UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

CARBYNE, INC.

Petitioner,

v.

TRITECH SOFTWARE SYSTEMS,

Patent Owner.

U.S. Patent No. RE50,016

Case No. IPR2025-00959

DECLARATION OF GERALD CHRISTENSEN

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I, Gerald Christensen declare as follows:

I. INTRODUCTION

1. I have been retained Carbyne, Inc. and Carbyne, Ltd. (collectively, "Carbyne") as an independent expert consultant in this proceeding before the United States Patent and Trademark Office ("PTO"). I am not an employee of Carbyne or any affiliate or subsidiary of Carbyne.

2. I have been asked to consider whether certain references teach or suggest the features recited in certain claims of U.S. Reissue Patent No. RE50,016, which I refer to herein as the '016 patent.

3. My opinions and the bases for my opinions are set forth below.

4. I am being compensated at my ordinary and customary rate of $400 per hour for my work, plus reimbursement for any reasonable expenses. My compensation is based solely on the amount of time that I devote to activity related to this case and is in no way contingent on the nature of my findings, the presentation of my findings in testimony, or the outcome of this or any other proceeding. I have no other financial interest in this proceeding.

II. EDUCATION BACKGROUND, PROFESSIONAL EXPERIENCE, AND OTHER QUALIFICATIONS

5. My curriculum vitae ("CV") is attached hereto as Attachment A and provides an accurate identification of my background and experience.

6. I graduated with a B.S.I.E. in Industrial Engineering from the University of Florida in 1988. I also have an M.B.A. that I obtained from Auburn University in 1997.

7. As explained in greater detail on my CV, both in view of my educational background and decades of industry experience, I am an expert in Information and Communications Technology (ICT) systems, networks, infrastructure and solutions covering a wide range of areas including network connectivity, content routing, and signaling. My experience includes location determination and related applications involving voice and messaging.

8. I am a location technology expert with a wide range of experience in location determination methods (GPS and other methods) as well as supporting technologies such as GIS/mapping, APIs, and interaction with operating systems and applications.

9. In my role as strategic planning manager for BellSouth Cellular in 1996, I was responsible for evaluating and selecting handset-based positioning methods and network approaches to implement the FCC's order for Phase I and Phase II of enhanced 9-1-1 for the company.

10. Phase I of the FCC order required Public Safety Answer Points (PSAP) and carriers to work together for purposes of displaying location information to PSAP terminals (used by emergency service personnel for handling 9-1-1 calls) with

a certain degree of accuracy and precision. Phase I relied upon cell site or cell sector level of location determination and thus had a rather large degree of uncertainty as compared to GPS (a handset-based method of location determination) or various network-based methods under consideration at the time. Phase I level of location accuracy and precision would allow for PSAP personnel to view (on the PSAP terminal) a verbal description of the location of the caller, such as "Corner of 5th Street and Main Street" in Joplin, Missouri.

11. In contrast, Phase II of the FCC order relies upon suitable network or handset-based (most notably GPS) methods for providing much more accurate and precise location information. For example, phase II technology could allow for display on the PSAP terminal of the 9-1-1 caller's position as a dot (or reticle) and a tight/close circle (to reflect that high degree of confidence in location) overlaid onto a map of the area as part of a Geographic Information System (GIS). The GIS mapping software is capable of using GPS information in the form of latitude and longitude estimates to plot a more precise location (than phase I technology) such as placing the caller's actual position as standing in the parking lot behind Hacket Hot Wing, a restaurant located at (postal address) 520 S Main St, Joplin, MO 64801.

12. In 1999, I became the first director of product management for leading location technology middleware provider, SignalSoft, a company that developed the predecessor technology (known as "Location Manager") to the standards-based

Control Plane infrastructure for GSM and ANSI (e.g. CDMA) networks, now known as GMLC/SMLC and MPC respectively relied upon for support of location determination for 9-1-1 calls.

13. In addition to the aforementioned Control Plane related location technologies, I have also worked with many User Plane approaches (e.g. not dependent on carrier infrastructure) to implement and operate location applications. I have accomplished this in various roles including product management and business development at VeriSign, Zoove, and in my own independent consulting practice. This has provided me with experience dealing with a wide variety of location-based service (LBS) applications including integration of LBS apps at both the device and network level.

14. I am also an expert in messaging, including SMS and MMS, used for person-to-person communications as well as business to person engagement such as mobile marketing. This includes novel ways in which messaging and/or data may be integrated with various applications as well as infrastructure that typically would otherwise only be used for voice calls.

15. I co-founded Zoove, a mobile marketing company, serving as its CTO for five years. I engineered the UI and interoperability for the Zoove's Star/Star (**) service that allowed an end-user to engage in a multi-modal (voice, text, and data),

multi-media experience simply by dialing ** and hitting send from their mobile phone.

16. Still in use today, the Star/Star solution allows users to seemingly place a voice call (e.g. dialing **NFL from their keypad) yet not be reliant upon voice communication. For example, dialing **NFL (**635 on the keypad) could result in the user receiving a text message for information/content rather than speaking with a person or engaging with an interactive voice response (IVR) system to obtain information/content. The Star/Star solution relies upon the novel use and integration of the signaling system number seven (SS7) protocol, intelligent networking capabilities, and interoperability between carrier switches and third-party infrastructure owned and controlled by Zoove.

17. I am also an expert in both voice call and message management at the system, network, equipment, and device level. For example, I was one of the principal people involved with launching intercarrier text messaging within the United States.

18. I am also a named inventor on several patents and applications relating generally to messaging and identity including US Patent No. 8,103,868 B2 (Sender Identification System and Method), US App. 11/985,576 (System and Method for Mediating Service Invocation from a Communication Device), and US Pub.

2013/0303137 A1 (System and Method for Service Invocation and Response with a Communication Device based on Transmitted Code Content Recognition).

19. Additional details regarding my employment history, which includes work for various wireless services, networking, telecommunication, and military entities, can be found on my CV.

20. I am familiar with the subject matter of this case, and consider myself an expert in, among other things, emergency communication systems, wireless communications, networking, and related fields.

III. ASSIGNMENT AND MATERIALS CONSIDERED

21. I have been asked to provide analysis and explain the subject matter of the ’016 patent, including the state of the art when the ’016 patent application was filed. I have also been asked to consider, analyze, and explain certain prior art to the ’016 patent including how that art relates to the challenged claims of the ’016 patent and to provide my opinions regarding whether that art invalidates the claimed subject matter.

22. The opinions expressed in this declaration are not exhaustive of opinions I may offer in the future regarding the unpatentability of the claims of the ’016 patent. Therefore, the fact that I do not address a particular point should not be understood to indicate an agreement on my part that any claim complies with the requirements of any applicable patent or other rule.

23. I reserve the right to amend and supplement this declaration in light of additional evidence, arguments, or testimony presented during this IPR or related proceedings on the ’016 patent.

24. In forming the opinions set forth in this declaration, I have considered and relied upon my education, knowledge of the relevant field, knowledge of scientific and engineering principles, and my experience. I have also reviewed and considered the ’016 patent (Exhibit 1001), its prosecution history (Exhibits 1002 and 1003), and the following additional materials:

Exhibit	**Description**
1005	U.S. Patent Pub. 2002/0197977 A1 to Brooks (“Brooks”)
1006	Hore, “MRMap and SARLOC – Mobile ‘phone Geolocation for Search and Rescue,” Proceedings of the GIS Research UK 20th Annual Conference, pp. 7-10 (April 2012) (“SARLOC”)
1007	U.S. Patent Pub. 2010/0261492 A1 to Salafia et al. (“Salafia”)
1008	U.S. Patent Pub. 2012/0190384 A1 to Marr et al. (“Marr”)
1009	U.S. Patent No. 9,237,431 B2 to Wang et al. (“Wang”)
1010	U.S. Patent Pub. 2010/0093306 A1 to Hwang et al. (“Hwang”)
1011	U.S. Patent Pub. 2012/0149324 A1 to Daly (“Daly”)
1012	March 21, 2025 Declaration of Russel L. Hore
1013	Cover Letter and Library Stamped Copy of *GISRUK 2012: Proceedings of the 20th Annual Conference*
1014	Cover Letter and Library Stamped Copy of *Mountain Rescue*, Issue 36 (April 2011)

1015	Cover Letter and Library Stamped Copy of *Mountain Rescue*, Issue 41 (July 2012)
1016	Cover Letter and Library Stamped Copy of *Mountain Rescue*, Issue 42 (October 2012)

IV. UNDERSTANDING OF THE LAW

25. I am not an attorney but have been instructed in and applied the law as described in this section.

26. I understand that the first step in comparing an asserted claim to the prior art is for the claim to be properly construed. I address how a person of ordinary skill in the art (POSITA) would have understood the claims of the alleged invention in Section VIII below.

