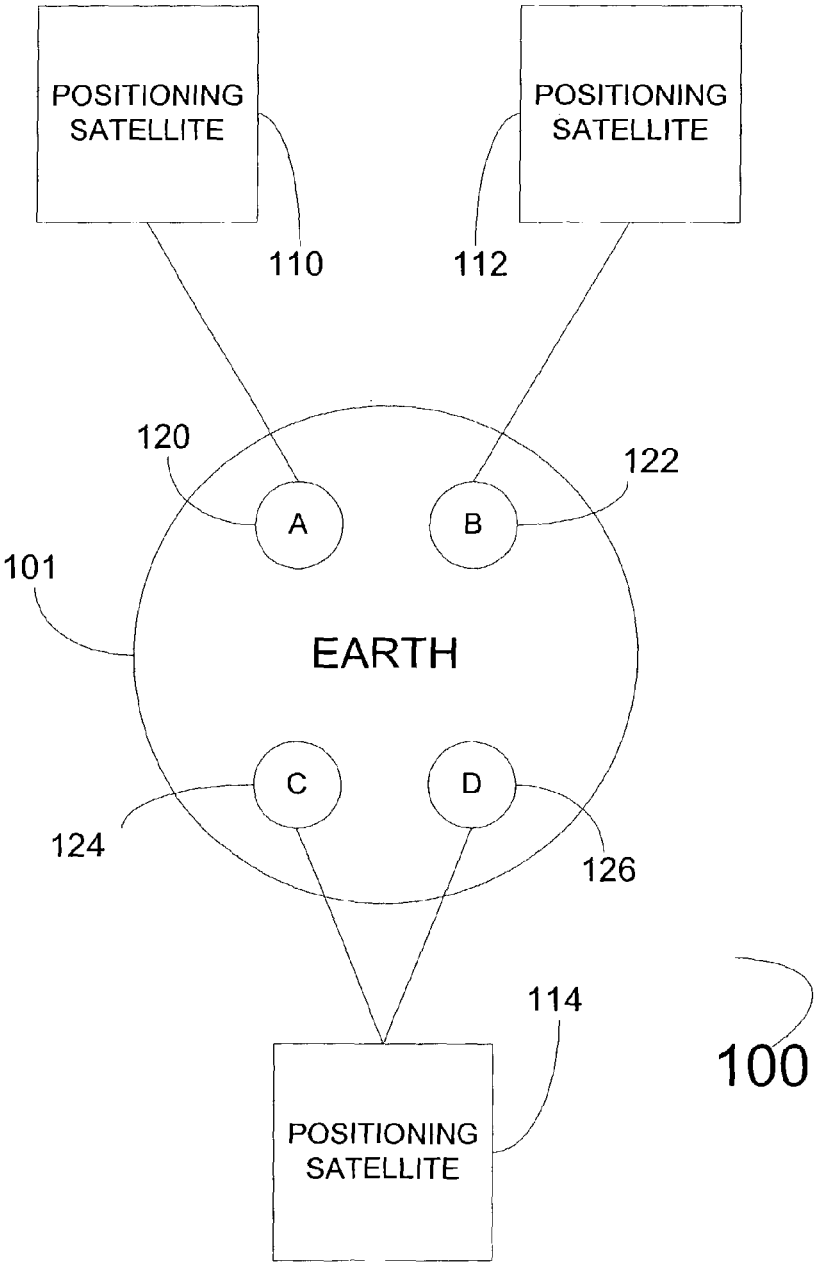

POSITIONING SATELLITE
POSITIONING SATELLITE
110
112
120
122
A
B
101
EARTH
C
D
124
126
114
100
POSITIONING SATELLITE

FIG. 1

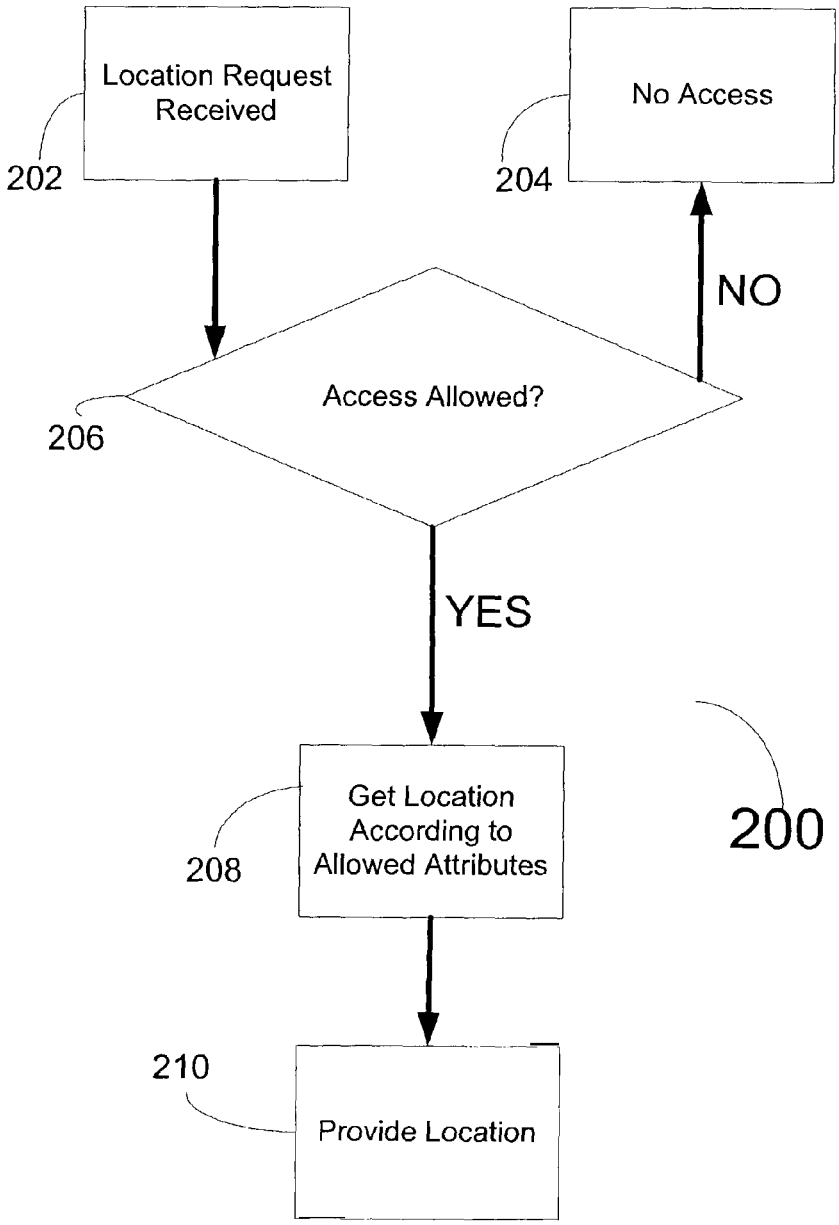

Location Request Received
202
No Access
204
NO
Access Allowed?
206
YES
Get Location According to Allowed Attributes
208
200
210
Provide Location

FIG. 2

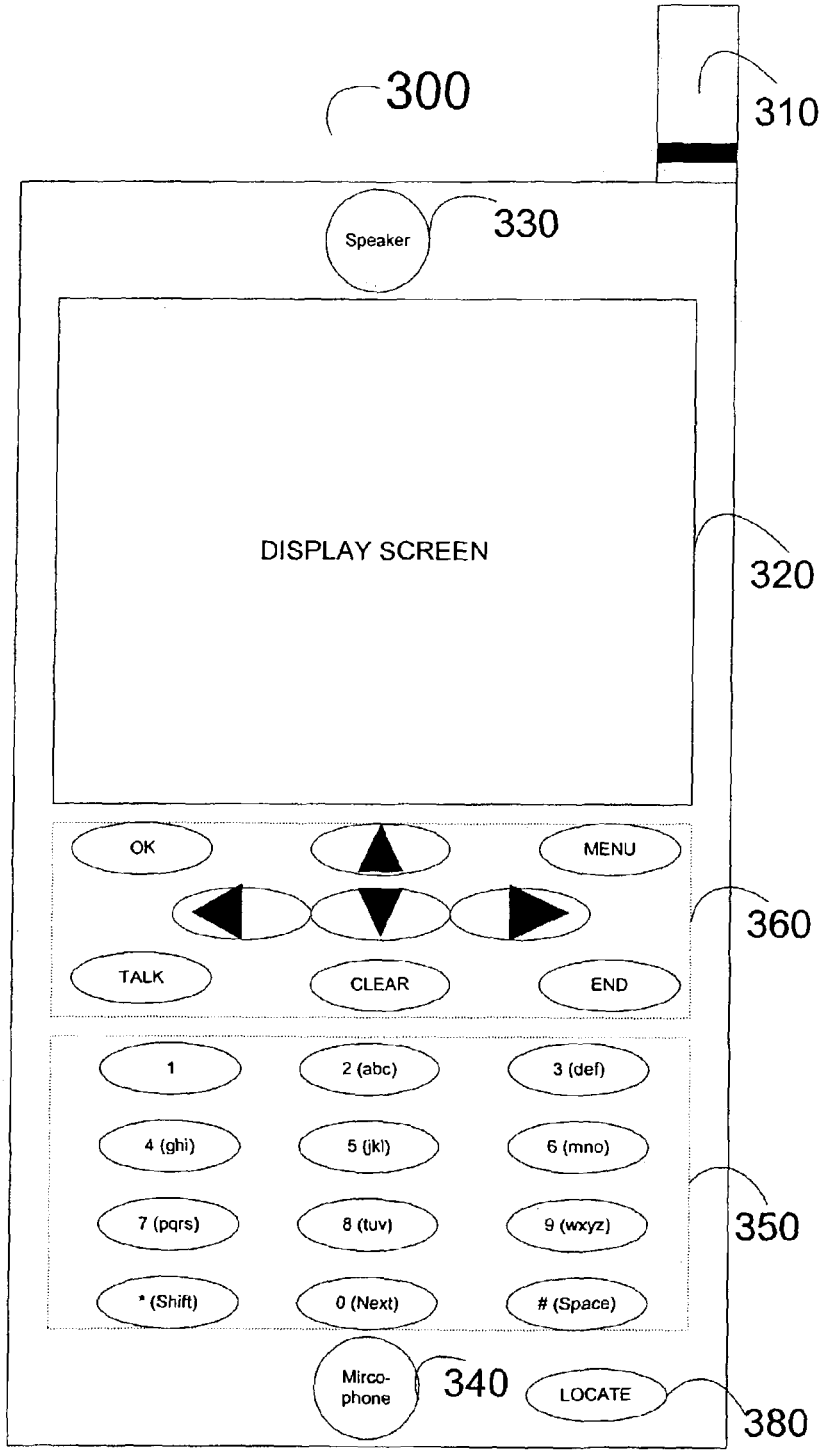

300
310
Speaker
330
DISPLAY SCREEN
320
OK
MENU
360
TALK
CLEAR
END
1
2 (abc)
3 (def)
4 (ghi)
5 (jkl)
6 (mno)
7 (pqrs)
8 (tuv)
9 (wxyz)
350
* (Shift)
0 (Next)
(Space)
Mirco-phone
340
LOCATE
380

FIG. 3

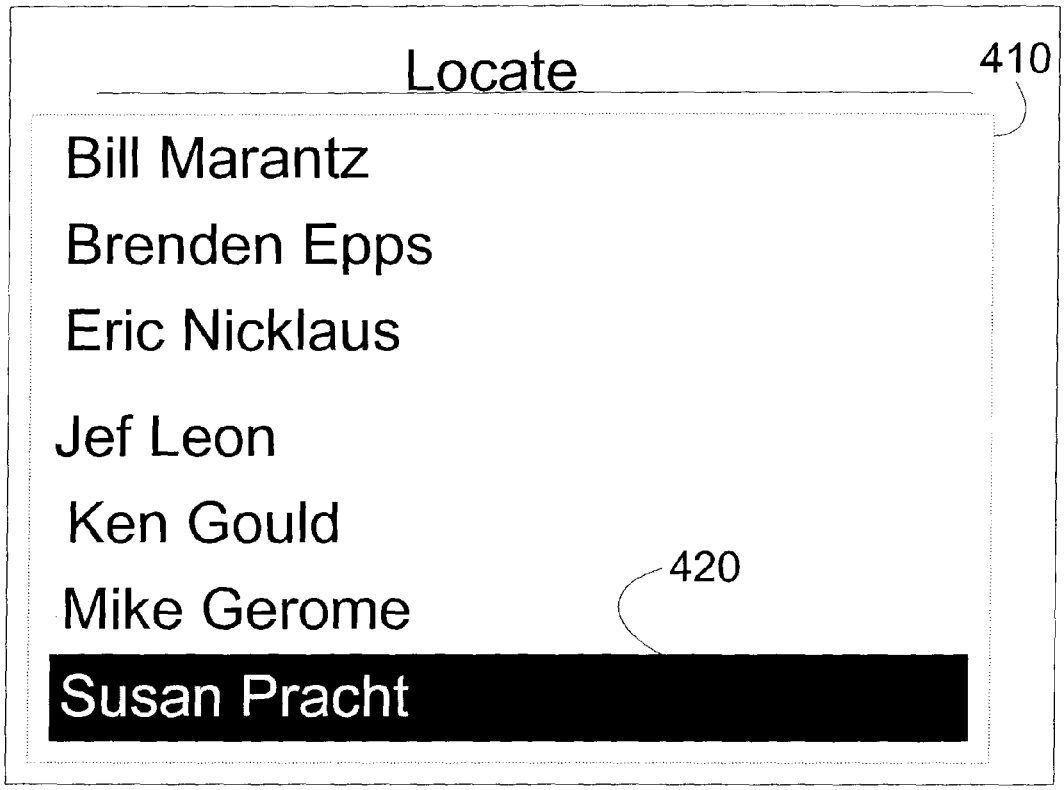

Locate
410
Bill Marantz
Brenden Epps
Eric Nicklaus
Jef Leon
Ken Gould
Mike Gerome
420
Susan Pracht