27. I have been further instructed and understand that a patent claim is unpatentable and invalid as obvious if the subject matter of the claim as a whole would have been obvious to a POSITA of the claimed subject matter as of the time of the invention at issue. I understand that when assessing the obviousness of claimed subject matter, the following factors are evaluated: (1) the scope and content of the prior art; (2) the difference(s) between each claim of the patent and the prior art; and (3) the level of ordinary skill in the art at the time the patent was filed.

28. I understand that claimed subject matter may be obvious in view of more than one item of prior art. I understand, however, that it is not enough to show simply that all the limitations of the claimed subject matter are spread throughout

the prior art. Instead, for claimed subject matter to be obvious over multiple references, there must be some reason or motivation for a POSITA to combine the prior art references to arrive at the claimed subject matter.

29. I have been informed that, in seeking to determine whether an invention that is a combination of known elements would have been obvious to a POSITA at the time of the invention, one must consider the references in their entirety to ascertain whether the disclosures in those references render the combination obvious to such a person.

30. I have been informed and understand that, while not required, the prior art references themselves may provide a teaching, suggestion, motivation, or reason to combine, but other times the motivation linking two or more prior art references is common sense to a POSITA at the time of the invention.

31. I understand that a particular combination may be proven obvious by showing that it was obvious to try the combination. I have been informed that, if a technique has been used to improve one device, and a POSITA would recognize that it would improve similar devices in the same way, using the technique is obvious unless its actual application is beyond his or her skill.

32. I further understand that an obviousness analysis recognizes that market demand, rather than scientific literature, often drives innovation, and that a motivation to combine references also may be supplied by the direction of the

marketplace. For example, when there is a design need or market pressure to solve a problem and there are a finite number of identified, predictable solutions, a POSITA has good reason to pursue the known options within his or her technical grasp because the result is likely the product not of innovation but of ordinary skill and common sense.

33. I have been informed that the combination of familiar elements according to known methods is likely to be obvious when it does no more than yield predictable results. Thus, where all of the elements of a claim are used in substantially the same manner, in devices in the same field of endeavor, the claim is likely obvious.

34. Additionally, I understand that a patent is likely to be invalid for obviousness if a POSITA can implement a predictable variation or if there existed at the time of the invention a known problem for which there was an obvious solution encompassed by the patent's claims. Therefore, when a work is available in one field of endeavor, design incentives and other market forces can prompt variations of it, either in the same field or a different one.

35. I further understand that combining embodiments related to each other in a single prior art reference would not ordinarily require a leap of inventiveness.

36. I also understand that a POSITA must have had a reasonable expectation of success when combining references for claimed subject matter to be obvious.

37. I have been informed and I understand that factors referred to as "objective indicia of non-obviousness" or "secondary considerations" are also to be considered when assessing obviousness when such evidence is available. I understand that these factors can include: (1) commercial success; (2) long-felt but unresolved needs; (3) copying of the invention by others in the field; (4) initial expressions of disbelief by experts in the field; (5) failure of others to solve the problem the claimed subject matter solved; and (6) unexpected results.

38. I also understand that evidence of objective indicia of non-obviousness must be commensurate in scope with the claimed subject matter. I further understand that there must be a relationship, sometimes referred to as a "nexus," between any such secondary indicia and the claimed invention.

39. Finally, I have been informed that one cannot use hindsight to determine that an invention was obvious.

40. I provide my opinions in this declaration based on the guidelines set forth above.

V. LEVEL OF SKILL IN THE ART

41. I have been informed and understand that the level of ordinary skill in the relevant art at the time of the invention is relevant to inquiries such as the meaning of claim terms, the meaning of disclosures found in the prior art, and the reasons a POSITA may have for combining references.

42. I have been informed and understand that factors that may be considered in determining the level of ordinary skill include: (1) the education of the inventor; (2) the type of problems encountered in the art; (3) prior art solutions to those problems; (4) rapidity with which innovations are made; (5) sophistication of the technology; and (6) education level of active workers in the relevant field. I have been further informed and understand that a person of ordinary skill in the art (POSITA) is also a person of ordinary creativity.

43. In my opinion, a POSITA in the field of the ’016 patent would have had a degree in computer science or computer engineering, along with 2 years of professional experience working with telecommunications systems, or an equivalent level of skill, knowledge, and experience. This POSITA would have been aware of and generally knowledgeable about the standard features and functionality of emergency calling, geolocation, and text messaging systems.

44. Based on my education, training, and professional experience in the field of the claimed invention, as discussed in Section II, I was a person of more than the ordinary level of skill in the art as of August 2013.

45. In forming my opinion, I have drawn on my academic background and professional experience, including experience hiring and managing engineers engaged in development projects applying the technologies and applications described in the ’016 patent. My opinions herein, however, were formed taking into account the perspective of an ordinarily skilled artisan.

VI. THE ’016 PATENT

A. Effective Filing Date

46. I understand that the ’016 patent was filed January 27, 2023 and is a reissue of another, earlier patent: U.S. Patent No. 9,301,117 (which I will refer to herein as the ’117 patent). The ’117 patent was filed on August 21, 2013. I have been instructed to assume that the ’016 patent is entitled to the benefit of this August 2013 date.

47. My opinions in this declaration were formed from the perspective of a POSITA as of August 2013 including both the knowledge of a POSITA at that time as well as how a POSITA would have understood the prior art.

B. Overview

48. The ’016 patent relates generally to a system and method for communication during an emergency. *See* Ex. 1001, Abstract.

49. The patent explains that "[c]onventionally, emergency phone calls are answered by an emergency call center, such as e.g., a public safety answering point (PSAP)." *Id.*, 1:28-30.

50. An "operator" at this call center—"also referred to as dispatchers"—"may gather and/or attempt to gather information" from the caller verbally over the phone, including "the name of the caller," "nature of the emergency," "the location of the emergency" and so on. *Id.*, 1:30-36.

51. In contrast to this type of conventional voice-only system, the '016 patent "provid[es], to emergency operators, communication through textual messages with callers using wireless mobile devices." *Id.*, 1:23-25.

52. According to the patent, the "system may be hosted by and/or implemented on a server." *Id.*, 1:55-56. Communication with the system can be established through various means, including "emergency communication networks, wired telephone networks, wireless telephone networks, cellular networks, the internet, and/or one or more other (communication) networks." *Id.*, 1:62-67.

53. "Users may access the system via landlines, wired telephones, wireless telephones, smartphones, mobile devices" or a variety of other "client devices." *Id.*, 2:9-17. These client devices may be capable of sending and receiving "textual messages" such as SMS or MMS messages, "accessing Internet addresses" or "URL

addresses," and "obtaining geolocation information," such as "global positioning system (GPS) information." *Id.*, 2:17-24, 3:18-37.

54. In operation, incoming calls to the system are received by a "call reception module." *Id.*, 2:46-49.

55. A "presentation module" "present[s] incoming emergency voice calls to emergency operators" and includes a "user interface" with various "user-selectable options" allowing the operator to specify "characteristics that are specific to an emergency call or caller." *Id.*, 4:6-20.

56. An "outgoing message module" generates "outgoing messages for transmission to telephones and/or devices." *Id.*, 6:26-29. Messages can "include helpful information" or "request … the caller to provide information." *Id.*, 6:33-45. Outgoing messages are "transmit[ed]" to calling devices using a "transmission module." *Id.*, 3:63-66.

57. "[A] caller may provide requested information by replying to the outgoing textual message transmitted by the system…." *Id.*, 6:46-48.

58. A "web-hosting module" allows the system to "query devices (including but not limited to wireless mobile devices) for geolocation information." *Id.*, 4:28-35. As part of this, the system can send a "textual message that includes a … URL … link to" a "web resource" stored by the web-hosting module to a "particular wireless mobile device." *Id.*, 4:34-40. When the device accesses the

URL, "[g]eolocation information may be transferred from the particular wireless mobile device to the web resources[.]" Received location information is then "shared" with the other "components of the system" such that it becomes "accessible to emergency operators." *Id.*, 4:37-47.)

C. Prosecution History

59. As noted above, I have reviewed the '016 patent's prosecution history.

60. Again, the '016 patent is a reissue of the '117 patent also mentioned above. *See* Ex. 1001, Cover. Because of this, I will summarize the prosecution of the '117 patent first before moving on to discuss the reissue.

61. During prosecution of the '117 patent, the Examiner rejected the broadest pending claims as anticipated by the same Salafia reference discussed in this declaration. *See* Ex. 1002, 128-134. Other claims were rejected as obvious over Salafia and U.S. Pub. 2010/0220840 A1 ("Ray"), U.S. Pub. 2014/0007158 A1 ("Bhagwat"), or JP 2006/235842 ("Kawai"). *Id.*, 134-141. Some dependent claims—including one requiring a "web-hosting module" that "quer[ies] wireless mobile devices for location information"—were indicated to be allowable and were not rejected. *Id.*, 141.

62. Patent Owner responded to the rejections of the '117 patent's claims by re-writing the allowable claims in independent form. *See id.*, 176-184.

63. This led to allowance. *Id.*, 188. In the accompanying notice of allowance, the Examiner noted that while Salafia teaches a system that allows "emergency operators" to "communicat[e] through textual messages," it somehow lacked the required "outgoing message module configured to generate outgoing textual messages." *Id.*, 194-195. The Examiner also noted that Salafia purportedly also did not "share, responsive to receipt of location information, received location information with the presentation module." *Id.*

64. Patent Owner then sought reissue of the '117 patent on January 27, 2023.

65. According to Patent Owner, reissue was required because the '117 patent was "at least party inoperative or invalid" because it did not include "narrow claims" like "new claim 17" that required "a first interface element and a second interface element." Ex. 1003, 30.

66. The reissue application was accompanied with an Information Disclosure Statement identifying both the references identified during original prosecution and Marr. *See id.*, 39.

67. The Examiner responded to this reissue filing by explaining that, in her view, all the claim limitations requiring a "call reception module," "presentation module," "outgoing message module," and "transmission module" were means-plus-function limitations. *See id.*, 114-122.

68. The Examiner then rejected most of the claims as obvious over Salafia, Ray, and U.S. Pub. 2010/0174560 ("Quan"). *Id.*, 122-134. Other prior art, including U.S. Pub. 2013/0317944 ("Huang"), U.S. Pub. 2012/0289184 ("Wijayanathan"), U.S. Pub. 2011/0086607 ("Wang"), U.S. Pub. 2012/0171983 ("Eitel"), and U.S. Pub. 2013/0315383 ("Lieu") were cited in connection with dependent claims. *Id.* Marr was not cited or discussed.

69. An interview was then conducted between Patent Owner and the Examiner in February 2024. During the interview, Patent Owner and the Examiner "discussed" "Salafia" and "agreed that Salafia does not teach … web resources configured to query wireless mobile devices for location information." *Id.*, 143. Even though I note that Marr teaches this very subject matter (i.e., web resources that query mobile devices for location information) there is no indication that Marr was mentioned by either Patent Owner or the Examiner during the interview. It is not mentioned in the interview summary or in any of the office actions or responses during prosecution.

70. Patent Owner then formally responded to the rejection. Patent Owner began by arguing that the "module" claim limitations "connote structure" and thus are not means-plus-function limitations. *Id.*, 156-169. Patent Owner also explained that the "modules" are "computer program modules that are executed by processors, rather than a generic description for software or hardware." *Id.*, 168-169.

71. Patent Owner then addressed the Examiner's obviousness rejection. According to Patent Owner, Salafia does not teach (1) querying wireless mobile devices for location information, (2) sending outgoing textual messages with URL links to web resources, (3) or sharing received location information with a presentation module. *Id.*, 170-172. Patent Owner also characterized Salafia as limited to querying an "automatic location information (ALI) database to determine location," only employing "email templates" that "instruct[] the caller to provide images of e.g., a location of an incident," and only displaying the location of other phones—not the caller's phone—in the area of the caller. *Id.*, 170-173. Patent Owner then alleged that none of the other references cited by the Examiner—"Quan, Ray, Huang, Wijayanathan, Wang, Eitel, and Lieu"—include any of these teachings purportedly missing from Salafia. *Id.*, 173. Marr was once again not mentioned.

72. After this, the claims were allowed without further rejection. *Id.*, 194-202. In allowing the claims, the Examiner noted that "[t]he prior art of record" did not teach the claimed outgoing text messages with URLs, web-resources that query mobile devices for location information, or sharing received location information with the presentation module (the same limitations identified by Patent Owner as missing from Salafia). *Id.*, 201.

73. As was the case throughout prosecution, the Examiner did not mention Marr or appear to recognize that it teaches a system that allows text messages with

URLs to be forwarded to callers (which in turn directs the caller to web-resources that collect caller location information).

D. Claims

74. For reference, claims 1, 5-9, 13-17, and 25-27 of the ’016 patent are reproduced below. Of these, claims 1 and 9 are independent.

> **1.** A system configured to provide, to emergency operators, communication through textual messages, the system comprising:
>
> one or more processors configured to execute computer program modules, the computer program modules comprising:
>
> a call reception module configured to receive incoming emergency voice calls being placed to an emergency call center through an emergency communications network from wireless mobile devices, the incoming emergency voice calls including a first voice call placed from a first wireless mobile device;
>
> an outgoing message module configured to generate outgoing textual messages for transmission to wireless mobile devices from which incoming emergency voice calls are received such that a first outgoing textual message is generated for

transmission to the first wireless mobile device based on the first voice call;

a transmission module configured to transmit the outgoing textual messages to the wireless mobile devices through a second communications network that is different than the emergency communications network such that the first outgoing textual message is transmitted to the first wireless mobile device through the second communications network;

a presentation module configured to present incoming emergency voice calls to emergency operators through a user interface, wherein the user interface includes a set of user-selectable options, and wherein the presentation module is further configured to receive user input from emergency operators to select one or more of the set of user-selectable options; and

a web-hosting module configured to host web resources configured to:

(i) query wireless mobile devices for location information; and

(ii) share, responsive to receipt of location information, received location information with the presentation module;

wherein the first outgoing textual message includes a uniform resource locator (URL) link to the web resources; and

wherein the presentation module is further configured to present shared queried location information to emergency operators through the user interface.

5. The system of claim **1**, wherein the outgoing textual messages include one or both of short message service (SMS) messages and/or multimedia messaging service (MMS) messages.

6. The system of claim **1**, wherein the transmission module is further configured to receive textual messages from wireless mobile devices through the second communications network.

7. The system of claim **6**, wherein the presentation module is further configured to present received textual messages through the user interface.

8. The system of claim **1**, wherein the web resources is configured to query wireless mobile devices for location information through an application programming interface (API) function that accesses one or both of global positioning system (GPS) information and/or geolocation information.

9. A computer-implemented method for providing, to emergency operators, communication through textual messages, the method being performed by one or more processors, the method comprising:

receiving incoming emergency voice calls being placed to an emergency call center through an emergency communications network from wireless mobile devices, the incoming emergency voice calls including a first voice call from a first wireless mobile device;

generating outgoing textual messages for transmission to wireless mobile devices from which incoming emergency voice calls are received such that a first outgoing textual message is generated for transmission to the first wireless mobile device based on the first voice call;

transmitting the outgoing textual messages to the wireless mobile devices through a second communications network that is different than the emergency communications network such that the first outgoing textual message is transmitted to the first wireless mobile device through the second communications network, wherein the first outgoing textual message includes a link to web resources;

presenting incoming emergency voice calls to emergency operators through a user interface, wherein the user interface includes a set of user-selectable options;

receiving user input from emergency operators to select one or more of the set of user-selectable options; querying, through the web resources, wireless mobile devices for location information;

sharing, responsive to receipt of location information, received location information with the user interface;

and presenting shared queried location information to emergency operators through the user interface.

13. The method of claim **9**, wherein the outgoing textual messages include one or both of short message service (SMS) messages and/or multimedia messaging service (MMS) messages.

14. The method of claim **9**, wherein querying wireless mobile devices for location information includes accessing, through an application programming interface (API) function, one or both of global positioning system (GPS) information and/or geolocation information.

15. The method of claim **9**, further comprising:

receiving textual messages from wireless mobile devices through the second communications network.

16. The method of claim **15**, further comprising:

present received textual messages through the user interface.

17. The system of claim **1**, wherein the user interface includes a first interface element and a second interface element, and the presentation module is configured to display the set of user-selectable options via the first interface element and to display another set of user-selectable options via the second interface element, and wherein the another set of user selectable options displayed via the second interface element changes depending on selection made to the set of user-selectable options.

25. The system of claim **1**, wherein the presentation module is further configured to present, with respect to the first voice call, historical emergency information that is associated with one or more previous emergency voice calls.

26. The system of claim **25**, wherein the one or more previous emergency voice calls are related to the first

voice call in view of at least one of a calling device, a caller, or a calling location.

27. The system of claim **25**, wherein the presentation module is further configured to present information from one or more emergency responders to at least one of the one or more previous emergency voice calls and the first voice call.

VII. CLAIM CONSTRUCTION

75. I am not a legal expert or an attorney and offer no opinions on the law. I understand that claim construction is a matter of law. However, I have been informed by counsel of the legal standards that apply to claim construction in an *inter partes* review, and I have applied them in forming my opinions. I understand that during an *inter partes* review, the same claim construction standard used in federal district court is applied when addressing the meaning of claim terms.

76. I have been informed that the words of a claim are generally given the ordinary and customary meaning that the term or phrase would have to POSITA at the time of the invention in view of the surrounding claim language, the specification and the file history (collectively, the "intrinsic evidence" or "intrinsic record").

77. I also understand that courts may consider extrinsic evidence, such as expert and inventor testimony, dictionaries, and learned treatises (collectively, the

"extrinsic evidence" or the "extrinsic record"), but that such extrinsic evidence should be given less weight than the intrinsic evidence.