FIG. 4

400

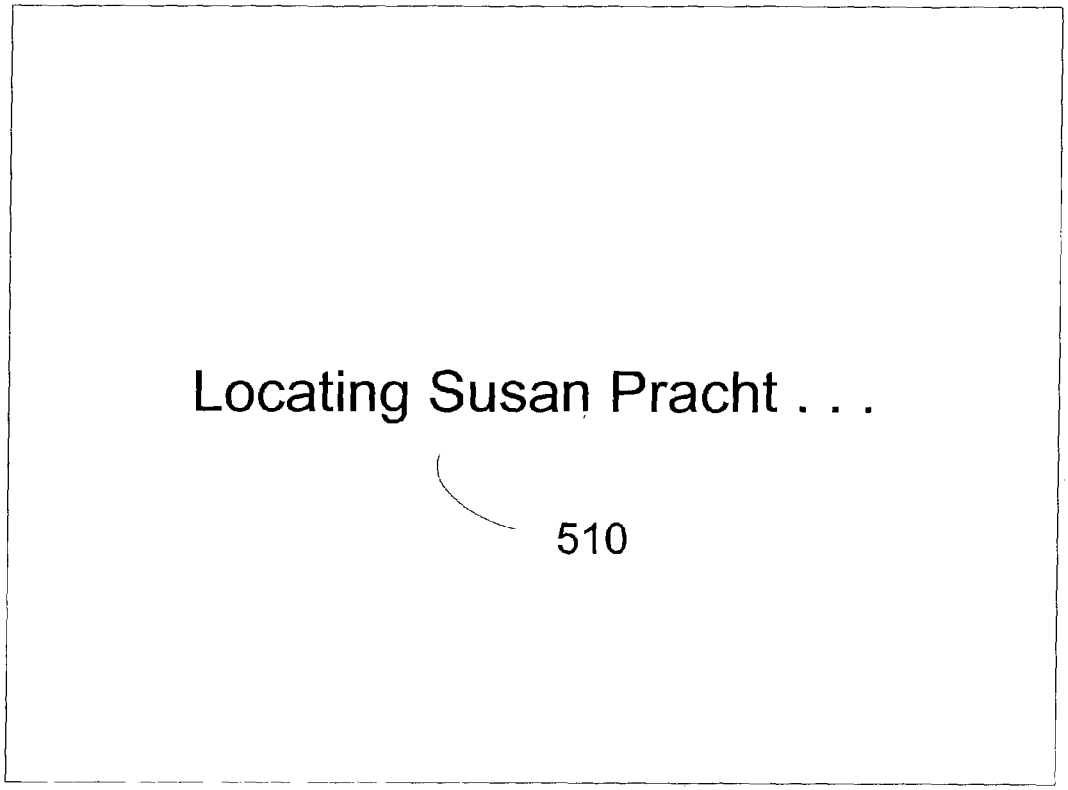


FIG. 5

500

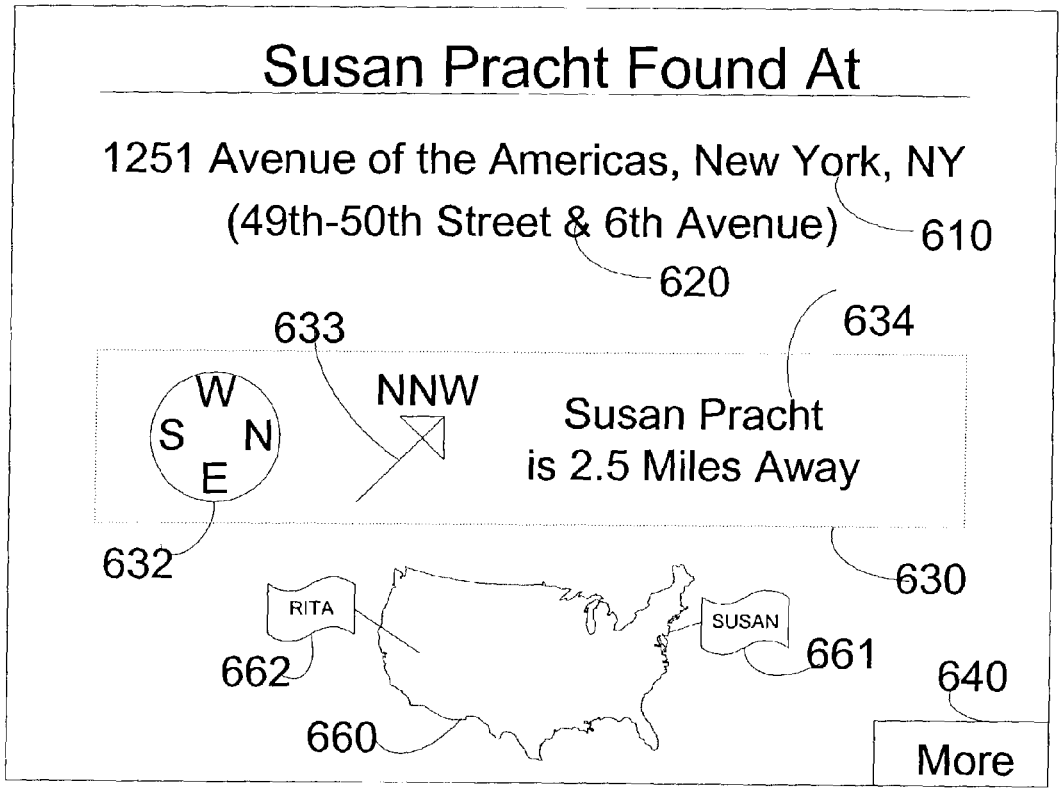

Susan Pracht Found At
1251 Avenue of the Americas, New York, NY
(49th-50th Street & 6th Avenue)
610
620
633
634
W
S
N
E
NNW
Susan Pracht
is 2.5 Miles Away
632
630
RITA
SUSAN
662
661
640
660
More
600

FIG. 6

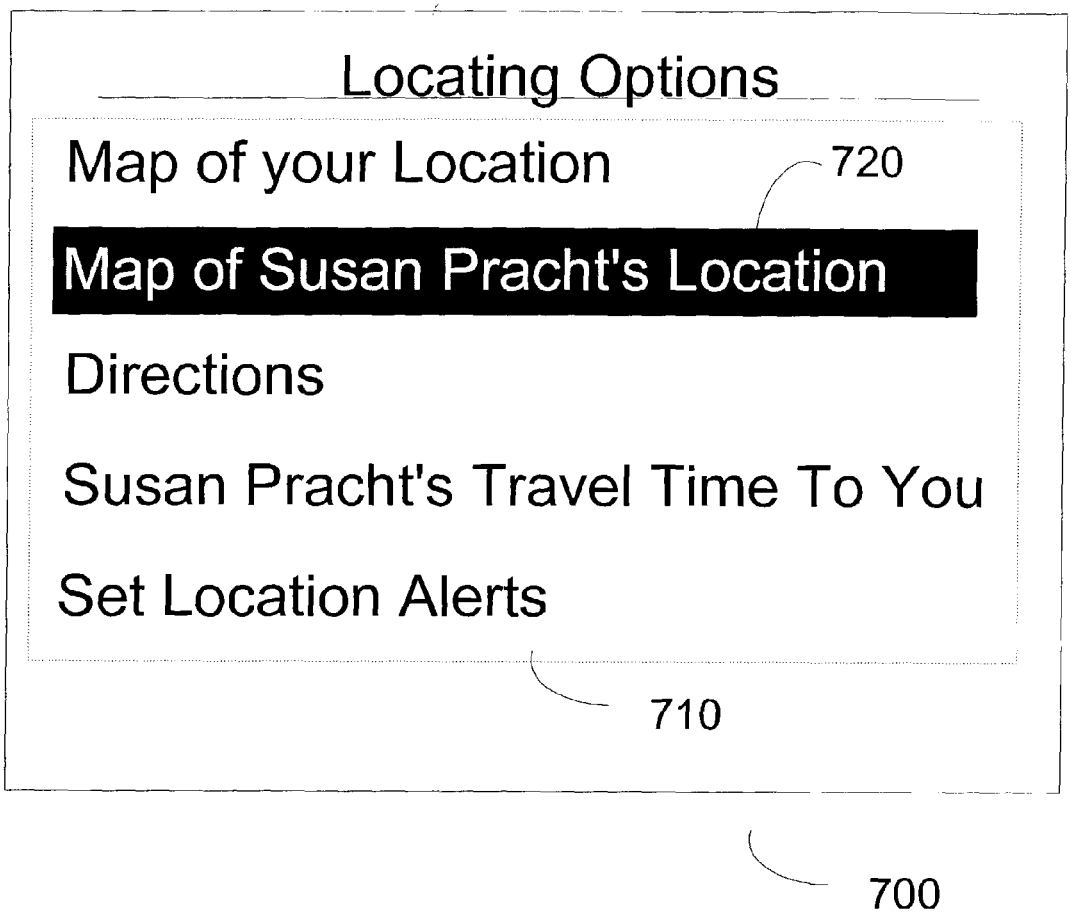

Locating Options
Map of your Location
720
Map of Susan Pracht's Location
Directions
Susan Pracht's Travel Time To You
Set Location Alerts
710
700

FIG. 7

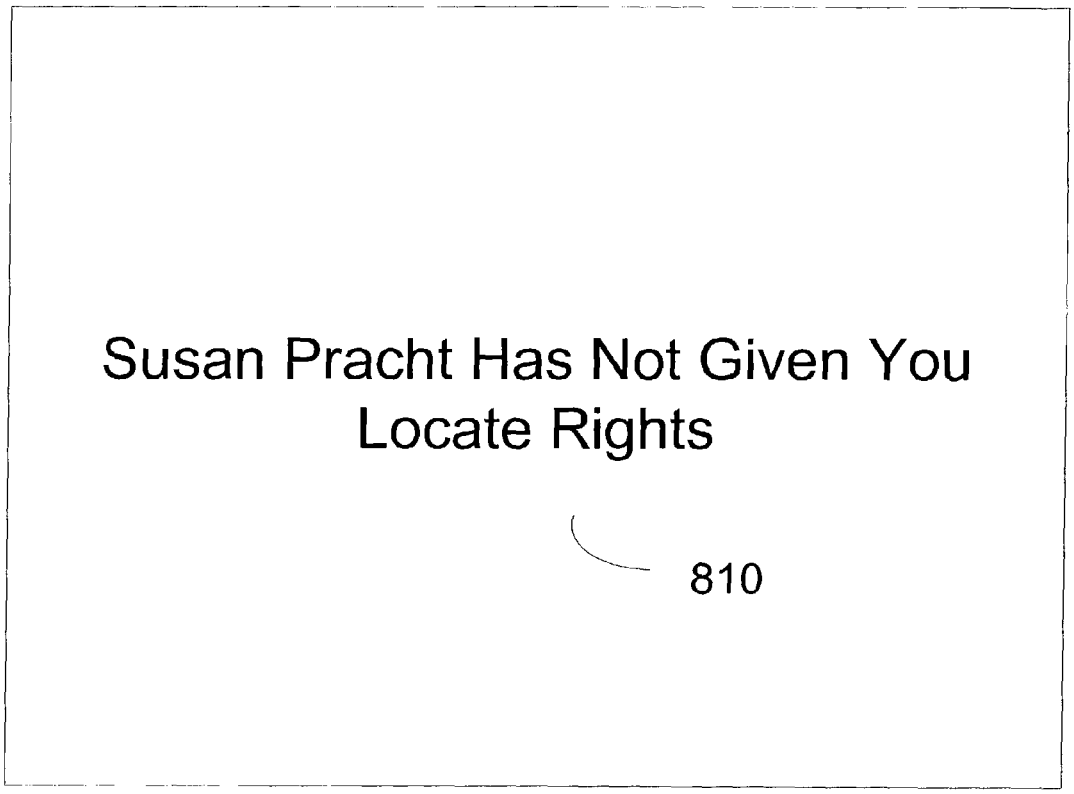


FIG. 8

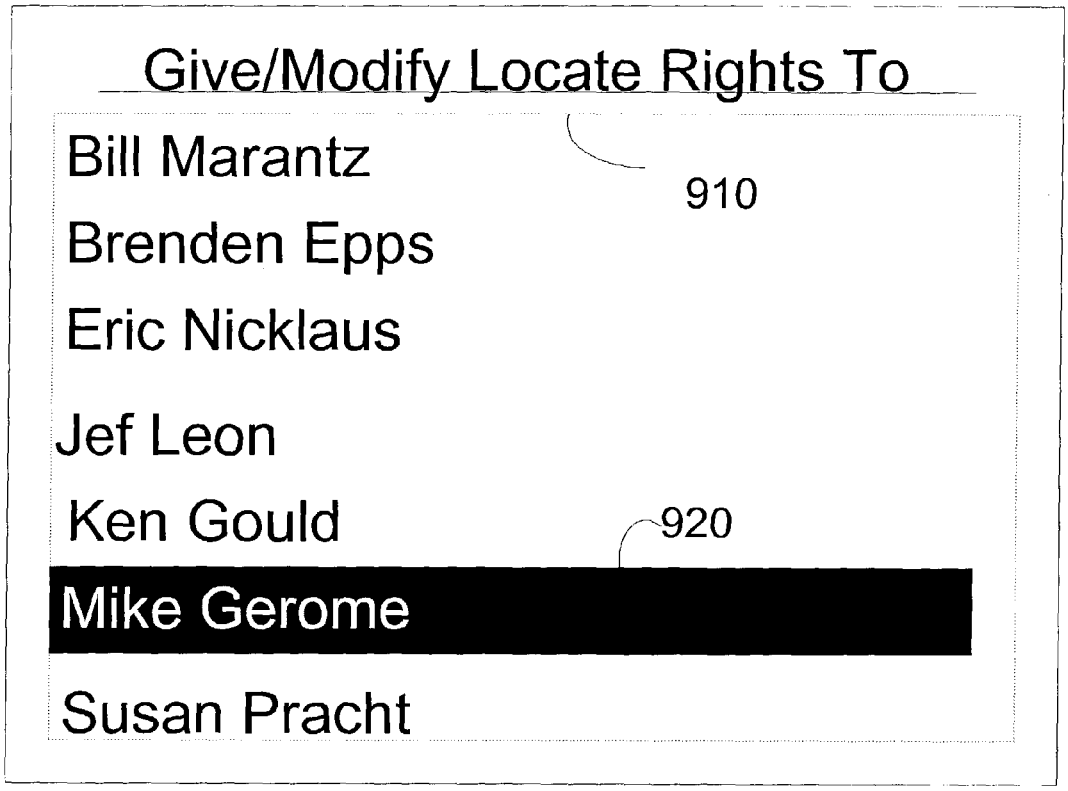

Give/Modify Locate Rights To
Bill Marantz
Brenden Epps
Eric Nicklaus
Jef Leon
Ken Gould
Mike Gerome
Susan Pracht
910
920
900

FIG. 9

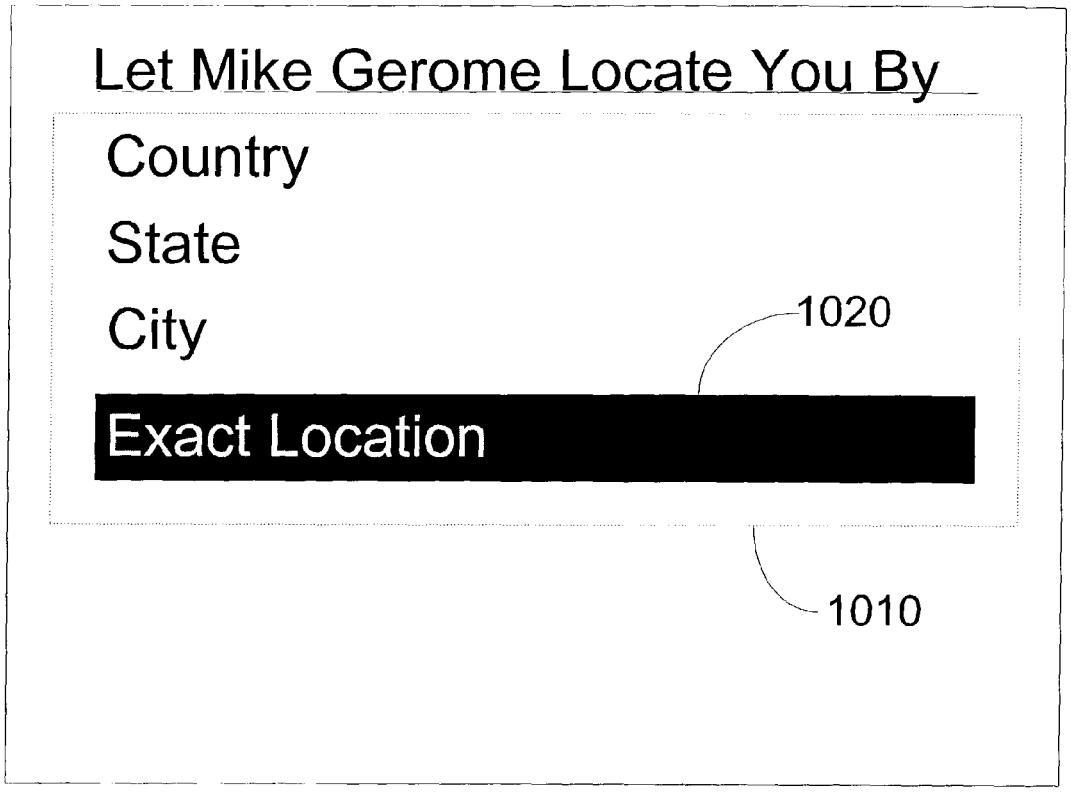

Let Mike Gerome Locate You By
Country
State
City
Exact Location
1020
1010
1000

FIG. 10

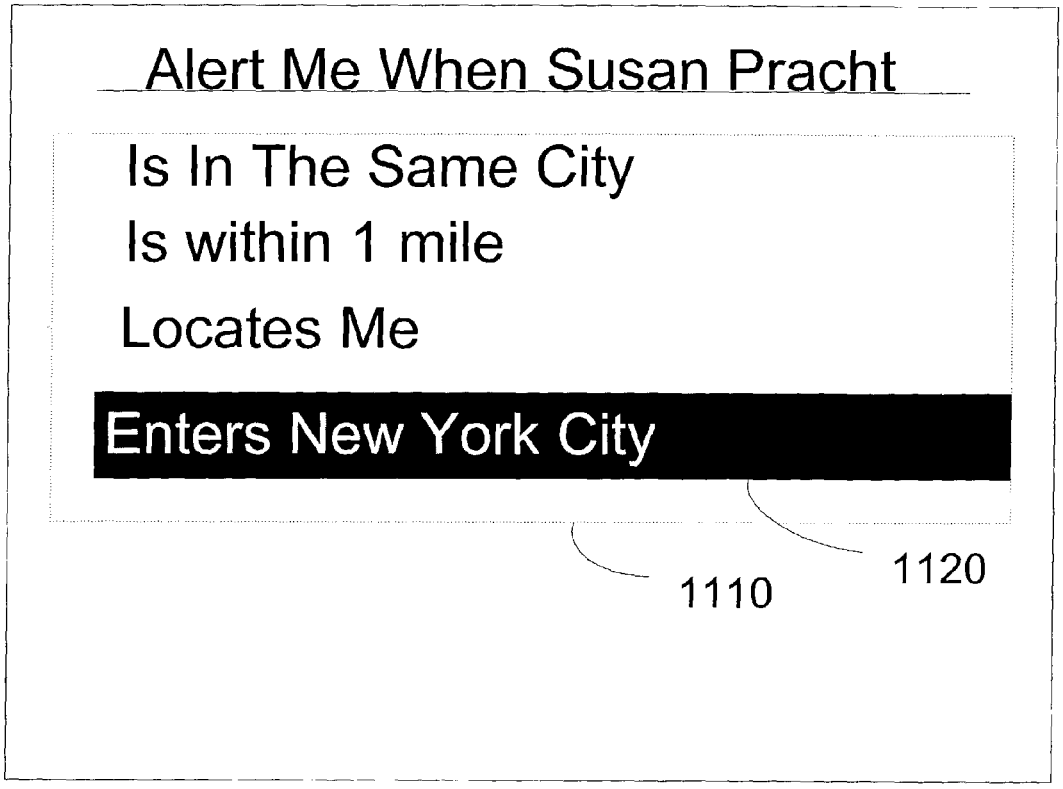

Alert Me When Susan Pracht
Is In The Same City
Is within 1 mile
Locates Me
Enters New York City
1110
1120
1100

FIG. 11

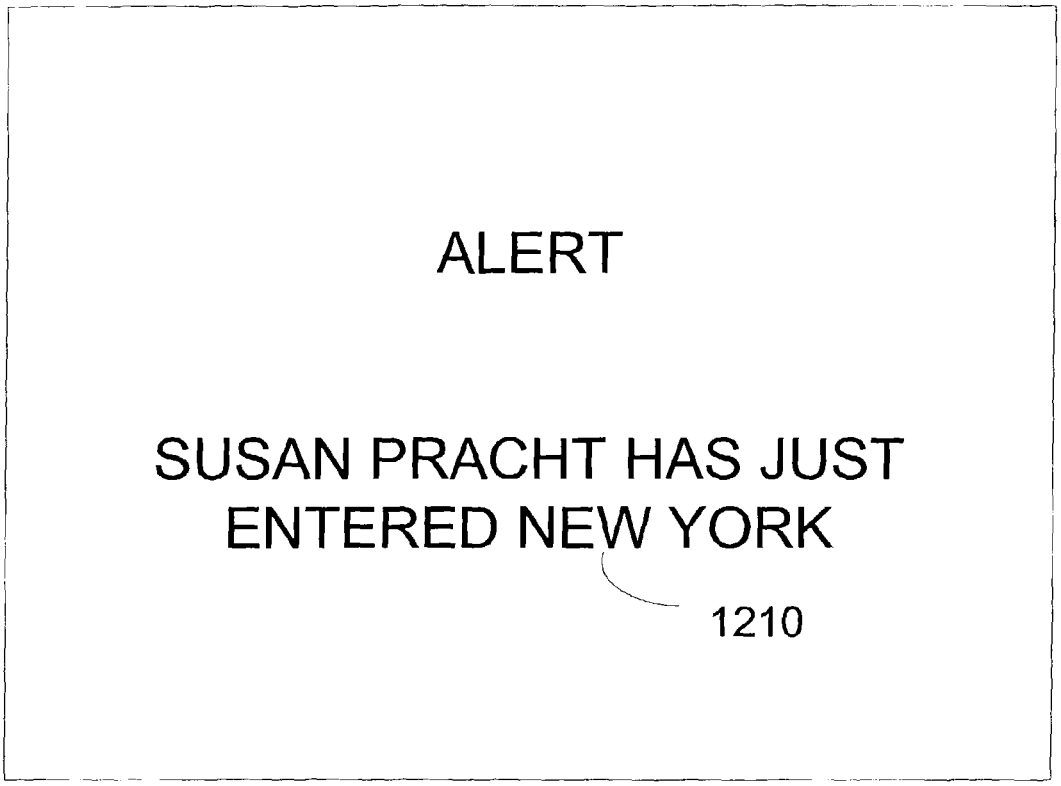


FIG. 12

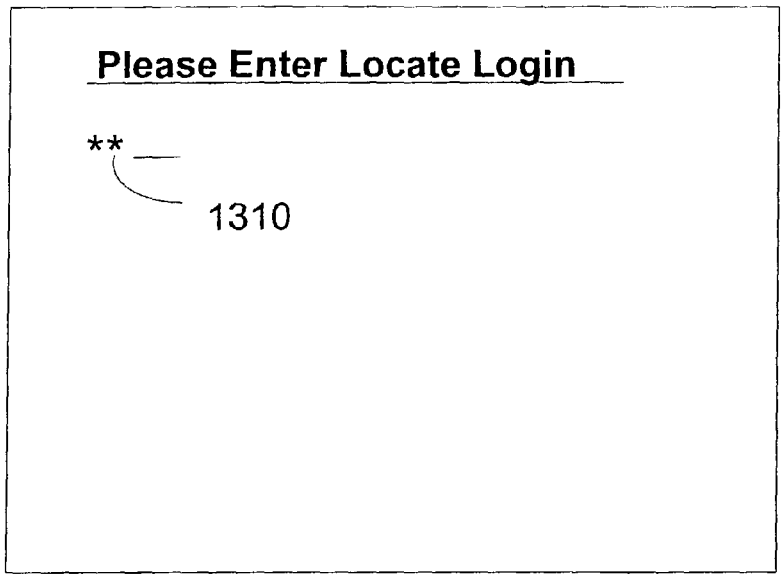

Please Enter Locate Login
**
1310
1300

FIG. 13

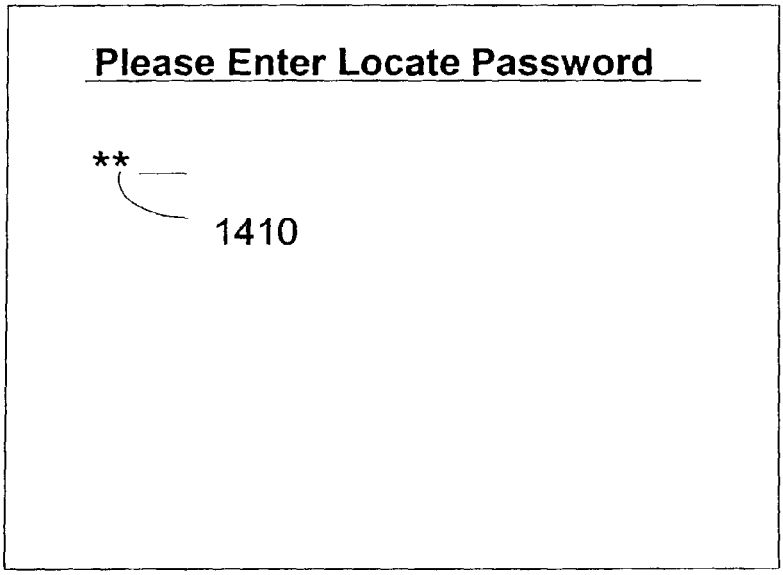

Please Enter Locate Password
**
1410
1400

FIG. 14

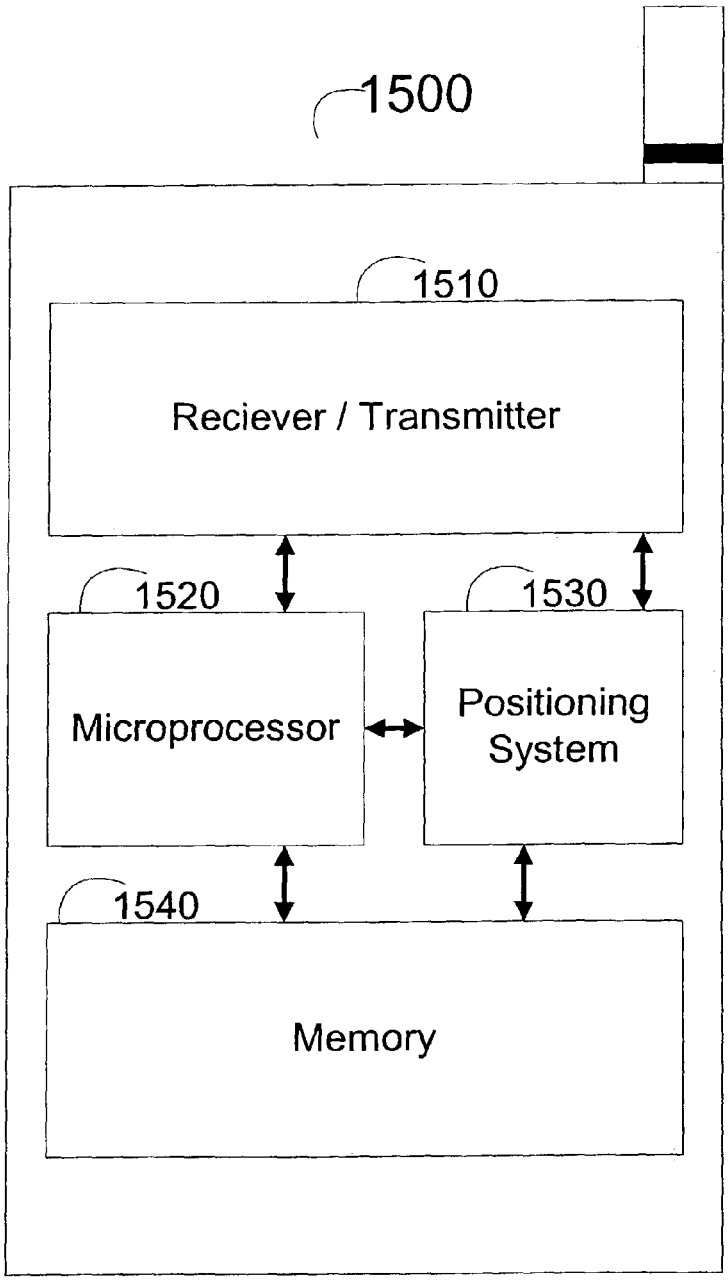

1500
1510
Reciever / Transmitter
1520
1530
Microprocessor
Positioning System
1540
Memory

FIG. 15

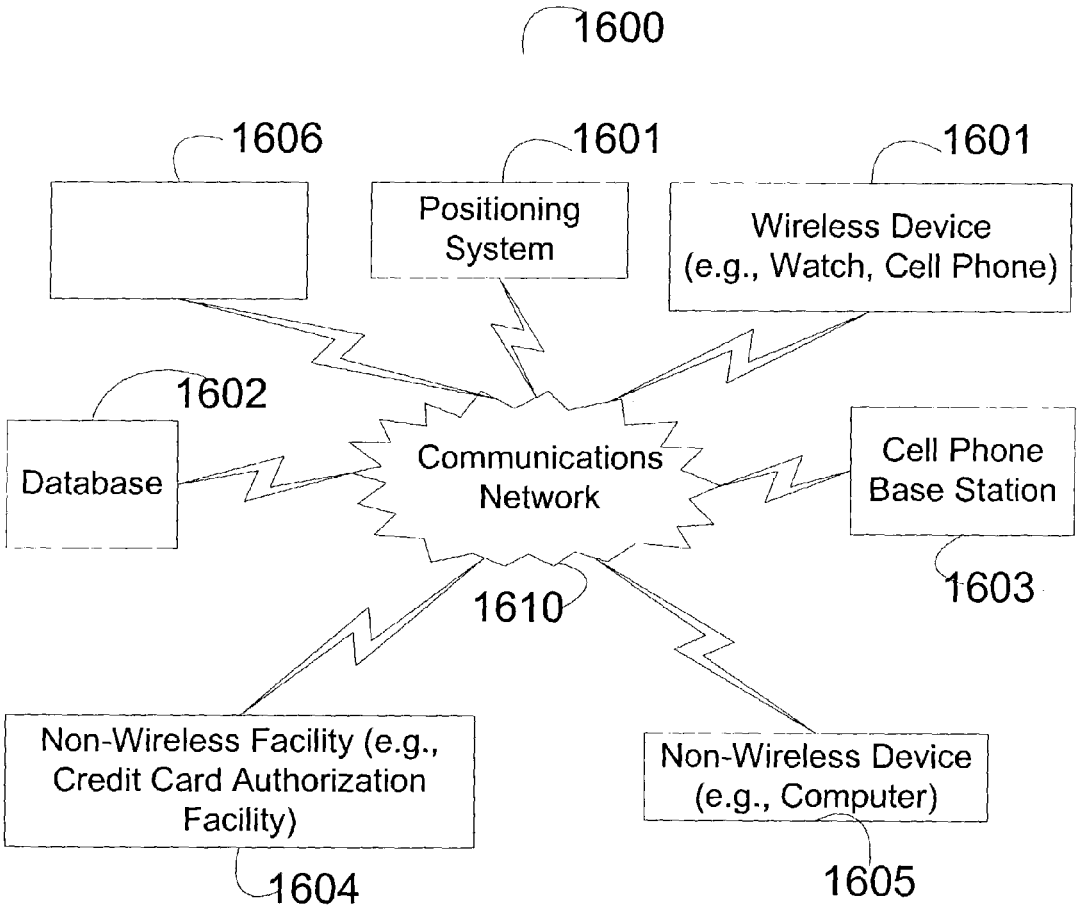

1600
1606
1601
1601
Positioning System
Wireless Device (e.g., Watch, Cell Phone)
1602
Database
Communications Network
Cell Phone Base Station
1603
1610
Non-Wireless Facility (e.g., Credit Card Authorization Facility)
Non-Wireless Device (e.g., Computer)
1604
1605

FIG. 16

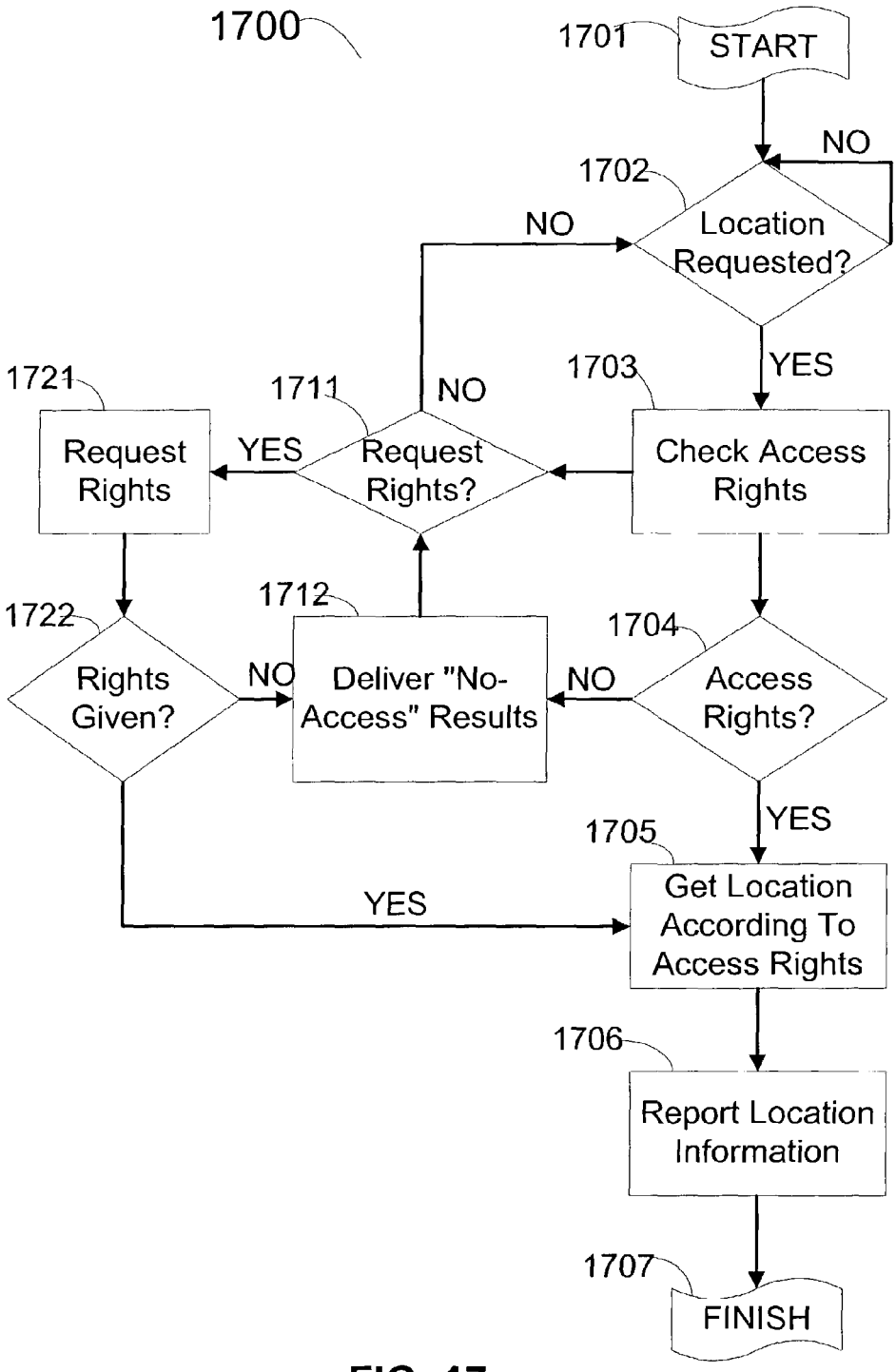

1700
1701
START
NO
1702
Location Requested?
NO
YES
1703
Check Access Rights
1721
Request Rights
1711
Request Rights?
YES
NO
1712
1722
Rights Given?
NO
Deliver "No-Access" Results
NO
1704
Access Rights?
YES
1705
YES
Get Location According To Access Rights
1706
Report Location Information
1707
FINISH