78. As noted above, Patent Owner represented during reissue that the '016 patent claim limitations requiring a "call reception module," "presentation module," "outgoing message module," and "transmission module" are not means-plus-function limitations and instead require only "computer program modules that are executed by processors, rather than a generic description for software or hardware." I have been asked to accept this understanding of the claims in this declaration.

79. In my opinion, in view of Patent Owner's representation, the terms of the '016 patent's claims do not require further construction and can be afforded their plain and ordinary meaning for purposes of the analysis of the prior art that I am conducting in this declaration.

VIII. UNPATENTABILITY ANALYSIS

80. For the reasons I explain in greater detail below, it is my opinion that as of the effective filing date of the '016 patent, a POSITA would have considered claims 1, 5-9, 13-17, and 25-27 of the '016 patent to be unpatentable as obvious over the prior art discussed in this declaration.

A. Overview of the Prior Art

81. The following paragraphs provide an overview of the main prior art references I discuss throughout this declaration.

1. Brooks

82. Brooks (Ex. 1005) indicated on its face that it issued December 26, 2002. Brooks, Cover. In view of this date of issuance, which pre-dates the '016 patent's August 2013 filing, I understand that Brooks is prior art under AIA § 102(a)(1).

83. Brooks teaches an "enhanced emergency call system." *Id.*, ¶ [0005].

84. The system allows an "emergency dispatcher" to "capture and control" an incoming call from a mobile device like a cellular phone, and "also use messaging services to communicate with the caller." *Id.*

85. Brooks explains that its system allows the dispatcher to send the caller "questions" via text message, or "query the user to pinpoint the location of the user for rescue purposes." *Id.*, ¶¶ [0021]-[0023].

86. In Brooks, mobile device location can be "accomplished" via "global positioning." *Id.*, ¶ [0023].

87. Figure 3 provides an overview of the call process performed by Brooks. Voice calls are received and captured by Brooks' system at steps 310 and 315. Then, communication via text message occurs with the caller at step 325:

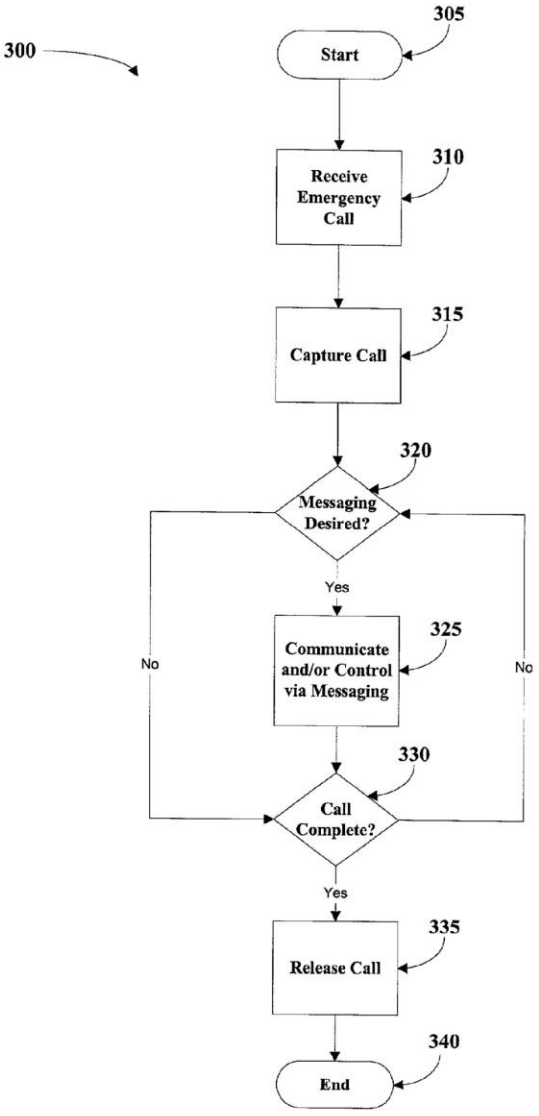


Figure 3

Id., Fig. 3

2. SARLOC

88. SARLOC (Ex. 1006) is an article authored by Russell L. Hore for the GISRUK (or "Geographical Information Science Research UK") 2012 conference. *See* Ex. 1012, ¶¶ 7-8.

89. I understand from a declaration signed by Mr. Hore that the GISRUK 2012 conference occurred from April 11-13, 2012 at Lancaster University. *Id.*, ¶ 13.

90. Mr. Hore's declaration provides information about the conference and publication of the SARLOC article. In particular, per Mr. Hore, the conference was attended by researchers and industry players in the spatial analytics and geographic data science fields. *Id.*, ¶¶ 9-11. In my opinion, Mr. Hore is referencing typical POSITAs in the technical field of the '016 patent.

91. Mr. Hore also explained that the SARLOC article was included in the complete GISRUK 2012 conference proceedings publication, which was made available for download on multiple websites immediately following the conference. *Id.*, ¶¶ 14-15.

92. Mr. Hore notes that he personally attended the conference where he showcased the work discussed in the SARLOC article, personally talking with about 40-50 conference attendees. *See id.*, ¶¶ 16-17.

93. In addition to the conference, the GISRUK 2012 conference proceedings—including the SARLOC article it contains—was indexed and available at a library by no later than May 2012. *See* Ex. 1013.

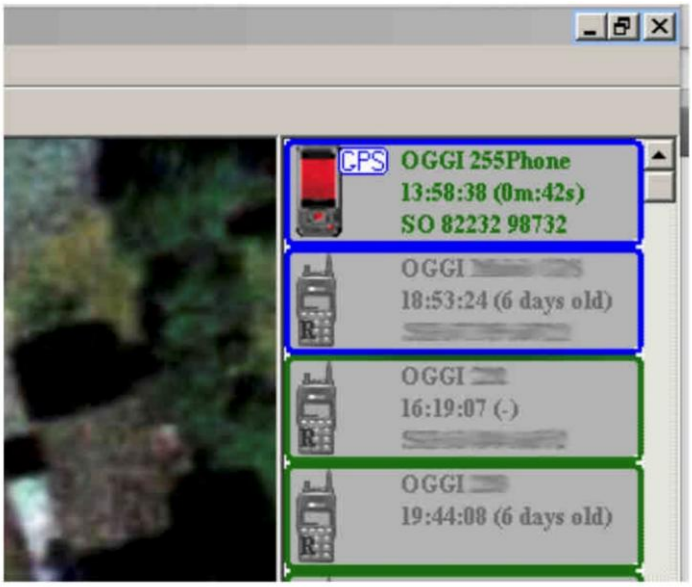
94. In view of the above, the SARLOC article was published both in April 2012 (at the conference and on the web) and May 2012 (in a library). Both of these

dates pre-date the ’016 patent’s filing in August 2013, making SARLOC prior art under § 102(a)(1).

95. The SARLOC article discusses a “system that can be used to locate ‘lost’ people using the geo-location API of the web browser on many ‘smartphones’ without having to install any software.” SARLOC at 7.

96. In operation, when rescue personnel receive “calls for assistance,” the caller is “sent” an “SMS message” with a “URL.” *Id.* at 8. The URL directs the caller’s phone to a “web page” that then “uses both PHP and JavaScript to request the ‘phones location….” *Id.* This in turn causes the “API of the phone’s web browser to obtain its location.” *Id.*

97. Obtained location information is “pass[ed] to a web database which can then be interrogated by” the rescue personnel who received the call. *Id.* Obtained phone location information can be displayed graphically in a user-interface on a map:



Id

3. Salafia

98. Salafia (Ex. 1007) indicates on its face that it published October 14, 2010. (*See* Ex. 1006, Cover.) In view of this date of publication, which pre-dates the '016 patent's August 2013 filing, I understand that Salafia is prior art under AIA § 102(a)(1).

99. Salafia relates to a system for "call handling" during "either emergency or non-emergency related situations." *Id.*, ¶ [0002].

100. According to Salafia, in conventional systems a "caller will dial 911" and "be connected to a local Public Safety Answering Point (PSAP)." *Id.*, ¶ [0004]. At Salafia's PSAP, like all such systems in use at the time, a call handler will talk with the caller to gather needed information. *Id.* Per Salafia, the call handler also

receives some "textual information" such as "automatic location information (ALI)" provided from a "landline system." *Id.*, ¶ [0005]. But "the call handler may" still "need to" verbally "verify the location of the caller." *Id.*

101. To address this, and better facilitate communication and caller location, Salafia's system allows a "call center" to send an "MMS" (or other electronic text message) from "the call center" to a calling "communication device." *Id.*, ¶ [0007].

102. The caller can respond to the text message by providing, for example, "visual information … regarding the exact location of the caller." *Id.*, ¶ [0011].

103. Salafia explains that this system is not limited to just requesting location images. In particular, the call handler can employ the system to "send information to the caller," including "instructions on how to handle a particular situation or perform a particular task, images, forms, or Uniform Resource Locators (URLs)." *Id.*, ¶ [0011].