FIG. 17

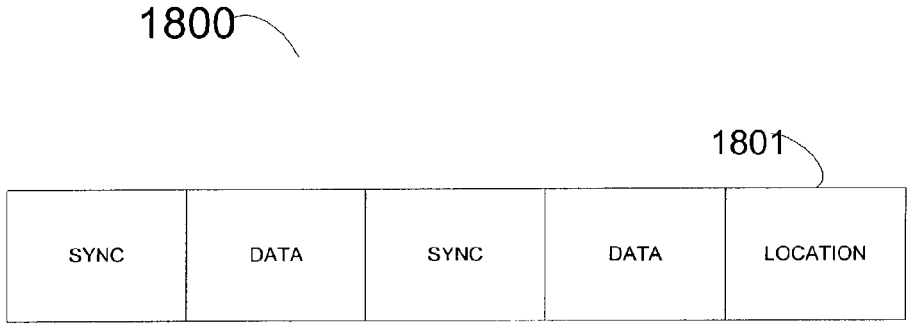


FIG. 18

SYSTEMS AND METHODS FOR LOCATING CELLULAR PHONES AND SECURITY MEASURES FOR THE SAME

CROSS-REFERENCE TO RELATED APPLICATIONS

This application is a continuation of U.S. patent application Ser. No. 10/400,296, filed on Mar. 25, 2003, which claims the benefit of U.S. Provisional Application No. 60/367,967, filed on Mar. 25, 2002, both of which are incorporated by reference herein in their entirety.

BACKGROUND OF THE INVENTION

This invention relates to systems and methods for determining a device's location. More particularly, this invention relates to systems and methods for remotely determining a device's location.

The Global Positioning System (GPS) has been developed in which a ground-based system can receive GPS signals from satellites and determine its location based on the time that it takes the GPS signals to reach the ground-based system. Generally, three satellite signals are needed to determine where in the world a receiver is located (i.e., position triangulation).

GPS systems have been integrated into cellular phones. However, these systems are deficient because the location of a device that is determined by these GPS signals are only minimally utilized. It is therefore desirable to provide systems and methods which better utilize the information about a device's location.

SUMMARY OF THE INVENTION

In accordance with the present invention, systems and methods are provided for locating cellular phones. More particularly, the present invention provides systems and methods for allowing a user of a cellular phone (e.g., a requesting user or a requester) to locate the position of a different user's cellular phone (e.g., a requested user) based upon requestor-assigned access rights.

One object of the present invention is to provide a security feature which allows a user to limit and/or deny location access to a particular user. In preferred embodiments, only the users that have been granted access to the location of a user's cellular phone can actually locate that user's cellular phone. Furthermore, different types of access levels may be provided that allow a user to filter location information to a different user. In this manner, a cell phone user may give access, through his or her cell phone, to a friend so that the friend can locate him or her dependent on the level of access that is granted to that friend.

For example, suppose that Phil tells Bill that he will be shopping in Manhattan and that Bill should locate him when Bill gets to Manhattan through their cell phones. In such an example, Phil may grant Bill access the exact location of his cell phone for a specific period of time (e.g., the next two hours). As a result, when Bill tries to access Phil's location, Bill will be told exactly where in Manhattan Phil's cell phone is located. Thus, Bill does not have to contact Phil directly to see where he is and, therefore, Phil does not have to spend any time giving Bill verbal directions; Bill can simply see what store Phil is currently in and go to it.

As mentioned previously, levels in the scope of access may be controlled by a user such that, for example, only a user's exact location, approximate location, city, state, or country can be accessed by a particular user.

Location alerts and monitoring features are also provided. For example, Phil may give Jen, a resident of Pittsburgh, city access so that when Phil travels into Pittsburgh, Jen will be alerted of Phil's presence. Such an alert may take the form of, for example, a display on Jen's cell phone that communicates to Jen "Phil is in Pittsburgh."

Locating a cellular phone may be accomplished in several ways. For example, satellite positioning systems such as the Global Positional System and the soon to be deployed Galileo system may be used to locate a user's cell phone.

User positions and security settings may be regularly or manually transmitted to a remote system, such a remote database so that requesting users can locate a requested user's position even if the requested user turns his/her cell phone OFF. Placing the security measures on a remote system (e.g., remote database, computer, or server) provides an information brokering scheme such that the system is still operable even when cell phones are added, removed, or modified from the system.

Additionally, the present invention may be configured to provide additional information about the location of a user. Such additional information may be, for example, a map, a location marker on a map, a map that changes as the user moves, a compass, coordinates of the located cell phone, directions to the located cell phone, where a user is in relation to another user, and information about the location the located user is currently positioned in or nearby locations such as landmarks. Such information may be provided by a remote information provider (e.g., a remote map information provider) and accessed by an information broker through a communications network.

Many other features are also employed that realizes advantageous locating functionality. As per an example, suppose that a wife wants to see if her husband has left work yet. She can locate her husband, without having to talk to him, and realize that he is driving home on a highway. Thus, a travel time option may be provided to the user. This option would compute the distance between the wife's location and husband's location by taking multiple location readings of the husband's location to see how fast the husband is traveling. Alternatively, because the husband's position will map to a highway, the system may assume that the user is driving and may provide the wife with an estimate on the husband's arrival time based on an assumed route. In this manner, the present invention may determine how much time it will take the husband to reach the wife and display this information to the wife.

As per other examples, a "see my friends" option may also be provided that brings up a map of a desired area. Dots or symbols may be present on the map to signify the location of all user's from which the requesting user has location information for. Similarly, a "find closest friend" option may be employed which finds the closest user with which the requesting user has location access to.

A cell phone location may by accessed by a variety of other devices. Alternatively, a cell phone may be used to access the location of a variety of other devices. For example, if the wife was at home, that wife may connect to the internet and access a remote database to either provide the most recent location information about the husband's cell phone to her or request a location update from the husband's cell phone. The wife's location may be already stored in such a database by associating the location to the IP address of the computer or by a manual input of the wife's location. The wife's identity may be determined by, for

example, a login and password on a website. Thus, the above-identified security measures are not limited to device-to-device locating rather user to user locating; the wife may only access the husband's location if the husband has granted access for the wife to do so. If, by accident, the wife's cell phone breaks, she may login on a friend's cell phone and determine the husband's location according to the device that the husband is logged into.

Security is preferably taken into account in the present invention and, therefore, location rights for a specific user may be given to a different user only by that specific user. However, a user may request location access rights from a different user. For example, a user may be provided with a request location screen on his cell phone and that user (e.g., user "X") may enter in the cell phone number of the cell phone whose location is desired. The user associated to the entered cell phone number may then receive an alert that says "user X has requested access to your location." Location access may then be given or denied on multiple levels and the requesting user notified of the decision.

The location feature of the present invention may be turned ON or OFF at any time. Users may be added, individually or in groups, to a list of users with location access rights to a specific user by that specific user. A specific user may, at any time, modify, delete, or add users allowed to access his or her location. Login and password information may be included to increase security or to create a user profile, allowing a specific user to log into any cell phone and be recognize by the present invention (and thereby be located with that cell phone or locatable device).

BRIEF DESCRIPTION OF THE DRAWINGS

The principles and advantages of the present invention can be more clearly understood from the following detailed description considered in conjunction with the following drawings, in which the same reference numerals denote the same structural elements throughout, and in which:

FIG. **1** is a network topology of a cell phone locating network in accordance with the principles of the present invention;

FIG. **2** is a flow chart of the locating feature in accordance with the principles of the present invention;

FIG. **3** is an illustration of a cell phone in accordance with the principles of the present invention;

FIG. **4** is a display screen for a locate feature in accordance with the principles of the present invention;

FIG. **5** is a display screen for a retrieving location status feature in accordance with the principles of the present invention;

FIG. **6** is a display screen for a displaying location feature in accordance with the principles of the present invention;

FIG. **7** is a display screen listing options for a locate feature in accordance with the principles of the present invention;

FIG. **8** is a display screen of a failed locate feature due to insufficient rights in accordance with the principles of the present invention;

FIG. **9** is a display screen of adding and modifying locate rights and options to a user in accordance with the principles of the present invention;

FIG. **10** is a display screen of assigning location rights to a user in accordance with the principles of the present invention;

FIG. **11** is a display screen of alert options in accordance with the principles of the present invention;

FIG. **12** is a display screen of an alert feature in accordance with the principles of the present invention;

FIG. **13** is a display screen of a login feature in accordance with the principles of the present invention;

FIG. **14** is a display screen of a login feature in accordance with the principles of the present invention;

FIG. **15** is a wireless device in accordance with the principles of the present invention;

FIG. **16** is an embodiment of a network topology in accordance with the principles of the present invention;

FIG. **17** is an embodiment of a locating feature in accordance with the principles of the present invention; and

FIG. **18** is an embodiment of a communications signal in accordance with the principles of the present invention.

DETAILED DESCRIPTION OF THE INVENTION

FIG. **1** depicts a network topology of device location network **100** incorporating principles of the present invention. Network **100** includes one or more positioning satellites **110**, **112**, and **114** that can locate the position of one or more cell phones **120**, **122**, **126**, and **124** (and other locatable devices) on Earth **101**. Positioning satellites **110**, **112**, and **114** may be, for example, the Global Positioning System (GPS) or the upcoming Galileo satellite network.

Preferably, any cell phone in network **100** may locate a different cell phone, as long as access to location information is allowed, through the utilization of positioning satellites **110**, **112**, and **114**. Persons skilled in the art will appreciate that other positioning systems and methods may be used in locating the position of a user on a cell phone of network **100**.

To route information to and from a cell phone of network **100** additional facilities and communication paths may be included. For example, a main facility (not shown in FIG. **1**) containing user location access rights may be included in network **100**. Such a main facility may retrieve location information directly from a positioning system or a cellular phone and then route this information to a cellular phone or positioning system.

Persons skilled in the art will appreciate that if the Global Positioning System (GPS) is used as the positioning system then GPS receivers will be incorporated into cellular phones of the present invention. Persons skilled in the art will also appreciate that devices other than cellular phones may include positioning features. For example, watches, clothing, laptop computers, personal digital assistants (PDAs), may all contain location systems (e.g., GPS) and utilize the security principles of the present invention to allow different user's to access these locations.

FIG. **2** shows flow chart **200** of a simplified locating feature constructed in accordance with the principles of the present invention. Step **202** initiates when a user requests the location of another user's cell phone. Step **206** evaluates if the user initiating the location request has the rights to access the location of the desired user. If no access rights for the requesting user have been granted then step **204** will preferably inform the requesting user that he/she has not been given access to the requested location. In this manner, every user may assign rights (e.g. govern the security) to whom may or may not locate him/her. In preferred embodiments, these rights will be stored in, or functionality executed from, a remote facility and accessed and utilized by a user's cell phone or other requesting device (e.g., a watch or PDA).

If access has been given by a particular user that allows for the requesting user to locate that particular user, step **208**

is initiated and the allowed location information is provided to the user in step **210**. Step **208** may optionally filter the location information such that only a portion information is passed to the requesting user. The requested user may have, for example, defined that the requesting user only can obtain the city, state, or country of his/her location. Persons skilled in the art will appreciate that only the location of the desired user needs to have a cell phone or a positioning system. The requesting user may user other means (e.g., the internet) to request the location of the desired user.

Persons skilled in the art will appreciate that the location of a user's cell phone may be retrieved, in step **208**, from a remote database, facility, distribution center, or any other system. More particularly, a remote database may periodically request the location of a cell phone user with a positioning system and store this information. This database may also keep a record of those people allowed to access that user's location, the extent to which access is allowed, and the extent to which a user has requested a user's location. A user may update, add, manipulate, or remove access at any time by doing so at this database. Thus, a requesting user only has to contact the remote database, have his/her identity recognized, have his/her access rights for the requested user location determined, and, if the requesting user has the correct access rights, be provided with the requested user's location.

Instead of a remote database periodically obtaining location information for a user, the database can obtain a user's locations when a request is made for that user's location, providing the requesting user has access to the requested user's location. However, persons skilled in the art will recognize that a remote database is utilized in the above examples that contains the locations, in most circumstances, of a multitude of users. Thus, to increase security even more, a requesting user's cell phone may directly request a user's location from the requested user's cell phone without the need for a database. In such an example a user adds, manipulates, or removes access rights locally on his/her cell phone and does not have to worry about security issues that surround placing his location on a remote database. Furthermore, in such an embodiment a user's location does not have to be saved anywhere, a positioning system can just be "read" by a requesting user with the appropriate access rights.

However, by recording a user's location on a device, e.g., a cell phone's memory or in a remote database, novel applications may be utilized. For example, whenever a user makes a credit card purchase, a credit card authorization system can record the location of a cell phone associated to the purchasing user. In this manner, a new system and method of fraud protection is introduced. The credit card authorization system may, for example, reject a purchase if the purchaser's cell phone (or watch, clothing, PDA, or other positioning enabled device) is not in the vicinity of the purchase. Alternatively, the credit card authorization system may request a second form of identification if the purchaser's cell phone location does not correlate to the location of the purchase. Additionally, the credit card authorization system may call the purchaser's cell phone and request authorization for the credit card purchase. However, such features would preferably first involve the user/purchaser giving the credit card authorization system access to the location of his/her cell phone.

As per another application, a unique dating/matching service could be embodied. For example, a user may store a number of preferences in a matching profile. These preferences may describe what type of person he is interested in meeting. Additionally, a user may store, preferably locally (for the dating/matching feature) but alternatively at a remote location, his/her own profile that has data describing similar attributes for what he/she is looking for. For example, an entry in a user's profile may be "male" and an entry in "looking for" profile may be "female." When a user comes within a certain distance of a user (determined by comparing locations of a user) that fits his/her "looking for" profile, the user may be alerted of the proximity of a matching user. Preferably, the particular user is only alerted if the "looking for" user has entered in attributes similar to the particular user's attributes and is also alerted of the particular user. The next stages of such an application could include, for example, requesting access to a form of communication. Such a form of communication could be for example, talking on the phone, instant messaging, or delivering an email address. Persons skilled in the art will therefore appreciate that many useful applications may be constructed using the principles of the present invention.

FIG. **3** depicts cell phone **300** constructed in accordance with the principles of the present invention. Cell Phone **300** preferably includes speaker **330**, antenna **310**, display screen **320**, control keys **360**, alpha-numeric keys **350**, and microphone **340**. Cell phone **300** also preferably may include, for example, a communications transmitter (not shown), communications receiver (not shown), memory (not shown), positioning device (not shown), and a microprocessor (not shown).

Cell phone **300** may also include locate button **380**. Cell phone **300** may be configured such that if locate button **380** is pressed, a locate feature is initiated (e.g., display screen **400** of FIG. **4** is initiated). Alternatively, cell phone **300** may be configured such that if locate button **380** is pressed, a location signal is sent to a remote storage area (e.g., a remote database), thus manually updating the user's location. This latter functionality may be useful when a user does not want his/her location accessed. As in another alternative embodiment, cell phone **380** may be configured such that if locate button **380** is pressed, the locating features of cell phone **300** are toggled between ON and OFF. Person skilled in the art will appreciate that locate button **380** may be configured to produce a variety of useful functionalities.

FIG. **4** depicts display screen **400** that is displaying a locate feature constructed in accordance with the principles of the present invention. The locate feature of display screen **400** may be included, for example, in cell phone **300** of FIG. **3** and displayed to the user of cell phone **300** of FIG. **3** when that user requests the location of a different user of the present invention. The programming for the feature may, for example, be stored in the memory of the cell phone and executed by the processor at a user's request. Locate Feature **400** includes identifier list **410** of alpha-numeric identifiers for users stored in the memory on cell phone **300** (FIG. **3**) or at a remote location. More particularly the user of display **410** may locate a user contained in identifier list **410** by selecting an appropriate user identifier **420**.

The user identifiers (e.g., "Susan Pracht") in identifier list **410** are selectable and may be selected by control keys **360** of FIG. **3**. Highlight window **410** may be used to prompt the user what identifier from list **410** is currently selected any may be controlled, for example, by the input keys of the cell phone (e.g., keys **350** and **360** of FIG. **3**). Identifiers may be associated to, for example, cellular telephone number, user profiles, or any other identifier that may be associated to a locatable device or user interacting with a locatable device.

Persons skilled in the art will appreciate that display screen **400** may be provided to a user of devices other than

wireless devices. For example, display screen **410** may be provided to a user of a personal computer with no positioning system. Preferably, however, the security measures in accordance with the principles of the present invention are still abided to (e.g., access has been granted to the identifier associated to the requesting user). In this manner, a user can control who can access his/her wireless device (e.g., cell phone).

Persons skilled in the art will appreciate that identifier list **410** may be configured, for example, to contain only those users in which the user of cell phone **300** (FIG. **3**) has locate access rights to or any user stored in cell phone **300**. Persons skilled in the art will also appreciate that devices other than cell phone **300** may be used to incorporate the features of the present invention. Such devices could include, for example, personal digital assistants (PDAs), laptop, GPS pagers, GPS watches, car positioning devices, or any other devices that can be located. One advantage of the present invention is that it allows a mobile device with a positioning system to locate a different mobile device with a positioning system while still retaining a high level of location security and privacy.

FIG. **5** is display screen **500** for retrieving location status feature in accordance with the principles of the present invention. The selected identifier may be incorporated into display screen **500** through location status display **510** to inform the user of the status of the location retrieval. For example, display screen **500** may display "locating user" while a request is being processed by a remote facility or database.

FIG. **6** shoes display screen **600** for a display location feature constructed in accordance with the principles of the present invention. When a location is retrieved for the requested user, the location may be displayed on Display Screen **600** through primary location information **610**. Depending on what scope the requesting user has access to primary location information **610** may include, for example, the country, state, city, exact location, or any combination thereof of location information to the user. For example, if the user requesting the location of a desired user has been given unlimited location access by the desired user, primary information **610** may include the exact location of the user.

Secondary location information **620** may be included to supplement the requested users exact location so that the requesting user may have more of an idea of where the requested user is located. For example, if the desired user is located in a mall, primary location information **610** may be the address of the mall. In such an example, secondary location information **620** may be included and display, to the requesting user, the name of the mall.

Directional information **630** may also be included on display **600** or any other display of the present invention. Directional information **630** may include a digital compass **632** so that the user of cell phone **300** (FIG. **3**) knows what direction he or she is facing in. Digital compass **632** may be connected to a direction sensitive device (e.g, mechanical compass) in order to gather directional information. Directional arrow **633** may also be included in Display **600** to indicate where the requested user's location is relative to the location and direction of cell phone **300** (FIG. **3**) (e.g, the requesting user). Persons skilled in the art will appreciate that for some directional information **630** the location of the requesting user must be obtained. This information may be obtained either from cell phone **300**, a remote facility, or by any other suitable means. If the information is gathered from a location gathering device other than the requesting user's device (e.g, cell phone **300** (FIG. **3**)), then the user's device may communicate from this other location gathering device. Once both the locations of the requesting and requested/desired users are known, this information may be utilized in a number of features incorporating the principles of the present invention.

Distance information **634** is one such feature that displays the distance between the locations of the requested and requesting users (e.g., distance between the locations of the requested and requesting devices). Directional information **630** may contain many other elements to enhance the utility of the present invention. For example, a map (not shown in FIG. **6**) may be included in display **600**. This map may be of the area surrounding either the requested, the requesting user's location or both. Information may be included on the map to show the shortest path between the location as well as information about the surrounding area (e.g, area names, store names, etc.). Other information may include, for example, time to reach the destination according to specific types of travel (e.g, subway, walking, running, driving) and the direction the requested user is traveling in.

Many uses for this information may be utilized by a user. For example, if Jane calls Bill and Bill says "I am roaming midtown Manhattan shopping why don't you join me", no other call to Bill is needed. Bill simply has to give Jane access to his location and Bill can continue shopping without having to worry about meeting up with Jane at a specific location.

In some instances, it may be beneficial to find the speed and direction of a requested user. For example, if a wife wants to see how long before her husband arrives home, the wife can use this feature of the present invention. This feature may find the husbands location multiple times in a determined amount of time. Through this information the feature may determine the speed and direction that the user is traveling. Using this speed, for example, this feature may display to the wife that the husband "is 10 minutes away" in directional information **630**. In doing so, the need for a call to the husband to determine his location is eliminated.

Persons skilled in the art that the location of multiple users may be displayed on display screen **600**. For example, suppose Jeff, Susan, and Chrissy are at a concert. If all three of these users have unlimited access to the other users, principles of the present invention would allow for a map to be displayed on each of the three locating devices with locator designations for each of the users. Using such map, the group may be able to find themselves in relative location to one another and decide, if need be, on the easiest location for them to meet. Thus map **660** may be included on display screen **600** and display the locations of multiple users (e.g., user's **621** and **622**).

More region **640** designates that more options or information may be retrieved or performed using principles of the present invention. A user may use control keys **340** (FIG. **3**) on cell phone **300** (FIG. **3**) to perform the functionality associated with more region **640**.

FIG. **7** shows display screen **700** for locate listing options in accordance with the principles of the present invention. Display screen **700** includes selectable options list **710** and highlight window **720** and may be displayed to the user, for example, through the activation of functionality associated by more region **640** (FIG. **6**). Options list **710** may include any of the features of the present invention. For example, options list **710** may include options activating a display screen of a map of the requesting user's location, a map of the requested user's location, directions to the requested user's location from the requesting user's location, travel

time for the requesting user, travel time for the requested user, and options to set location alerts.

FIG. **8** shows display screen **800** of a failed locate feature due to insufficient rights in accordance with the principles of the present invention. Display scree **800** may be displayed if a requesting user attempts to located a requested user but has not been given access rights by the request user to his or her location. In such an instance insufficient rights message **801** may be prompted on display screen **800**.

FIG. **9** shows display screen **900** of adding and modifying locate rights and options to a user in accordance with the principles of the present invention. A user may give or modify access rights through display **900** to a user identifier in selectable user identifier listing **910**. Highlight window **920** may be included to enhance the selecting process.

FIG. **10** shows display screen **1000** of assigning location rights to a user in accordance with the principles of the present invention. Display screen **1000** may be displayed, for example, after a user has been selected to be given location rights. Display screen **1000** contains selectable location rights listing **1010**, in which the selecting process may be enhanced by highlight window **1020**. Possible location access rights may be, for example, by country, state, city, exact location, or any other scope of location. Other rights may be assigned such as particular times in the day or time periods at which locations may be accessed.

FIG. **11** shows display screen **1100** of alert options in accordance with the principles of the present invention. Display screen **1100** allows for a user to set up alerts depending on the location of specific users. Selectable alert listings **1110** are included and may be selectable with highlight window **1120**. Examples of alerts that may be included in display screen **1100** may occur, for example, if the requested user is in a specific city or the same city as the user of display **1100**, is within a certain distance, or if a user located the user of display **1100**.

The alerts of the present invention may realize useful functionality. For example, suppose Susan Pracht lives in Pittsburgh and rarely comes to the city of the user of display screen **1100** on cell phone **300** (FIG. **3**) which is New York City. The user of cell phone **300** (FIG. **3**) may then use display screen **1100** and set an alert such that if Susan Pracht ever enters New York City, he or she would be alerted of Susan Pracht's presence.

FIG. **12** shows display screen **1200** of an alert feature in accordance with the principles of the present invention. Display screen **1200** includes an alert message and is displayed to a user when an event occurs that is designated by the user in display screen **1100** (FIG. **11**). Continuing the example from FIG. **11**, if Susan Pracht enters New York City, alert message **1210** would prompt the user that this event has occurred.

FIG. **13** shows display screen **1300** of a login feature in accordance with the principles of the present invention. In order for users to be identified by other user's cell phones or locating devices a user profile may need to be stored remotely from such devices. In such instances user profiles would be used as the locating identifier and the devices into which these profiles are logged into (recognized by) would allow for the user to be located. Display screen **1300** allows for a user to log into a locating device of the present invention. Logging into a device also adds a level of security to the present invention, especially when combined with a password. A user may use the controls of the device of the present invention to enter login **1310** of display **1300**.

In this manner a user may use another user's location device (e.g., cell phone) to locate a user or may use, for example, the internet to locate a user. Additionally, in this manner, a user may change the device being located. For example, a user may use his or her car GPS system or other systems in accordance with the principles of the present invention to be located instead of his or her cell phone. To further this example, a user may log into a web site on the internet and designate his or her current location as home, or any other location, thus eliminating the need for locatable device entirely.

FIG. **14** shows display screen **1400** of a login feature in accordance with the principles of the present invention. Display screen **1400** may be used by a user to enter a password associated to his profile, identity, or cell phone functionality access. A user may enter password **1410** using the controls of the device of display screen **1400** (e.g., cell phone **300** of FIG. **3**). By including a login/password scheme a user can be identified by a remote facility (e.g., a remote database) so that the user's location can be recorded/updated by multiple devices. Additionally, a login/password adds an extra level of security.

FIG. **15** shows cell phone **1500** that may be utilized to carry out the functionality in accordance with the principles of the present invention. Cell phone **1500** includes receiver/transmitter **1510**, microprocessor **1520**, positioning system **1530**, and memory **1540**.

Persons skilled in the art will appreciate that receiver/transmitter **1510** may directly communicate with memory **1540** if receiver/transmitter **1510** does not have its own memory (e.g., if receiver/transmitter **1510** are configured to utilize a buffer for capturing incoming communications bursts before demodulation and decryptions).

Positioning system **1530** may be, for example, a GPS system or a similar positioning system. Positioning system **1530** may include its own receiver for receiving particular signals utilized in positioning cell phone **1500**.

FIG. **16** shows network topology **1600**, in which all components of, or a part of the components of, may be utilized to carry out the features in accordance with the principles of the present invention. In this manner, persons skilled in the art will appreciate that multiple system configurations may be utilized. Topology **1600** introduces the diversity of systems that can be utilized to realize such configurations.

Generally, topology **1600** includes multiple mobile devices (e.g., multiple instances of mobile device **1601**), access control devices and location broker devices (e.g., database **1602** and cell phone base station **1603**), and non-mobile devices (e.g., grounded non-wireless device **1605**). Persons skilled in the art will appreciate that other devices or facilities may be included in topology **1600**. For example, one or more positioning systems **1601** may be included in topology **1600** in order to locate particular devices. For example, a positioning receiver (e.g., GPS receiver) may be included in wireless device **1601** with positing system **1601** being a positioning transmitter (e.g., GPS satellite network).

One or more wireless devices **1601** may be included in topology **1600** and may be, for example, watches, PDAs, cellular phones, radios, cars, or any other mobile device whose location can be determined.

As previously mentioned, access control and location broker devices may be included in topology **1600**. Such devices may be utilized, for example, to store user access rights for a particular user and may contain functionality to request and route a device's location. These devices may be considered information broker's such that devices may be

added, removed, or modified without creating the necessity of having to modify the other devices of topology **1600**.

Database **1602** is one such information broker. Database **1602** may, for example, be located in cell phone base station **1603** if database **1602** is utilized to assist in cell phone locating. Database **1602** may be utilized, for example, to store a history a of a device's locations, a user's list of assigned access rights to other users, a log of a user's call activity, a log of a location initiations, a user profile, login/password information, or any other sort of information. Many features may be provided that utilize such information, For example, n approximate location may be determined for a device that is turned OFF (e.g., by utilizing the device's location history). As per another example, if a cell phone is lost and a new one replaced, information such as, for example, phone books, activity logs, and assigned user access rights may be downloaded/flashed into the cell phone.

Database **1602** may be accessed either directly (e.g., manually by an user of the device) or indirectly (e.g., periodically) by a cell phone or other device. Alternatively, a device or cell phone may access database **1602** directly (e.g., manually by an administrator of the database) or indirectly (e.g., periodically) by database **1602**.

A credit card authorization system is an example of additional system **1606** that may be added to topology **1600** to realize new features. Such a credit card authorization system, as described above, could utilize a devices location in order to decrease credit card fraud. System **1600** may also be, for example, systems needed to realize the described dating functionalities or another information provider (e.g., a map information provider).

Non-wireless devices **1605** (e.g., a personal computer) may be included in topology **1600**. Such devices may have locations associated to them or contain a positioning system. These locations may then be associated to a user that is recognized as using the device. For example, if a particular user logs into a non-mobile personal computer, that user's location will be recognized as being the location associated to the personal computer.

The devices of topology **1600** communicate with each other through communications network **1610**. Communications network **1610** may include, for example, any type of communications, routing, amplification, encryption, decryption, parsing, modulation, or demodulation technologies. For example, positioning system **1601** may communicate with wireless device **1601** by sending multiple wireless positioning signals. At the same time, database **1602** may be providing non-wireless device **1605** with a device's location over conventional telephone wires.

FIG. **17** shows locating feature **1700** in accordance with the principles of the present invention. Locating feature **1701** starts at step **1701** and waits at step **1702** until a location is requested. As stated, a location can be requested in a number of instances and by a variety of different means.

For example, a location may be requested by a user of a cell phone that desires to locate a friend by locating that friend's cell phone. Alternatively, a device may be triggered to request a location of a mobile device when an event occurs. For example, a credit card authorization system may request the location of a user's cell phone and the location of a store that just used a credit card associated to the requested user.

If a location is requested, access rights to the requested location for the requesting device and/or user are obtained at step **1703**. Step **1703** may be employed for example, as a call to a database storing a list of assigned access rights for the requested device/user and finding if any access rights were assigned to the requestor's identity. As per another example, step **1703** may be employed as a direct call to the requested device/user.

Step **1704** determines if the requester has been assigned access rights to obtain the requested device/user's location. Persons skilled in the art will appreciate that some devices may always have access to a user's location regardless if a user has assigned access rights to the requesting device. In this manner, a device may be set up to always let a user access a location. For example, a mother may purchase a cell phone for a minor and may configure the cell phone to always allow her location information.

If access rights do exist for the requesting device/user at step **1704** then step **1705** may be initiated and location information may be provided to the requestor. Such location information may be filtered according to the assigned access rights. For example, if a user has only been assigned access rights to obtain the requested user's city location, only the city that the requested user/device is currently located in (or the last city location available) may be obtained. The process then finishes at step **1707** after the assigned location information has been delivered to the requester at step **1705**. Persons skilled in the art will appreciate that steps may be added to, removed, or modified from locating feature **1700**. For example, instead of finish step **1707**, step **1702** may be initiated after step **1706** has completed.

If a requester has not been assigned rights to access the requested user/device's location as determined by step **1704**, then step **1712** may be initiated. Step **1712** informs the requester that the requester does not have access rights to obtain the location of a user/device. Step **1711** may follow and provide an opportunity for the requester to obtain the access rights. More particularly, step **1711** asks the requester if the requester would like to request access rights. If the requester does not want to request access rights, locating feature **1700** may, for example, return to step **1702**. Else, access rights may be requested at step **1721**. Step **1722** follows and if access rights were given then step **1705** may be initiated. Else, step **1712** may, for example, be re-initiated.

FIG. **18** shows one embodiment of a cell phone burst that has been configured to embed a device or user's location **1801** between control signals (e.g., synchronization signals) and data signals. Persons skilled in the art will appreciate that some cell phone burst standards (e.g., TDMA and CDMA) have signal portions that are reserved for future technologies. In one embodiment, this reserved portion is utilized to house location information **1801**. A cell phone tower or base information may then strip received signals **1800** of location information **1801**, store location information **1801** into a database or other storage device, and deliver the received signals to its desired location. In this manner, a user may refresh his/her location information every time that a cell phone base station receives or routes information for the user. By stripping location information **1801** from signal **1800**, the intended receiver does not have access to the location of the device transmitting signal **1800**. A signal similar to signal **1800** may be sent to a cell phone that has requested, and has the appropriate location access rights, to location **1801**. Location **1701** may also be stored in other portions of signal **1700** that are not reserved portions. For example, a received signal **1800** may store location information in the data portions of signal **1800**. In embodiments where additional information is sent about location **1801** (e.g., a map associated with location **1801**) utilizing a main data portion of signal **1800** is preferred. Persons skilled in

the art will appreciate that signal burst **1800** may actually be any type of communication signal such as, for example, information returned from a database inquiry.