104. Figure 2 provides an overview of Salafia's system. Callers 102 contact PSAP 212 via a cellular network 222 and public switched telephone network 224. *Id.*, ¶¶ [0054]-[0061].

105. A call handler workstation 202 at the PSAP receives and manages incoming calls, and provides the call handler with an interface to generate electronic messages to be sent to the caller (and view the responses to those messages). *Id*, ¶ [0059].

106. An electronic message processing module 228 (with associated outgoing and incoming message processors 214 and 216) handles the transfer of outgoing messages to and the receipt of responsive messages from callers 102 through the Internet 226. *Id.*, ¶ [0062].

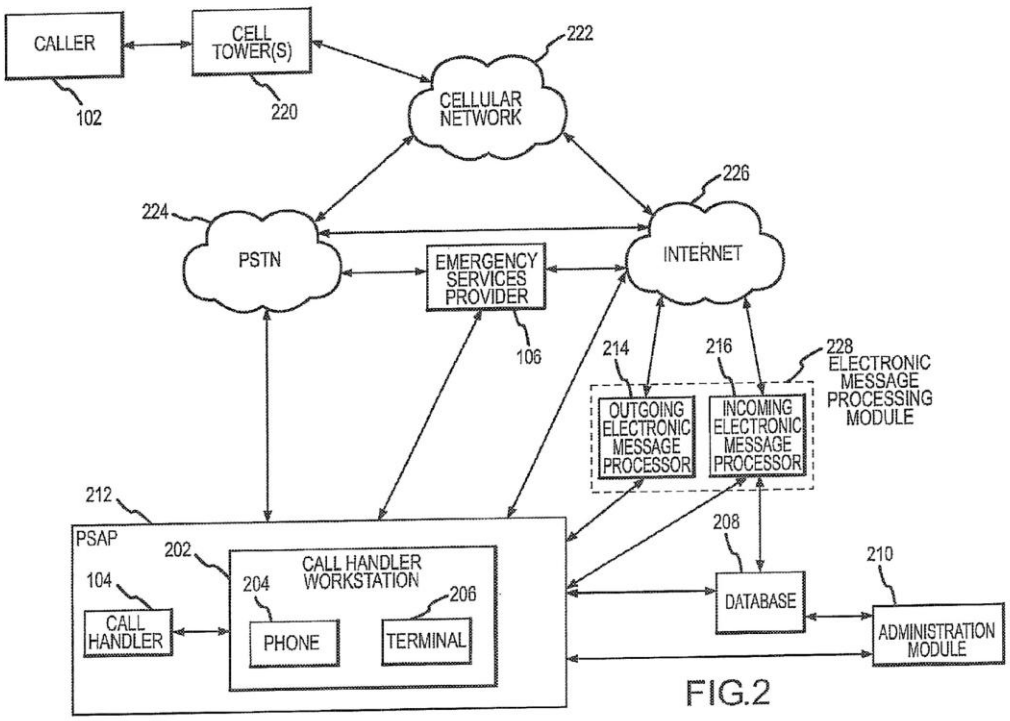


FIG.2

Id., Fig. 2.

107. As shown in Figure 5, the call handler interacts with the system via a "call display window 500" (shown on the display of the hander's workstation) that displays information about the current call and provides the handler with various user-input options relating to call receipt and management, information viewing, and message generation:

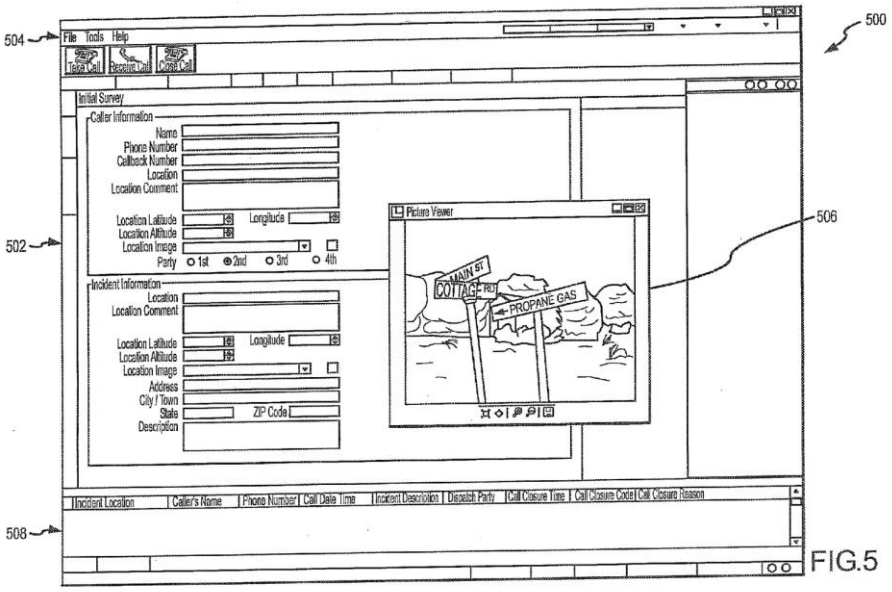


FIG.5

Id., Fig. 5; *see also id.*, ¶¶ [0078]-[0079]

4. Marr

108. Marr (Ex. 1008) indicates on its face that it published July 26, 2012. Marr, Cover. In view of this date of publication, which pre-dates the '016 patent's August 2013 filing, I understand that Marr is prior art under AIA § 102(a)(1).

109. Marr relates to a "method and apparatus to manage service request[s]" (such as for roadside vehicle assistance) that "use[s] … a smart phone's ability to communicate GPS information over the internet." *Id.*, Abstract.

110. According to Marr, "conventional" service systems employ a "phone-in process" that "relies heavily on the knowledge" of the caller who is "expected to provide … detailed knowledge of his location" verbally via a telephone call. *Id.*, ¶ [0005]. "[I]n practice," however, the caller "may not have" this required "location" knowledge. *Id.*, ¶ [0006].

111. To account for this, in one of Marr's embodiments "where a customer initiates a service request by phone," the call "dispatcher" can "provide a URL" to the customer via "SMS or other text message." *Id.*, ¶¶ [0037]-[0038]. The URL directs the customer's phone to a "web server" that hosts a "website" that "request[s] GPS data from the client device." *Id.*, ¶ [0040].

112. The obtained "GPS location" data can then be provided to the dispatcher "while the customer is" still "on the phone with the dispatcher." *Id.*, ¶ [0037].

B. *Ground 1*: Obviousness Over Brooks and SARLOC

113. In my opinion, a POSITA would have considered Brooks and SARLOC to be within the scope of the prior art and highly relevant to the patentability of the '016 patent's claims. Both relate generally to systems for facilitating communication during an emergency. Both employ text messaging to obtain information about a caller.

114. In my opinion, moreover, when viewed and considered in light of the knowledge possessed by a POSITA, Brooks and SARLOC together disclose all the limitations of and renders claims 1, 5-9, and 13-16 of the '016 patent obvious.

1. Claim-By-Claim Analysis

a. Claims 1 and 9

115. In my opinion, claims 1 and 9 embrace the same subject matter. Because of this, I will analyze them together.

116. I have used to following formatting conventions when identifying the claim language at issue. First, language that is present in only claim 1 is underlined. Second, language that is present only in claim 9 is [bracketed]. Claim language that is neither underlined nor bracketed is shared by both claims.

[1-p] "1. A system configured to provide, to emergency operators, communication through textual messages, the system comprising:"

[9-p] "[9. A computer-implemented method for providing, to emergency operators, communication through textual messages, the method being performed by]"

117. To the extent this preamble language is limiting, it is taught by both Brooks and SARLOC. Brooks relates to a system for providing "enhanced control and standardized messaging during emergency calls." Brooks, ¶ [0001].

118. The system allows an "emergency dispatcher" to first "capture and control the call." *Id.*, ¶ [0005]. After capturing the call, Brooks provides that the "dispatcher may … use messaging services to communicate with the caller" for various purposes. *Id.*

119. SARLOC similarly relates to a system intended to allow emergency personnel—in particular "Search and Rescue Teams"—to send text messages to lost persons in need of assistance (for purposes of determining the lost person's location). SARLOC at 7. The system employs "SMS message[s]" to communicate. *See id.* at 8; *see also*

[1-1]/[9-1] "one or more processors configured to execute computer program modules, <u>the computer program modules</u> [the method] comprising:"

120. A POSITA would have understood that Brooks and SARLOC obviously employ the claimed ***"one or more processors"*** that ***"execute computer program modules."***

121. Again, as I explain above, Brooks teaches an "enhanced emergency call system" that allows an "emergency dispatcher to capture and control the call." Brooks, ¶ [0005]. According to Brooks, this emergency call system is implemented as a "system 100" performing a "process 300." *Id.*, ¶ [0018].

122. This process allows an "emergency dispatcher" operating the system to "capture" calls, "activate any messaging features," "conduct a variety of communications or controls via messaging," "communicate with the mobile station," "determine" information about the caller, or "terminate the connection" with the caller. *Id.*, ¶¶ [0018]-[0025].