Persons skilled in the art will also appreciate that the systems and methods of the present invention may be implemented using other locating features and configurations. For example, a user may be manually requested to allow location access rights every time his/her location is requested. As per another example, a user may organize his/her user list into groups and assign access rights to that group (e.g., family member user group, close friend user group). All such modifications are within the scope of the present invention, which is limited only by the claims that follow.

What is claimed is:

1. A system comprising:

a remote system comprising a server, the remote system capable of communicating with wireless telephones over a communications network and further capable of:

obtaining a location of a first wireless telephone;

changing, at the direction of said first wireless telephone, a list of users for a profile associated with said first wireless telephone that are allowed to access said location, wherein each user of said list of users is representative of one of a plurality of wireless telephones;

transmitting said location to at least one of said users of said list of users over said communications network;

determining a second location associated with one of said plurality of wireless telephones; and

providing directional information to said one of said plurality of wireless telephones, wherein said directional information is representative of directions between said second location and said location.

2. The system of claim **1**, wherein said changing comprises adding an additional user to said list of users.

3. The system of claim **1**, where said remote system is further capable of transmitting the address of said location to said at least one of said users of said list of users.

4. The system of claim **1**, where said remote system is further capable of determining a third location associated with one of said plurality of wireless telephones.

5. The system of claim **1**, where said remote system is further capable of determining the distance between said first wireless telephone and at least one of said plurality of wireless telephones.

6. The system of claim **1**, wherein said remote system is further capable of storing access rights that allow at least one of said list of users to access said location of said first wireless telephone for an indefinite period of time.

7. The system of claim **1**, wherein said remote system is further capable of storing access rights that allow at least one of said list of users to access said location of said first wireless telephone for only a specific period of time.

8. The system of claim **7**, wherein said remote system is further capable of receiving an indication of said specific period of time from said first wireless telephone.

9. The system of claim **1**, wherein said remote system is further capable of transmitting an alert to said one of said plurality of wireless telephones based on said location of said first wireless telephone.

10. The system of claim **9**, wherein said remote system is further capable of receiving a request for said alert from said one of said plurality of wireless telephones.

11. The system of claim **10**, wherein said alert is geographic area-based and said remote system is further capable of alerting said one of said plurality of wireless telephones when said location of said first wireless telephone is within a geographic area specified by said one of said plurality of wireless telephones.

12. The system of claim **1**, wherein said remote system is further capable of transmitting an alert to said first wireless telephone when said one of said plurality of wireless telephones locates said first wireless telephone.

13. The system of claim **1**, wherein said remote system is further capable of storing a history of locations of said first wireless telephone.

14. The system of claim **13**, wherein said transmitting said location to at least one of said users of said list of users over said communications network comprises transmitting to said at least one of said users a location from said history of locations when said first wireless telephone is turned off.

15. The system of claim **1**, wherein said remote system is further capable of providing said location to a device utilized by one of said users of said list of users after said one of said users of said list of users utilizes said device to input a login and password for said one of said list of users into a website.

16. The system of claim **1**, wherein said remote system is further capable of storing and transmitting to said first wireless telephone a location of a watch.

17. The system of claim **16**, wherein said remote system is capable of communicating with said watch over said communications network to obtain said location of said watch from a positioning system of said watch.

18. The system of claim **1**, wherein said remote system is further capable of storing and transmitting to said first wireless telephone a location of a personal computer.

19. The system of claim **1**, wherein said remote system is further capable of storing and transmitting to said first wireless telephone a location of a radio.

20. The system of claim **1**, wherein said remote system is further capable of storing and transmitting to said first wireless telephone a location of a car.

21. The system of claim **1**, wherein said remote system is further capable of providing said location of said first wireless telephone to a credit card authorization system.

22. The system of claim **1**, wherein said remote system is further capable of providing to said one of said plurality of wireless telephones information indicating time to reach said location from said second location according to at least two types of travel selected from the types of travel consisting of subway, walking, running, and driving.

23. The system of claim **1**, wherein said remote system is further capable of:

storing a phone book corresponding to a user of said first wireless telephone; and

downloading said phone book to a new wireless telephone of said user.

24. A system comprising:

a remote system comprising a server, the remote system capable of communicating with wireless telephones over a communications network and further capable of:

receiving from a first wireless telephone over said communications network a selection of one of a plurality of users, said selection corresponding to a user of said first wireless telephone manually selecting said one of said plurality of users from a display of said first wireless telephone, wherein each one of said plurality of users is associated to a different one of a plurality of wireless telephones;

receiving from said first wireless telephone information indicative of a login and a password;

determining whether to allow access of location information for said one of said plurality of wireless

telephones associated to said selected one of said plurality of users, wherein said determining includes identifying said user of said first wireless telephone using said information indicative of said login and password and determining whether said selected one of said plurality of users has provided access rights for said location information to said user of said first wireless telephone;

determining whether said user of said first wireless telephone has assigned location access rights to said one of said plurality of wireless telephones associated with said selected one of said plurality of users for obtaining a location of said first wireless telephone; and

transmitting over said communications network said location information to said first wireless telephone.

25. The system of claim **24**, wherein said remote system is further capable of receiving a selection from said first wireless telephone that modifies said location access rights assigned by said user of said first wireless telephone to said one of said plurality of wireless telephones.

26. The system of claim **24**, wherein said remote system is further capable of transmitting said location of said first wireless telephone to said one of said plurality of wireless telephones associated with said selected one of said plurality of users.

27. The system of claim **24**, wherein said remote system is further capable of storing access rights that allow said first wireless telephone to access said location information for said one of said plurality of wireless telephones for an indefinite period of time.

28. The system of claim **24**, wherein said remote system is further capable of storing access rights that allow said first wireless telephone to access said location information for said one of said plurality of wireless telephones for only a specific period of time.

29. The system of claim **28**, wherein said remote system is further capable of receiving an indication of said specific period of time from said one of said plurality of wireless telephones.

30. The system of claim **24**, wherein said remote system is further capable of transmitting an alert to said first wireless telephone based on said location information for said one of said plurality of wireless telephones.

31. The system of claim **30**, wherein said remote system is further capable of receiving a request for said alert from said first wireless telephone.

32. The system of claim **31**, wherein said alert is geographic area-based and said remote system is further capable of alerting said first wireless telephone when a location of said one of said plurality of wireless telephones is within a geographic area specified by said first wireless telephone.

33. The system of claim **24**, wherein said remote system is further capable of transmitting an alert to said one of said plurality of wireless telephones when said first wireless telephone locates said one of said plurality of wireless telephones.

34. The system of claim **24**, wherein said remote system is further capable of storing a history of locations of said one of said plurality of wireless telephones.

35. The system of claim **34**, wherein said transmitting said location information to said first wireless telephone comprises transmitting to said first wireless telephone a location from said history of locations when said one of said plurality of wireless telephones is turned off.

36. The system of claim **24**, wherein said remote system is further capable of providing said location information to another device utilized by said user of said first wireless device after said user utilizes said another device to input said login and said password into a website.

37. The system of claim **24**, wherein said remote system is further capable of storing and transmitting to said first wireless telephone a location of a watch.

38. The system of claim **37**, wherein said remote system is capable of communicating with said watch over said communications network to obtain said location of said watch from a positioning system of said watch.

39. The system of claim **24**, wherein said remote system is further capable of storing and transmitting to said first wireless telephone a location of a personal computer.

40. The system of claim **24**, wherein said remote system is further capable of storing and transmitting to said first wireless telephone a location of a radio.

41. The system of claim **24**, wherein said remote system is further capable of storing and transmitting to said first wireless telephone a location of a car.

42. The system of claim **24**, wherein said remote system is further capable of providing said location of said first wireless telephone to a credit card authorization system.

43. The system of claim **24**, wherein said remote system is further capable of providing to said first wireless telephone information indicating time to reach a location of said one of said plurality of wireless telephones from said location of said first wireless telephone according to at least two types of travel selected from the types of travel consisting of subway, walking, running, and driving.

44. The system of claim **24**, wherein said remote system is further capable of:

storing a phone book corresponding to a user of said first wireless telephone; and

downloading said phone book to a new wireless telephone of said user.

45. A system comprising:

a remote system comprising a server, the remote system capable of communicating with a first wireless device and a second wireless device over a communications network and further capable of:

receiving a request for a location of said first wireless device from said second wireless device;

determining that said second wireless device does not have location access rights for said first wireless device;

after determining that said second wireless device does not have said location access rights for said first wireless device, receiving a request from said second wireless device that said location access rights be assigned for said second wireless device by said first wireless device;

receiving from said first wireless device an assignment of said location access rights for said first wireless device to said second wireless device;

storing said location access rights; and

providing said location to said second wireless device dependent upon said location access rights.

46. The system of claim **45**, wherein said first wireless device and said second wireless device are cellular phones.

47. The system of claim **45**, wherein said location access rights include the ability to obtain said location, wherein said location is provided to said second wireless device from said server even when said first wireless device is off.

48. The system of claim **45**, wherein said location access rights comprise a plurality of access levels.

49. The system of claim **45**, wherein said remote system is further capable of providing to said second wireless

device directions from a location of said second wireless device to said location of said first wireless device.

50. The system of claim **45**, wherein said remote system is further capable of providing to said second wireless device a travel time to said location.

51. The system of claim **45**, wherein said location access rights comprise a plurality of levels of access rights, at least one of said plurality of levels of access rights comprise the exact location of said first wireless device, and another one of said plurality of levels of access rights comprise an approximate location of said first wireless device.

52. The system of claim **45**, wherein said access rights comprise a plurality of levels of access rights, at least one of said plurality of levels of access rights comprise an approximate location of said first wireless device, and said approximate location comprises a city or state.

53. The system of claim **45**, wherein said remote system is further capable of receiving a login and password from said second wireless device to identify a user of said second wireless device.

54. The system of claim **45**, wherein said remote system is further capable of:

receiving a request from said first wireless device to modify said location access rights for said second wireless device; and

modifying said location access rights for said second wireless device based on said request.

55. The system of claim **45**, wherein said remote system is further capable of:

receiving a request from said first wireless device to delte said location access rights for said second wireless device; and

deleting said location access rights for said second wireless device based on said request.

56. The system of claim **45**, wherein said remote system is further capable of filtering information about said location such that only a portion of location information associated with said location is transmitted to said second wireless device.

57. The system of claim **45**, wherein said remote system is further capable of alerting said second wireless device when said first wireless device is within a distance of second wireless device.

58. The system of claim **45**, wherein said remote system is further capable of:

receiving a request for a second location of said first wireless device from a non-wireless device, wherein said non-wireless device does not comprise a positioning system; and

providing said second location of said first wireless device to said non-wireless device in response to said request.

59. The system of claim **45**, wherein said remote system is further capable of receiving said location of said first wireless device from a positioning system of said first wireless device.

60. The system of claim **45**, wherein said remote system is further capable of setting at least one location alert associated with said first wireless device for a user associated with said second wireless device in response to a request from said second wireless device.

61. The system of claim **45**, wherein said storing said location access rights comprises storing location access rights that allow a user of said second wireless device to access said location of said first wireless device for an indefinite period of time.

62. The system of claim **45**, wherein said storing said location access rights comprises storing location access rights that allow a user of said second wireless device to access said location of said first wireless device for only a specific period of time.

63. The system of claim **62**, wherein said remote system is further capable of receiving an indication of said specific period of time from said first wireless device.

64. The system of claim **45**, wherein said remote system is further capable of transmitting an alert to said second wireless device based on said location of said first wireless device.

65. The system of claim **64**, wherein said remote system is further capable of receiving a request for said alert from said second wireless device.

66. The system of claim **65**, wherein said alert is geographic area-based and said remote system is further capable of alerting said second wireless device when said location of said first wireless device is within a geographic area specified by said second wireless device.

67. The system of claim **45**, wherein said remote system is further capable of transmitting an alert to said first wireless device when said second wireless device locates said first wireless device.

68. The system of claim **45**, wherein said remote system is further capable of storing a history of locations of said first wireless device.

69. The system of claim **68**, wherein said providing said location to said second wireless device comprises providing to said second wireless device a location from said history of locations when said first wireless device is turned off.

70. The system of claim **45**, wherein said remote system is further capable of providing said location to another device utilized by a user of said second wireless device after said user utilizes said another device to input a login and password for said user into a website.

71. The system of claim **45**, wherein said remote system is further capable of storing and transmitting to said second wireless device a location of a watch.

72. The system of claim **71**, wherein said remote system is capable of communicating with said watch over said communications network to obtain said location of said watch from a positioning system of said watch.

73. The system of claim **45**, wherein said remote system is further capable of storing and transmitting to said second wireless device a location of a personal computer.

74. The system of claim **45**, wherein said remote system is further capable of storing and transmitting to said second wireless device a location of a radio.

75. The system of claim **45**, wherein said remote system is further capable of storing and transmitting to said second wireless device a location of a car.

76. The system of claim **45**, wherein said remote system is further capable of providing said location of said first wireless device to a credit card authorization system.

77. The system of claim **45**, wherein said remote system is further capable of providing to said second wireless device information indicating time to reach said location of said first wireless device from a second location of said second wireless device according to at least two types of travel selected from the types of travel consisting of subway, walking, running, and driving.

78. The system of claim **45**, wherein said remote system is further capable of:

storing a phone book corresponding to a user of said second wireless telephone; and

downloading said phone book to a new wireless telephone of said user.

* * * * *

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[redacted]

IN THE UNITED STATES DISTRICT COURT
FOR THE EASTERN DISTRICT OF TEXAS
MARSHALL DIVISION

MULLEN INDUSTRIES LLC, *Plaintiff*, v. SAMSUNG ELECTRONICS CO., LTD., and SAMSUNG ELECTRONICS AMERICA, INC., *Defendants.*	§ § § § § § § § § § §	Case No. 2:24-cv-00049-JRG [redacted] **JURY TRIAL DEMANDED**

SAMSUNG'S REPLY IN SUPPORT OF ITS
MOTION TO TRANSFER TO THE NORTHERN DISTRICT OF CALIFORNIA

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[redacted]

The facts compelling transfer to the NDCA are plain. Sworn testimony and venue discovery establish that 2 of the 3 accused applications in this case, Google Maps and Wear OS, originated from third-party Google employees, mostly in the NDCA. NDCA is also where prior artists and [redacted] are located. And the third accused application, Samsung's SmartThings Find (STF), is developed in Korea. There are no Samsung employees or third parties in Texas with relevant technical knowledge, and Mullen itself claims no ties to Texas.

Rather than address these relevant facts, Mullen resorts to misdirection and conjecture. To start, Mullen goes so far as to dispute whether the threshold requirement for transfer is met, suggesting that SEA has no offices in the NDCA despite the motion's statement that "SEA has offices with over [redacted] regular full-time employees in the NDCA." Opp. at 3. In making this argument, Mullen ignores SEA's office list, produced and cited by Samsung, identifying SEA's [redacted] sq. ft. campus at 645 and 665 Clyde Ave., Mountain View, CA. Exs. R-S; [redacted] Next, Mullen speculates based on 14 LinkedIn pages that Samsung employees in Texas working on "Internet of Things" ("IoT") are relevant. But IoT *is not accused* and has nothing to do with the accused STF app that *is* accused. Tellingly, Mullen chose not to depose these 14 allegedly relevant witnesses to test its incorrect speculation. Considering the witnesses and evidence that are *actually* relevant, the NDCA is a proper and clearly more convenient forum.

A. Compulsory Process And Convenience Factors Strongly Favor Transfer.

Samsung Employees (Convenience): Samsung's supporting declarations, discovery responses, and the deposition of Samsung's venue witness, [redacted], all unequivocally establish that STF is developed by SEC engineers in Korea. [redacted]. There are no Samsung employees in Texas with technical knowledge relevant to this case. And contrary to Mullen's accusation, Samsung has not ignored its SEA employees in Texas, but explained that those employees (such

[redacted]

as [redacted] identified in Samsung's initial disclosures) work in *non*-technical roles such as "sales, marketing, and commercialization for Samsung devices." Mot. at 11; Ex. 3.

Ignoring these irrefutable facts, Mullen resorts to LinkedIn pages[1] for 14 current or former Samsung employees in Texas who it contends are relevant employees working on "IoT." Opp. at 8, 11-12. But IoT is *not accused* in this case. Indeed, "IoT" or "Internet of Things" is never mentioned in Mullen's 9 infringement contention charts, spanning 658 pages. Exs. U-AC. IoT refers to a technological concept of connecting Internet-capable devices, including refrigerators, washers, dryers, dishwashers, and vacuums. [redacted] By contrast, the accused STF app is used to locate personal devices like a smartphone. Mot. at 2; Ex. T ([redacted] Dep.) at 25:11-26:18, 86:5-17; [redacted] Decl. ¶ 9. Similarly, Mullen's patents are not about IoT, but cell phones providing location "access rights" to each other. *E.g.*, Ex. AD ('218 Patent) at Abstract.

Mullen's note that some LinkedIn pages mention "SmartThings" is similarly unavailing. Opp. at 11. As the motion made clear, SmartThings is not STF; rather, SmartThings is a platform onto which STF can be optionally installed. Mot. at 3; SEC Decl. ¶ 9. Indeed, Mullen *admits* just a few paragraphs later in its opposition that the two are different when it argues that "Samsung's reliance on [redacted] employees" in [redacted] who work on SmartThings is "unpersuasive" because SmartThings *is not the "accused STF technology*." Opp. at 12.

The *only* SEA employee with a LinkedIn page that mentions the accused "SmartThings Find" app is [redacted] Ex. 13. But as his LinkedIn page also shows, [redacted] performs quality assurance testing for dozens of different apps and features on Samsung's mobile devices. *Id.*; [redacted] Decl. ¶ 15. He has no involvement in the design or development of STF. *Id.* The

[1] Courts have rejected reliance on LinkedIn pages as "far too speculative" and worth "little to no weight" in deciding transfer. *E.g.*, *DDC Tech., LLC v. Google LLC*, No. 3:22-cv-1263, 2023 WL 2518846, at *5 (N.D. Tex. Mar. 14, 2023).

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[redacted]

presence of employees in this District with "no technical knowledge of the accused functionality here, 'cannot overcome the immense inconvenience that the majority of relevant witnesses would face.'" *In re Samsung Elecs. Co.*, 2023-146, 2023 WL 8642711, at *2 (Fed. Cir. Dec. 14, 2023).

Google And Other Third Parties (Compulsory Process): Mullen relies on two misleading assertions to downplay the 11 Google witnesses in the NDCA. First, Mullen asserts Google Maps is only 1 of 3 accused apps. But Mullen's infringement contentions accuse Maps across 7 of 8 remaining patents, and the second accused app, Wear OS, was also [redacted] Mot. at 5. Second, Mullen's assertion that it only needs Google source code, not testimony (Opp. at 9), is belied by the *deposition* subpoena it served on Google and its demand for Google deposition dates. Exs. 23, AE-AF. Moreover, Mullen ignores that Samsung expects to rely on Google testimony and evidence for its defenses. Ex. Q at 8.

As to the 7 prior art witnesses, Mullen incorrectly asserts that Samsung has not subpoenaed any of them. Opp. at 6. Samsung gave notice of its subpoena of the CEO of Cellpoint, Inc., in the NDCA regarding the Cellpoint Finder! prior art product. Ex. AO (Childs subpoena).

Mullen also makes two flawed legal arguments. First, it asserts that Samsung must show Google witnesses to be unwilling, citing *Demaray LLC v. Samsung Elecs. Co.*, No. 6:20-CV-00636-ADA, 2021 WL 5316455 (W.D. Tex. July 29, 2021). Opp. at 8. But *Demaray*, a non-precedential decision from another district, contradicts the Federal Circuit's presumption and this Court's practice of treating third-party witnesses as unwilling, including where "declarations by [third-party] Google employees" were filed in support of the defendant's transfer motion. *E.g.*, *AGIS Software Dev. LLC v. Huawei Device USA Inc.*, No. 2:17-cv-00513-JRG, 2018 WL 2329752, at *3, *6 (E.D. Tex. May 23, 2018); *In re HP Inc.*, 2018-149, 2018 WL 4692486, at *3 n.1 (Fed. Cir. Sept. 25, 2018) ("non-party witness … is presumed to be unwilling"). Second, Mullen attempts to discount the 18 identified Google and prior art witnesses, arguing that only

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[redacted]

"one or two" could testify. Opp. at 9. But the Federal Circuit has rejected this "categorical assumption that defendants are likely to call few if any of the proposed party witnesses or prior-art witnesses." *In re Juniper Networks, Inc.*, 14 F.4th 1313, 1319 (Fed. Cir. 2021) (citing cases).

Moreover, venue discovery uncovered that Mullen has engaged in [redacted]. These third parties are relevant to damages and subject to the NDCA's subpoena power.

B. Access To Sources Of Proof Favors Transfer.

The *only* category of documents that Mullen identifies in this District are SEA's damages-related marketing and sales documents. Opp. at 4-5. While Mullen speculates that [redacted] keep testing documents relating to STF in this District (*id*. at 5), it offers no evidence that such STF testing documents exist, and it chose not to depose [redacted] to support its speculation.

And again, Mullen errs in minimizing Google and other third parties. Documents with respect to Google Maps and Wear OS were created and maintained by Google employees in the NDCA. The NDCA is also the source of (1) prior art documents and (2) licensing documents from [redacted].

This case is analogous to *In re Google* in which the Federal Circuit transferred cases against Samsung, Google, and Waze from this District to the NDCA, given the importance of Google engineers and prior artists there. 2022-140, 2022 WL 1613192, at *3 (Fed. Cir. May 23, 2022). To distinguish *In re Google*, Mullen argues that here, Samsung's own software (STF) is also at issue and SEA has offices and witnesses in this District. Opp. at 7. But the same was true in *In re Google*. In fact, the accused apps were similar: Google Maps and STF's predecessor, Samsung's Find My Mobile. Liang Decl. ¶ 6. And SEA had the same offices in Plano, with the same SEA

[redacted]

finance witness ([redacted] and another SEA marketing witness in Plano. *Id.* ¶ 7-8, Exs. P-Q.

Mullen's cited cases, *Cardware Inc. v. Samsung Elecs. Co.* and *Jawbone Innovations, LLC v. Samsung Elecs. Co.*, are both inapposite as the accused apps in those cases were developed by Samsung in Korea. No. 2:22-cv-0141-JRG-RSP, 2023 WL 2871052, at *1-*2 (E.D. Tex. Apr. 8, 2023); No. 2:21-cv-00186-JRG-RSP, 2022 WL 4004195, at *1, *3 (E.D. Tex. Aug. 31, 2022). Here, with Google functionality developed in the NDCA and multiple NDCA-based sources of prior art and licensing records, access to sources of proof clearly favors transfer.

C. The Remaining Disputed Factors Are Neutral Or Favor Transfer.

The stage of the case remains early, with the *Markman* hearing and fact discovery cutoff both more than six months away. Local interest favors transfer because the "accused functionality was in part researched, designed, and developed in NDCA" by Google, whereas the transferor forum had "no comparable connection to this case." *In re Samsung*, 2023 WL 8642711, at *2.

D. Samsung's 30(b)(6) Venue Witness, [redacted] Was Prepared.

Mullen's complaint about [redacted] deposition preparation is a baseless distraction. Based on [redacted] at Samsung, [redacted] knew that there are no Samsung employees in Texas who work on STF, as the app is developed in Korea. [redacted] confirmed his understanding [redacted] Mullen implies that M[redacted] should have also spoken to the 14 individuals who it arbitrarily selected from LinkedIn. Opp. at 14-15. But [redacted] had no reason to speak to them because he knew that they were not part of the STF team. [redacted] If Mullen were genuinely interested in those 14 individuals, it could have identified them in its 30(b)(6) topics or deposed them. Instead, it chose to wait until its opposition to speculate about their supposed relevance. Mullen's disingenuous complaint should be disregarded in deciding transfer.

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DATED: December 3, 2024

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CERTIFICATE OF SERVICE

I hereby certify that all counsel of record who are deemed to have consented to electronic service are being served with a copy of this document via electronic mail.

Dated: December 3, 2024

/s/ Melissa R. Smith
Melissa R. Smith

[redacted]

No public versions of the documents at Appx0544-0569 were filed below. Accordingly, Appx0544-0569 are omitted in their entirety from the non-confidential appendix.

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IN THE UNITED STATES DISTRICT COURT
FOR THE EASTERN DISTRICT OF TEXAS
MARSHALL DIVISION

MULLEN INDUSTRIES LLC, *Plaintiff,* v. SAMSUNG ELECTRONICS CO., LTD., AND SAMSUNG ELECTRONICS AMERICA, INC., *Defendants.*	Case No. 2:24-cv-00049-JRG **JURY TRIAL DEMANDED**

PLAINTIFF MULLEN INDUSTRIES LLC'S SUR-REPLY BRIEF IN OPPOSITION TO SAMSUNG'S MOTION TO TRANSFER VENUE TO THE NORTHERN DISTRICT OF CALIFORNIA

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[redacted]

Samsung is wrong. Just like in *Cardware* and *Jawbone*—which Samsung admits involved "accused apps … developed by Samsung" (Dkt. 55, 5)—this case should remain in EDTX because Samsung developed 2 of the 3 infringing technologies.[1] Also weighing heavily against transfer is that Samsung's EDTX employees undisputedly author documents identifying these technologies as value drivers, and financials, and test these technologies, which are infringing acts. *In re Google* is inapposite because Google is not a party here and, further, is not "at the center of the allegations."

A. SEA Failed to Show It Has a Regular/Established Place of Business in NDCA

Samsung's Reply confirms that Samsung failed to make this showing. ***First***, Samsung's [redacted] (Dkt. 55, 1; Ex. R) is impermissible new evidence on reply.[2] ***Second***, [redacted] ***Third***, Ex. R is not [redacted] However, there is no evidence that Defendant ***SEA*** operates a regular and established place of business there. Rather, public information shows that the businesses operating at 645 and 665 Clyde Ave. are different companies—Samsung NEXT and SRA. Snell Decl., Exs. 37, 38.

B. Relative Ease of Access to Sources of Proof Weighs Against Transfer

Samsung does not dispute that EDTX is the location of relevant documents regarding ***value drivers and consumer insights, marketing***, and ***financials*** of the accused products. Opp., 4-5 (citing Exs. 6, 8-12); Dkt. 55, 4. These documents ***expressly show***—and Samsung does not dispute—the technologies at issue "are value drivers for Samsung's accused products." Opp., 4.

Samsung also does not dispute that SEA employees, including [redacted]

[1] *Cardware Inc. v. Samsung Elecs. Co., Ltd.*, No. 2:22-cv-0141-JRG-RSP, 2023 U.S. Dist. LEXIS 62442 (E.D. Tex. Apr. 8, 2023); *Jawbone Innovations, LLC v. Samsung Elecs. Co., Ltd.*, No. 2:21-cv-186-JRG-RSP, 2022 U.S. Dist. LEXIS 157916 (E.D. Tex. Aug. 31, 2022).

[2] *Duggar v. Stephen F. Austin State Univ.*, 232 F. Supp. 3d 938 (E.D. Tex. 2017) (Bryson, J.) ("courts disregard new evidence or argument offered for the first time in the reply brief").

[redacted] Samsung instead seeks to shift the burden by arguing that whether "STF testing documents" exist from this undisputed testing is "speculat[ion]." Dkt. 55, 4. Tellingly, Samsung does not deny these documents exist. And, Samsung admitted it never searched for them. Dkt. 47, 5. These documents are relevant because they show Samsung's infringement via testing as pled in the amended complaint. *E.g.*, Dkt. 54 ¶¶ 142, 167, 185, 203.

Samsung argues incorrectly that Plaintiff "errs in minimizing" its alleged third-party sources of proof. ***First***, it is beyond dispute that the relevant [redacted]. *See* Dkt. 47 at 6n.4. Samsung admits that: (1) these "design documents and source code for [redacted] [are] in Korea"; and (2) thus "the location of that evidence is neutral". Mot. at 3, 10. ***Second***, Samsung does not deny that the Court should afford Google Maps source code less weight because Google Maps is only 1 of 3 relevant technologies in the accused products. Dkt. 47, 6. ***Third***, Samsung's reliance on "licensing documents [redacted] is a red herring. Dkt. 55, 4. Plaintiff's only license [redacted], which Plaintiff has already produced. And, that [redacted] ***Fourth***, Samsung has not identified any prior art documents in NDCA; [redacted] Dkt. 55, 3.

Samsung's reliance on *In re Google* remains misplaced. Dkt. 55, 4-5. Google is not a party here, and is not "at the center of the allegations." *See* Dkt. 47, 7. And, contrary to Samsung's argument (Dkt. 55, 4), this Court's and the Federal Circuit's orders in *In re Google* make no mention whatsoever of Find My Mobile, which Samsung alleges was "STF's predecessor." In other words, unlike here, plaintiff there made no showing that Samsung technology was relevant. *See AGIS Software Dev. LLC v. Google LLC*, No. 2:19-cv-00631-JRG, 2022 U.S. Dist. LEXIS

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[redacted]

86202 (E.D. Tex. May 12, 2022); *In re Google LLC*, 2022 U.S. App. LEXIS 13799, at *9 (Fed. Cir. May 23, 2022). In direct contrast, here, Samsung's technologies are highly relevant. *E.g.*, [redacted]

Finally, Samsung utterly fails to distinguish this Court's precedent in *Cardware* and *Jawbone* denying transfer. Samsung argues such cases involved "accused apps … developed by Samsung in Korea" (Dkt. 55, 5), which is the situation here with STF and [redacted]

C. Availability of Compulsory Process Does Not Favor Transfer

Samsung does not dispute that [redacted] is a non-party [redacted] witness in EDTX with relevant experience regarding the "[redacted]" location technology used by Samsung's STF. Dkt. 47, 8.

As to [redacted] (*id.*), Samsung's declarant acknowledges they are former SEA employees and fails to rebut their relevance. [redacted] This epitomizes an unreliable investigation. Indeed, [redacted] which as discussed *supra* is used by Samsung's STF.

Samsung argues that Google witnesses should be "presumed" unwilling (Dkt. 55, 3) but fails to rebut Plaintiff's showing that they are (i) willing witnesses here not to be considered under

[3] Moreover, pursuant to the Court's Order (Dkt. 52), Plaintiff has amended its complaint and has withdrawn the '540 Patent. *See* Dkt. 54. The result is that Google Maps technology is now comparatively less relevant to this case. In particular, whereas (i) Samsung's STF technology is relevant to Samsung's infringement of 7 of 8 asserted patents and (ii) Samsung's adapted Wear OS technology is relevant to Samsung's infringement of 1 asserted patent, Google Maps technology is relevant to Samsung's infringement of 5 of 8 asserted patents. *Id.*

[redacted]

this factor and (ii) of limited relevance. ***First***, Samsung does not dispute that: (1) the Google witnesses voluntarily provided declarations consenting to testify; (2) [redacted] and (3) Google and Samsung are co-petitioners in IPRs against asserted patents. Dkt. 47, 8-9; Dkt. 55, 3. This makes them willing witnesses. *Id*. ***Second***, Samsung does not dispute that it identified [redacted] of them as having the same "[redacted]" knowledge (*id*.), which demonstrates that, at most, only one or two possess unique knowledge. ***Third***, Samsung ignores its admission that the experts, not fact witnesses, are the only witnesses needed to testify as to source code. *Id*.

Samsung's one subpoena to an alleged prior art witness ([redacted]) is entitled to no weight. Dkt. 55, 3. He [redacted] he did not invent the CellPoint Finder! system as evidenced by his joining the company as a marketing executive 1-year after the system's launch. Exs. 39, 40.

Finally, as discussed *supra*, Samsung's alleged patent licensing witnesses are irrelevant.

D. Willing Witness Factor Weighs Strongly Against Transfer

Samsung (i) admits its initial disclosures identify two EDTX-based witnesses ([redacted]) with relevant information regarding marketing, financials, and damages (Dkt. 47, 10; Dkt. 55, 1-2); and (ii) does not dispute that EDTX employees: [redacted] authored highly relevant marketing documents showing the accused technologies are value drivers for the accused products; [redacted] used the accused STF; and [redacted] (Dkt. 47, 11; Dkt. 55, 1-3 (no dispute)). *See also supra* § B. Samsung merely argues incorrectly that these witnesses should not be given weight because they allegedly lack "technical knowledge." Dkt. 55, 1, 3. However, Samsung's argument is easily dismissed because there is no rule that only witnesses with technical knowledge (e.g., of source code) are relevant.