123. While Brooks does not explicitly state that these functions are performed by a ***"processor"*** running ***"computer program modules,"*** in my opinion a POSITA would plainly have understood that this is what Brooks intended (or at the very least, would have understood that doing so would be obvious).

124. At the time the '016 patent was filed, emergency call systems—like all computer systems—were routinely effectuated by processors running computer programs. *See, e.g.,* Ex 1006, ¶¶ [0010] (discussing "emergency call handling

system" that includes a "processor module"); Ex. 1009, 5:17-27 (referencing a "platform 200" for providing "emergency services" that includes "one or more controllers (or processors) 203 for effectuating … features and functionality" of the system); Ex. 1010, ¶¶ [0002], [0046], Fig. 1 (noting that an "[e]mergency service communication system" may include a "Public Safety Answering Point (PSAP)" with a computer "station 26"); Ex. 1011, ¶¶ [0002]-[0003], Fig. 1 (referencing a "public safety answering point (PSAP)" in the form of a computer).

125. Brooks' system is no different: its system would be understood to employ, or at the very least obviously employs, a computer with a processor to perform various functions including call control, call management, user input collection, text message generation and display, and information retrieval. Indeed, a POSITA would have understood that all PSAP systems (which again is what Brooks would be understood to teach), allow dispatchers to receive and manage calls, view information, and communicate with the caller, via a computer workstation that includes processors and is running software. Brooks would have been no exception.

[1-2]/[9-2] "<u>a call reception module configured to receive</u> [receiving] incoming emergency voice calls being placed to an emergency call center through an emergency communications network from wireless mobile devices, the incoming emergency voice calls including a first voice call placed from a first wireless mobile device;"

126. This is disclosed by Brooks. According to Brooks, a "wireless communication system 100" allows "mobile stations 106"—like "cellular telephone[s]" carried "by a pedestrian"—to transmit and receive data over a cellular network. Brooks, ¶¶ [0011], [0015].

127. Brooks also explains that "cellular radiotelephone" may be used "in the case of an emergency." *Id.*, ¶ [0002].

128. The cellular telephone (also referred to in Brooks as a mobile station) that initiates a call to Brooks' system is the claimed ***"wireless mobile device."***

129. The wireless cellular network over which the cellular telephone communicates with Brooks' system is the claimed "***emergency communications network."***

130. Next, Brooks explains that its "communication system 100" is able to "receive[] an emergency call from the network." Brooks, ¶ [0018].

131. Per Brooks, "[a]n emergency call may be initiated by user on a mobile station 106 dialing 911 or any other designated emergency number." *Id.* Then, "[t]he network recognizes the emergency number and identifies the call as an emergency call." *Id.*

132. An "emergency dispatcher" in the "communication system 100" then "capture[s] the emergency call" so that communication with the caller can proceed. *Id.*, ¶ [0019]. This call may entail "voice communications." *Id.*, ¶ [0020].

133. The component of Brooks' system that receives—and then captures—an emergency call from a cellular telephone is the claimed ***"call reception module"*** that ***"receive incoming emergency voice calls."***

134. Again, as noted above, a POSITA would have considered it obvious that these components would include processors running software. *See supra* discussion of limitation [1-1].

135. The facility where Brooks' emergency dispatcher is located is the claimed ***"emergency call center."*** Again, as I have explained, a POSITA would have understood that this dispatcher would have been located at (or at the very least would have obviously been at) a traditional PSAP. The dispatcher would also receive and manage the incoming call using this standard PSAP workstation in Brooks.

136. Figure 3 below shows the process step carried out by this ***"call reception module"***:

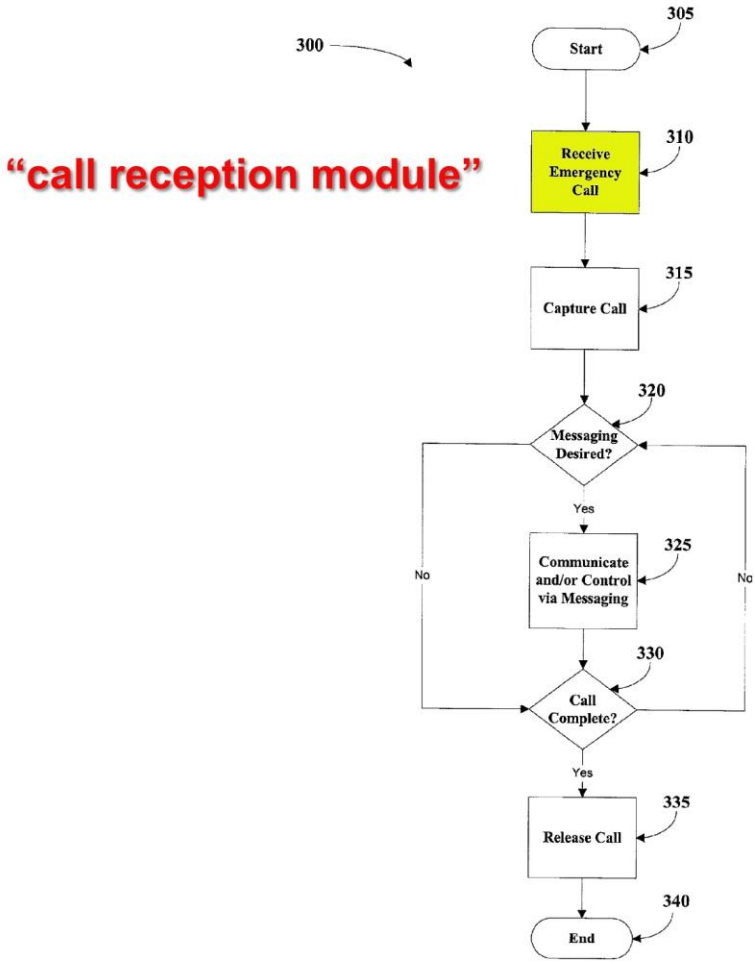


Figure 3

Id., Fig. 3 (annotated).

[1-3]/[9-3] "<u>an outgoing message module configured to generate</u> [generating] outgoing textual messages for transmission to wireless mobile devices from which incoming emergency voice calls are received such that a first outgoing textual message is generated for transmission to the first wireless mobile device based on the first voice call;"

137. This is taught by Brooks. According to Brooks, its system allows an emergency "dispatcher" to "use messaging service to communicate with" an incoming emergency "caller." Brooks, ¶ [0005].

138. Messaging occurs via "SMS or DTMF messages" and "may be activated by … the dispatcher." *Id.*, ¶ [0020].

139. According to Brooks, "[t]he dispatcher may conduct a variety of communications or controls via messaging." *Id.*, ¶ [0021]. For instance, "the dispatcher may transmit a message causing the mobile station 106 to alert the user," "communicate with the mobile station 106," or "query the user to pinpoint the location of the user." *Id.*, ¶¶ [0021]-[0023]. Brooks explains that transmitted text messages can include "questions (such as yes/no or multiple choice) that can be answered by pressing buttons on a keypad," "request[] the nature of the emergency, and whether it is safe for the user to make noise," or "obtain information such as 'Is there a burglar in the house now?' without requiring the caller to speak and reveal a hiding place." *Id.*, ¶ [0022].

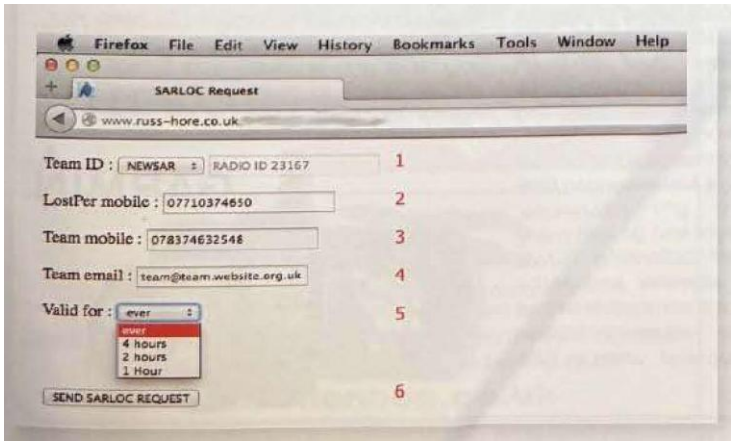
140. The component of Brooks' system that allows the dispatcher to generate these various different text messages to send to mobile devices is the claimed ***"outgoing message module."***

141. As explained, this component generates—at the dispatcher's instruction—a variety of different messages requesting information from the emergency caller.

142. A POSITA would have recognized (or at least found it obvious) that the component would include a processor running software (for instance, the

dispatcher would employ software running on a computer or workstation to generate text messages). *See supra* discussion of limitation [1-1].

143. Other prior art—including magazine articles discussing SARLOC—provide an example of how a POSITA would have understood this to occur in the industry. In particular, an "interface" running on the dispatcher's/emergency responder's computer allows the dispatcher/responder to input various information (like an identification number, the target cell phone, return contact information, and message validity time). *See* Ex. 1016 at 59. After clicking a "SEND SARLOC REQUEST" button, the interface then works behind-the-scenes to generate a message employing the inputted information and send it to the caller. *See id* ("When the button is clicked, SARLOC will send the SMS to the LostPer, updates MRMap and optionally sends the details back via SMS/email"). This is shown below



Id. A POSITA would have understood Brooks to work this way: Brooks' system would include an interface that allows for text message generation, and a behind-the-scenes component (just like that discussed in the SARLOC article) that translates

the dispatcher's interface selections into the appropriate text message to send to a caller. Again, this component of Brooks' system is the claimed ***"outgoing message module."***

144. Next, the messages generated by Brooks are the claimed ***"outgoing textual messages"*** that are ***"generated for transmission to the first wireless mobile device."***

145. Because text messages are generated only after Brooks' system "activate[s]" "[m]essaging" in connection with a particular incoming emergency call (*id.*, ¶ [0020]; Fig. 3), the messages are ***"based on the first voice call."*** Brooks' ***"outgoing message module"*** (which again would be structured and operate in the way I discuss in more detail above) is shown in Figure 3 below:

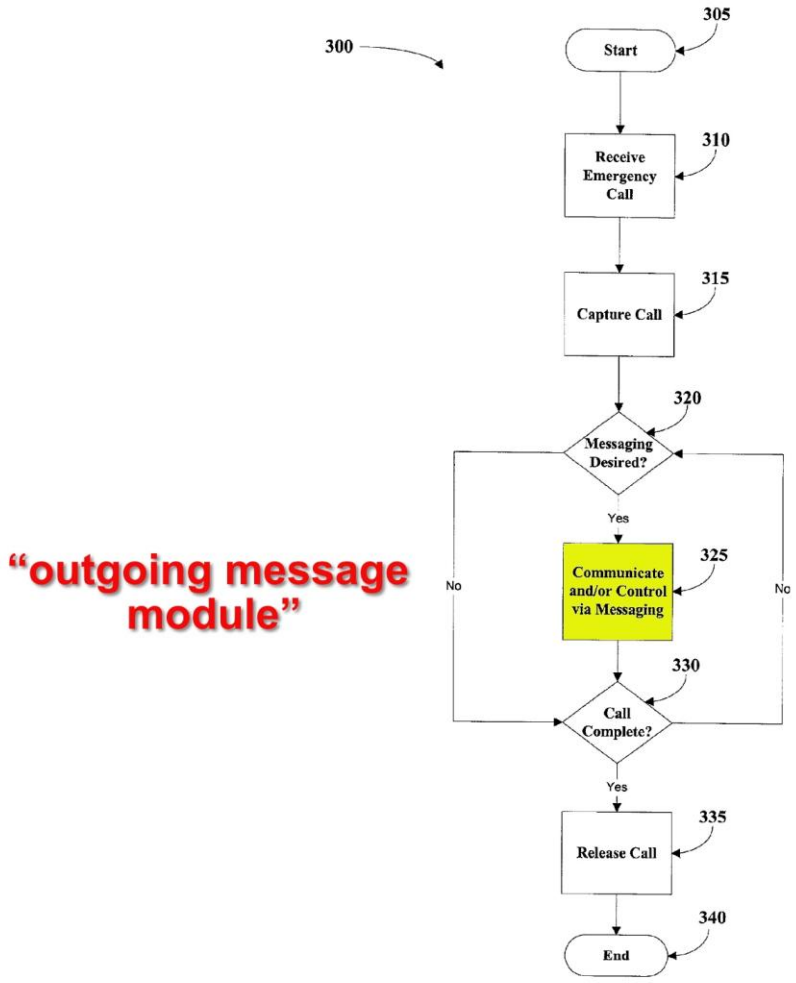


Figure 3

Id., Fig. 3 (annotated).

[1-4]/[9-4] "<u>a transmission module configured to transmit</u> [transmitting] the outgoing textual messages to the appropriate wireless mobile devices through a second communications network that is different than the emergency communications network such that the first outgoing textual message is transmitted to the first wireless mobile device through the second communications network; [wherein the first outgoing textual message includes a link to web resources;]"

146. This is taught by Brooks. Brooks explains that an "application residing on a mobile network element, such as a message center" handles the transfer of

"SMS (short message service)" messages directed to calling mobile devices. Brooks, ¶ [0004].

147. This message center facilitating the transfer of SMS message to mobile devices (like cellular telephones) is the claimed ***"transmission module."***

148. Next, Brooks' system allows for communications over at least two different types of networks: a traditional cellular network and the "Internet." *Id.*, ¶ [0011]. Brooks explains that use of these two networks allows for mobile devices to both engage in "voice communications" or transmit/receive "SMS … messages. *Id.*, ¶ [0020]; *see also id.*, ¶ [0014] (similarly referencing both "voice" and "data" communications).

149. Voice communications involve the use of "cell 108" managed by a "base station 104." *Id.*, ¶ [0011]. SMS messages are transmitted using different network infrastructure, including that including the "message center." *Id.*, ¶ [0004]. This would include, for instance, "ISP 110," which "provides an interface" between the various components of the system and "the world wide web, or Internet." *Id.*, ¶ [0011]

150. Relatedly, Brooks explains that "[o]ne technique used by the mobile station 106 to interface with the wireless communication system is the Wireless Application Protocol (WAP)." *Id.*, ¶ [0012]. This allows messages to be transmitted to a mobile device in the form of "multiple WEB pages…." *Id.* "The use of WAP

along with SMS provides one technique for communication of short messages to the mobile station 106." *Id.*

151. Given all this, a POSITA would have understood that Brooks transmits ***"textual messages"*** to mobile devices ***"through a second communication network that is different than the emergency communications network."*** Again, Brooks' ***"emergency communications network"*** is the traditional cellular network with cells and network hubs that allows for voice communication. Its ***"second communication network"*** is the additional, different network infrastructure, such as the Internet and a message center, that allows for the transmission of textual messages in the form of web pages or SMS messages.

152. The prior art's teaching of the final requirement added to this limit by claim 9—"***wherein the first outgoing textual message includes a link to web resources"***—is discussed below when addressing limit [1-6].

[1-5]/[9-5] "a presentation module configured to present [presenting] incoming emergency voice calls to emergency operators through a user interface, wherein the user interface includes a set of user-selectable options, and wherein the presentation module is further configured to receive [receiving] user input from emergency operators to select one or more of the set of user-selectable options; and [querying, through the web resources, wireless mobile devices for location information;]"

153. This, in my opinion is disclosed by (or at the very least obvious in view of) Brooks. Brooks explains that its "communication system 100" is managed by an "emergency dispatcher." Brooks, ¶ [0019].

154. The system allows the dispatcher to perform various functions, including "captur[ing] the emergency call," "activat[ing]" "[m]essaging," and "conduct[ing] a variety of communications or controls via messaging." *Id.*, ¶¶ [0019]-[0021].

155. The dispatcher is also able to control when the call is "release[ed]" such that the "mobile station 106" can "terminate the connection." *Id.*, ¶ [0025].

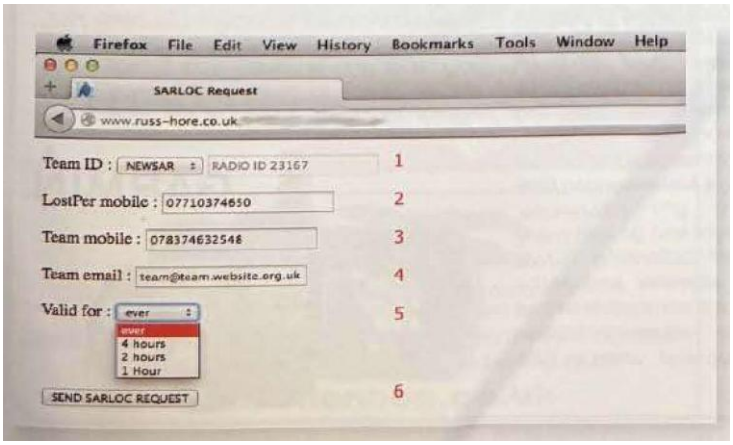
156. While Brooks does not state that this functionality is accomplished via a ***"presentation module"*** with a ***"user interface"*** that presents "***a set of user-selectable options"*** and ***"receive[s] user input,"*** a POSITA would nonetheless have understood that this is what Brooks employs (or at least it would be obvious to do so).

157. Brooks' system allows an emergency dispatcher to receive an emergency call, activate text messaging in connection with that call, and then both send text messages to and receive text messages from the caller.

158. Various different text message options are available to the dispatcher, including commands and different types of information queries. And, the dispatcher can select when to terminate the call.

159. A POSITA would have understood that these various call management options—along with the caller's responses—would be presented to the dispatcher via a user interface display.