Samsung next argues that the [redacted] current SEA EDTX employees Plaintiff identifies are irrelevant because "IoT is *not accused* in this case." Dkt. 55, 2; Dkt. 47, 11-12. However, as

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[redacted]

discussed *supra*, "IoT" is a "broad technological concept" that directly relates to STF. It is thus reasonable to infer that these Samsung EDTX employees possess relevant information regarding training, management, testing, sales, and/or marketing, just like their LinkedIn profiles say. Contrary to Samsung's argument, courts regularly consult LinkedIn profiles to determine whether witnesses possess relevant information. *E.g.*, *KT Imaging USA, LLC v. HP Inc.*, No. 4:20-cv-337, 2021 U.S. Dist. LEXIS 35071, at *8 (E.D. Tex. Feb. 25, 2021); *AGIS Software Dev. LLC v. Apple, Inc.*, No. 2:17-CV-00516, 2018 U.S. Dist. LEXIS 94947, at *12 n.4 (E.D. Tex. June 6, 2018); *In re Apple Inc.*, No. 2023-135, 2023 U.S. App. LEXIS 21364, at *4 (Fed. Cir. Aug. 16, 2023).

E. The Remaining Disputed Factors Weigh Against Transfer

Transfer would derail this case's significant progress and trial setting in less than one year. EDTX's local interest is undeniable here including because, as discussed *supra*, it is undisputed that "Samsung has a significant presence in Plano, Texas which carries out testing on and marketing efforts over the accused products." *Cardware*, 2023 U.S. Dist. LEXIS 62442, at *9; *Jawbone*, 2022 U.S. Dist. LEXIS 157916, at *21. Samsung exaggerates NDCA's interest because Google is not a party and 2 of the 3 technologies relevant here were developed by Samsung.

F. Samsung was Unprepared for the 30(b)(6) Venue Deposition

Samsung largely ignores the deficiencies Plaintiff identified. Dkt. 47, 14-15. What is plain, however, is that either (i) Samsung has impermissibly tried to narrow the scope of relevant individuals and documents to only those relating to "technical" source code or (ii) Samsung's venue investigation was inadequate. A prime example is Samsung's failure to identify, much less investigate, [redacted], who as discussed *supra* [redacted] Dkt. 47-05, 136:14-141:13. A party's venue witness has been deemed unreliable under analogous circumstances. *E.g., Scramoge Tech. Ltd. v. Apple, Inc.*, No. 6:21-cv-579-ADA, 2022 U.S. Dist. LEXIS 93597, at *10-14 (W.D. Tex. May 25, 2022).

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Dated: December 10, 2024

Respectfully submitted,

/s/ Peter F. Snell

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[redacted]

CERTIFICATE OF SERVICE

I certify that, on December 10, 2024, I electronically filed the foregoing with the Clerk of Court using the CM/ECF system, which will send notification of such filing via electronic mail to all counsel of record.

/s/ Peter F. Snell
Peter F. Snell

MATERIAL SUBJECT TO A PROTECTIVE ORDER HAS BEEN DELETED

[redacted]

CERTIFICATE OF AUTHORIZATION TO FILE UNDER SEAL

I certify that this document is filed under seal pursuant to the Protective Order approved and entered into this case.

/s/ Peter F. Snell
Peter F. Snell

IN THE UNITED STATES DISTRICT COURT
FOR THE EASTERN DISTRICT OF TEXAS
MARSHALL DIVISION

MULLEN INDUSTRIES LLC, *Plaintiff*, v. SAMSUNG ELECTRONICS CO., LTD., and SAMSUNG ELECTRONICS AMERICA, INC., *Defendants*.	§ § § § § § § § § § § §	CIVIL ACTION NO. 2:24-CV-00049-JRG

FOURTH AMENDED DOCKET CONTROL ORDER

It is hereby **ORDERED** that the following schedule of deadlines is in effect until further order of this Court:

Previous Date	Amended Date	Event
November 3, 2025		*Jury Selection – 9:00 a.m. in **Marshall, Texas**
7 days before Jury Selection		*Defendant to disclose final invalidity theories, final prior art references/combinations, and final equitable defenses. [1]
10 days before Jury Selection		*Plaintiff to disclose final election of Asserted Claims.[2]

[1] The proposed DCO shall include this specific deadline. The deadline shall read, "7 days before Jury Selection," and shall not include a specific date.

[2] Given the Court's past experiences with litigants dropping claims and defenses during or on the eve of trial, the Court is of the opinion that these additional deadlines are necessary. The proposed DCO shall include this specific deadline. The deadline shall read, "10 days before Jury Selection," and shall not include a specific date.

October 6, 2025		* If a juror questionnaire is to be used, an editable (in Microsoft Word format) questionnaire shall be jointly submitted to the Deputy Clerk in Charge by this date.[3]
September 29, 2025		*Pretrial Conference – 9:00 a.m. in **Marshall, Texas** before Judge Rodney Gilstrap
September 22, 2025		*Notify Court of Agreements Reached During Meet and Confer The parties are ordered to meet and confer on any outstanding objections or motions *in limine*. The parties shall advise the Court of any agreements reached no later than 1:00 p.m. three (3) business days before the pretrial conference.
September 22, 2025		*File Joint Pretrial Order, Joint Proposed Jury Instructions, Joint Proposed Verdict Form, Responses to Motions *in Limine*, Updated Exhibit Lists, Updated Witness Lists, and Updated Deposition Designations
September 15, 2025		*File Notice of Request for Daily Transcript or Real Time Reporting. If a daily transcript or real time reporting of court proceedings is requested for trial, the party or parties making said request shall file a notice with the Court and e-mail the Court Reporter, Shawn McRoberts, at shawn_mcroberts@txed.uscourts.gov.
September 8, 2025		File Motions *in Limine* The parties shall limit their motions *in limine* to issues that if improperly introduced at trial would be so prejudicial that the Court could not alleviate the prejudice by giving appropriate instructions to the jury.
September 8, 2025		Serve Objections to Rebuttal Pretrial Disclosures
September 2, 2025		Serve Objections to Pretrial Disclosures; and Serve Rebuttal Pretrial Disclosures

[3] The Parties are referred to the Court's Standing Order Regarding Use of Juror Questionnaires in Advance of *Voir Dire*.

August 18, 2025		Serve Pretrial Disclosures (Witness List, Deposition Designations, and Exhibit List) by the Party with the Burden of Proof
August 11, 2025		*Response to Dispositive Motions (including *Daubert* Motions). Responses to dispositive motions that were filed prior to the dispositive motion deadline, including *Daubert* Motions, shall be due in accordance with Local Rule CV-7(e), not to exceed the deadline as set forth in this Docket Control Order.[4] Motions for Summary Judgment shall comply with Local Rule CV-56.
July 28, 2025		*File Motions to Strike Expert Testimony (including *Daubert* Motions) No motion to strike expert testimony (including a *Daubert* motion) may be filed after this date without leave of the Court.
July 28, 2025		*File Dispositive Motions No dispositive motion may be filed after this date without leave of the Court. Motions shall comply with Local Rule CV-56 and Local Rule CV-7. Motions to extend page limits will only be granted in exceptional circumstances. Exceptional circumstances require more than agreement among the parties.
July 17, 2025		Deadline to Complete Expert Discovery
June 27, 2025		Serve Disclosures for Rebuttal Expert Witnesses
May 30, 2025		Deadline to Complete Fact Discovery and File Motions to Compel Discovery
May 30, 2025		Serve Disclosures for Expert Witnesses by the Party with the Burden of Proof

[4] The parties are directed to Local Rule CV-7(d), which provides in part that "[a] party's failure to oppose a motion in the manner prescribed herein creates a presumption that the party does not controvert the facts set out by movant and has no evidence to offer in opposition to the motion." If the deadline under Local Rule CV 7(e) exceeds the deadline for Response to Dispositive Motions, the deadline for Response to Dispositive Motions controls.

May 15, 2025		Comply with P.R. 3-7 (Opinion of Counsel Defenses)
May 15, 2025		*Claim Construction Hearing – 9:00 a.m. in **Marshall, Texas** before Judge Rodney Gilstrap
May 2, 2025		Final Pre-Trial Election of Asserted Claims and Prior Art Plaintiff shall serve a Final Pre-Trial Election of Asserted Claims, which shall identify no more than 5 claims per asserted patent from among the 10 previously identified claims and no more than 16 claims in total. Not later than 28 days after Plaintiff's election, Defendants shall serve a Final Election of Asserted Prior Art, which shall identify no more than 6 prior art references against each patent from among the 12 previously identified references and no more than 20 references in total.
May 1, 2025		*Comply with P.R. 4-5(d) (Joint Claim Construction Chart)
April 24, 2025		*Comply with P.R. 4-5(c) (Reply Claim Construction Brief)
April 10, 2025		Comply with P.R. 4-5(b) (Responsive Claim Construction Brief)
April 3, 2025		Deadline to Substantially Complete Document Production and Exchange Privilege Logs Counsel are expected to make good faith efforts to produce all required documents as soon as they are available and not wait until the substantial completion deadline.
March 20, 2025		Comply with P.R. 4-5(a) (Opening Claim Construction Brief) and Submit Technical Tutorials (if any) Good cause must be shown to submit technical tutorials after the deadline to comply with P.R. 4-5(a).

March 13, 2025	March 20, 2025	Preliminary Pre-Trial Election of Asserted Claims and Prior Art Plaintiff shall serve a Preliminary Pre-Trial Election of Asserted Claims, which shall identify no more than 10 claims per asserted patent from among the previously identified claims and no more than 32 claims in total. Not later than 14 days after Plaintiff's election, Defendants shall serve a Preliminary Election of Asserted Prior Art, which shall identify no more than 12 prior art references against each patent from among the previously identified references and no more than 40 references in total.
March 13, 2025		Comply with P.R. 4-4 (Deadline to Complete Claim Construction Discovery)
March 13, 2025		File Response to Amended Pleadings
February 27, 2025		*File Amended Pleadings It is not necessary to seek leave of Court to amend pleadings prior to this deadline unless the amendment seeks to assert additional patents.
February 20, 2025		Comply with P.R. 4-3 (Joint Claim Construction Statement)
January 30, 2025		Comply with P.R. 4-2 (Exchange Preliminary Claim Constructions)
January 9, 2025		Comply with P.R. 4-1 (Exchange Proposed Claim Terms)
January 31, 2025		File Proposed Order Regarding E-Discovery
July 31, 2024		Comply with Standing Order Regarding Subject-Matter Eligibility Contentions[5]
July 31, 2024		Comply with P.R. 3-3 & 3-4 (Invalidity Contentions)

[5]http://www.txed.uscourts.gov/sites/default/files/judgeFiles/EDTX%20Standing%20Order%20Re%20Subject%20Matter%20Eligibility%20Contentions%20.pdf [https://perma.cc/RQN2-YU5P]

June 27, 2024		*File Proposed Protective Order and Comply with Paragraphs 1 & 3 of the Discovery Order (Initial and Additional Disclosures) The Proposed Protective Order shall be filed as a separate motion with the caption indicating whether or not the proposed order is opposed in any part.
June 12, 2024		*File Proposed Docket Control Order and Proposed Discovery Order The Proposed Docket Control Order and Proposed Discovery Order shall be filed as separate motions with the caption indicating whether or not the proposed order is opposed in any part.
June 5, 2024		Join Additional Parties
May 15, 2024		Comply with P.R. 3-1 & 3-2 (Infringement Contentions)

(*) indicates a deadline that cannot be changed without an acceptable showing of good cause. Good cause is not shown merely by indicating that the parties agree that the deadline should be changed.

ADDITIONAL REQUIREMENTS

Mediation: While certain cases may benefit from mediation, such may not be appropriate for every case. The Court finds that the Parties are best suited to evaluate whether mediation will benefit the case after the issuance of the Court's claim construction order. Accordingly, the Court **ORDERS** the Parties to file a Joint Notice indicating whether the case should be referred for mediation **within fourteen days of the issuance of the Court's claim construction order**. As a part of such Joint Notice, the Parties should indicate whether they have a mutually agreeable mediator for the Court to consider. If the Parties disagree about whether mediation is appropriate, the Parties should set forth a brief statement of their competing positions in the Joint Notice.

Summary Judgment Motions, Motions to Strike Expert Testimony, and *Daubert* Motions: For each motion, the moving party shall provide the Court with two (2) hard copies of the completed briefing (opening motion, response, reply, and if applicable, sur-reply), excluding exhibits, in D-three-ring binders, appropriately tabbed. All documents shall be single-sided and must include the CM/ECF header. These copies shall be delivered to the Court within three (3) business days after briefing has completed. For expert-related motions, complete digital copies of the relevant expert report(s) and accompanying exhibits shall be submitted on a single flash drive to the Court. Complete digital copies of the expert report(s) shall be delivered to the Court no later than the dispositive motion deadline.

Indefiniteness: In lieu of early motions for summary judgment, the parties are directed to include any arguments related to the issue of indefiniteness in their *Markman* briefing, subject to the local rules' normal page limits.

Lead Counsel: The Parties are directed to Local Rule CV-11(a)(1), which provides that "[o]n the first appearance through counsel, each party shall designate a lead attorney on the pleadings or otherwise." Additionally, once designated, a party's lead attorney may only be changed by the filing of a Motion to Change Lead Counsel and thereafter obtaining from the Court an Order granting leave to designate different lead counsel. The true lead counsel should be designated early and should not expect to parachute in as lead once the case has been largely developed.

Motions for Continuance: The following will not warrant a continuance nor justify a failure to comply with the discovery deadline:

(a) The fact that there are motions for summary judgment or motions to dismiss pending;

(b) The fact that one or more of the attorneys is set for trial in another court on the same day, unless the other setting was made prior to the date of this order or was made as a special provision for the parties in the other case;

(c) The failure to complete discovery prior to trial, unless the parties can demonstrate that it was impossible to complete discovery despite their good faith effort to do so.

Amendments to the Docket Control Order ("DCO"): Any motion to alter any date on the DCO shall take the form of a motion to amend the DCO. The motion to amend the DCO shall include a proposed order that lists all of the remaining dates in one column (as above) and the proposed changes to each date in an additional adjacent column (if there is no change for a date the proposed date column should remain blank or indicate that it is unchanged). In other words, the DCO in the proposed order should be complete such that one can clearly see all the remaining deadlines and the changes, if any, to those deadlines, rather than needing to also refer to an earlier version of the DCO.

Proposed DCO: The Parties' Proposed DCO should also follow the format described above under "Amendments to the Docket Control Order ('DCO')."

Joint Pretrial Order: In the contentions of the Parties included in the Joint Pretrial Order, the Plaintiff shall specify all allegedly infringed claims that will be asserted at trial. The Plaintiff shall also specify the nature of each theory of infringement, including under which subsections of 35 U.S.C. § 271 it alleges infringement, and whether the Plaintiff alleges divided infringement or infringement under the doctrine of equivalents. Each Defendant shall indicate the nature of each theory of invalidity, including invalidity for anticipation, obviousness, subject-matter eligibility, written description, enablement, or any other basis for invalidity. The Defendant shall also specify each prior art reference or combination of references upon which the Defendant shall rely at trial, with respect to each theory of invalidity. The contentions of the Parties may not be amended, supplemented, or dropped without leave of the Court based upon a showing of good cause.

Trial: All parties must appear in person at trial. All non-individual (including but not limited to corporate) parties must appear at trial through the presence in person of a designated representative. Once they have appeared, any representative of a non-individual party shall not be replaced or substituted without express leave of Court.

So ORDERED and SIGNED this 12th day of March, 2025.

RODNEY GILSTRAP
UNITED STATES DISTRICT JUDGE

CERTIFICATE OF SERVICE

I certify that on May 7, 2025, I caused a paper copy of this document to be sent by an express carrier to lead counsel for respondent Mullen Industries LLC at the following address:

Peter F. Snell
Mintz, Levin, Cohn, Ferris, Golvsky and Popeo, P.C.
919 Third Avenue
New York, NY 10022
Telephone: (212) 935-3000

I further certify that I caused courtesy electronic copies of this document to be sent to the following counsel of record for Mullen Industries LLC in the district court:

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I further certify that I caused a paper copy of this document to be sent by an express carrier to the presiding district judge at the following address:

U.S. District Judge Rodney Gilstrap
Sam B. Hall, Jr. Federal Building and United States Courthouse
100 East Houston Street
Marshall, TX 75670

I declare under penalty of perjury under the laws of the United States that the foregoing is true and correct.

DATED: May 7, 2025 By: /s/ *Ginger D. Anders*
Ginger D. Anders