160. This would include, for example, call management software with an interface running on a computer. The dispatcher would select between the various available options made available by this software—such as initiating messaging, sending particular messages, or terminating the call—as the call (and then messaging) proceeds. The same exemplary interface I discuss above provides an example of how a POSITA would have understood Brooks to be configured (and to operate):



Ex. 1016 at 59. As shown, the dispatcher is provided with an "interface" window with various selectable options and a button to generate (and then send) text messages. This is how a POSITA would have understood Brooks' "presentation module" to be configured. The dispatcher would interact with and provide inputs to an interface—selecting various selectable options from pull-down menus and entering text in fillable fields—to generate and then send the desired text message. Moreover, as discussed further below the interface would also display any responses received from the caller.

161. The prior art's teaching of the final requirement added to this limit by claim 9—***"querying, through the web resources, wireless mobile devices for location information"***—is discussed below when addressing limit [1-6].

[1-6] "a web-hosting module configured to host web resources configured to: (i) query wireless mobile devices for location information; and (ii) share, responsive to receipt of location information, received location information with the presentation module;"

162. In my opinion this is obvious in view of Brooks and SARLOC. According to Brooks, "[t]he dispatcher may … use the messaging system to query the user to pinpoint the location of the user for rescue purpose[s]." Brooks, ¶ [0023].

163. Brooks goes on to explain that "[d]etermination of the position of a mobile station may be accomplished in a variety of manners known in the art, such as global positioning…." *Id.*

164. The location information can then be "used by fire, police, or other rescue personnel to aid the caller." *Id.* So, as can be seen, and just as this limitation requires, Brooks ***"quer[ies] wireless mobile devices for location information."*** The system is able to send text messages asking for user location, including the user's GPS location.

165. In my opinion, a POSITA would have recognized that SARLOC exemplifies how an emergency call system like that taught in Brooks would have employed text messaging to determine a caller's location.

166. SARLOC explains that emergency services "often receive calls for assistance from people … who have mobile 'phone contact but little if any navigation equipment i.e. map, compass, GPS…." SARLOC at 8.

167. To locate such a caller, an "SMS message" with a "URL … is sent" to the caller. *Id.*

168. The caller then "browse[s] to the SARLOC web page" referenced by the URL, where "PHP and JavaScript" are used to "request the 'phones location." *Id.*

169. This in turn triggers "the geo-location API of the 'phone's web browser to obtain its location." *Id.*; *see also id.* at 7 (similarly noting that "the geo-location API of" a smart phone "web browser" collects location information).

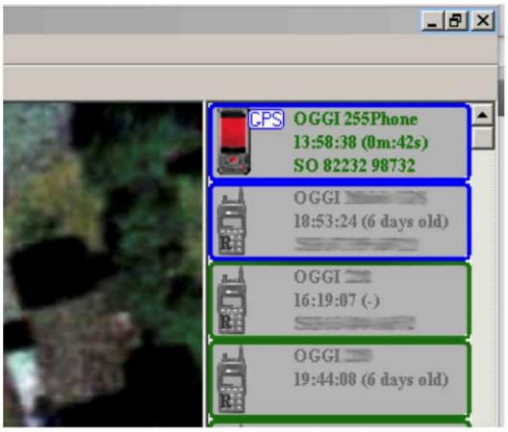
170. Once obtained, the location information is "pass[ed] … to a web based database" (via, for instance an "Ajax call to update the online database") "which can then be interrogated by" rescue personnel. *Id.* at 8. As a result, the "users location can then be retrieved from a web page showing the tabular data…." *Id.*

171. An example of stored location data is shown below:

OS Ref.	LAT	LON	ACC	ALT	ALT_ACC	HEADING	SPEED	TAG	TIMESTAMP
SN604812	52.41020	-4.05274	24	119	0	0	0	Cas 1	2012-02-09 14:23:40
NY055852	55.15221	-3.48317	48	122	0	0	0	Cas 2	2012-02-06 21:13:27
TQ280046	50.82581	-0.18174	88	11	18	0	0	Cas 3	2012-02-06 20:27:11

Id.

172. Additionally, gathered location information is also displayed in a user interface along with a map:



Id.

173. In my opinion, this teaches the remainder of this claim limitation. In particular, SARLOC teaches ***"a web-hosting module configured to host web resources"***: a web page stores code—such as PHP and JavaScript—intended to collect phone location. PHP and JavaScript are both well-known examples of web resources that are hosted on web servers for purposes of providing web site functionality.

174. Next, this web-hosting module ***"queries wireless mobile devices for location information"***: GPS location information is extracted from a phone (as triggered by the hosted web resources) that browses to the SARLOC web site.

175. Finally, SARLOC teaches a system that ***"share[s], responsive to receipt of location information, received location information with the presentation module"***: an Ajax call is used to update an online database with

obtained position information and make it available to a call dispatcher. This in turn causes the phone's location to be displayed to the call dispatcher in a mapping application. A POSITA would have similarly understood that this information is displayed to Brooks' dispatcher. This is what Brooks means when it says its system "pinpoint[s] the location of the user" and collects information that can be "used" by rescue personnel. Brooks, ¶ [0023].

[1-7] "wherein the first outgoing textual message includes a uniform resource locator (URL) link to the web resources; and;"

176. This is taught by SARLOC. Upon receipt of an emergency call, an "SMS message" with a "URL … is sent" to the user making the call. SARLOC at 8. The URL directs the user's phone to "the SARLOC web page" which includes "PHP and JavaScript" that determines the phone's location. *Id.*

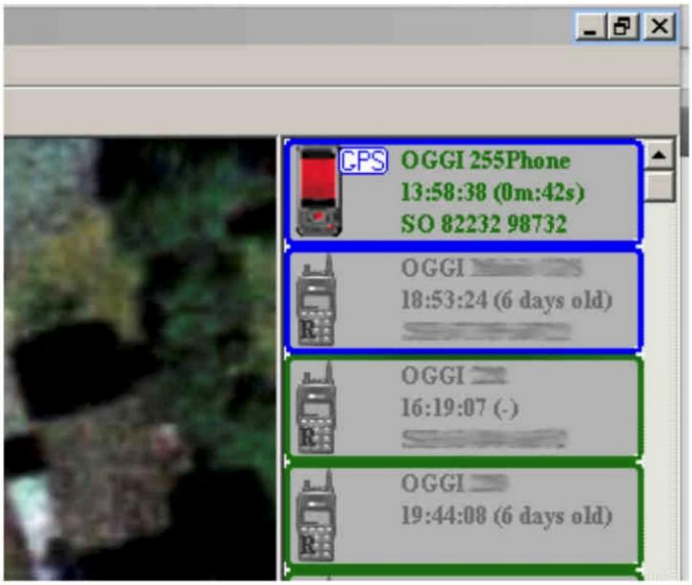
[1-8] "wherein the presentation module is further configured to present shared queried location information to emergency operators through the user interface."

[9-6] "[sharing, responsive to receipt of location information, received location information with the presentation module user interface; and presenting] shared queried location information to emergency operators through the user interface."

177. This, in my opinion, is taught by Brooks and SARLOC. Again, Brooks employs a "messaging system to query the user to pinpoint the location of the user for rescue purpose[s]." Brooks, ¶ [0023].

178. Obtained position information can then be "used by fire, police, or other rescue personnel to aid the caller." *Id.*

179. SARLOC provides an example of how this occurs. After location information is collected from a user's phone, an "online database" is updated. SARLOC at 8. This in turn allows the location to be graphically displayed to rescue personnel in a user interface along with a map:



Id.

180. A POSITA would have understood that Brooks displays (or at the very least would obviously display) collected location information in the same way: the user's location information that is obtained via use of the linked web resources (and relayed back to Brooks' system for use by rescue personnel) would be displayed to the emergency dispatcher in Brooks' interface along with a map.

b. Claims 5 and 13

181. Claims 5 and 13 respectively depend on claims 1 and 9. Both further require:

"wherein the outgoing textual messages include one or both of short message service (SMS) messages and/or multimedia messaging service (MMS) messages."

182. This is disclosed by Brooks and SARLOC. Brooks explains that its system can employ "SMS" messages to query a user. Brooks, ¶¶ [0012], [0020]. SARLOC similarly communicates via "SMS message." SARLOC at 8; *see also*

c. Claims 6 and 15

183. Claims 6 and 15 respectively depend on claims 1 and 9. Both further require:

"wherein the transmission module is further configured to receive [receiving] textual messages from wireless mobile devices through the second communications network."

184. This is taught by Brooks. According to Brooks, its system includes an "application residing on a … message center" that is responsible for transferring SMS messages to and from "mobile devices." Brooks, ¶ [0004].

185. As explained in connection with claim 1, this would obviously entail transmissions occurring over networks like the Internet. *See supra* limitation [1-4].

d. Claims 7 and 16

186. Claims 7 and 16 respectively depend on claims 6 and 15. Both further require:

"wherein the presentation module is further configured to present received textual messages through the user interface."

187. This is taught by both Brooks and SARLOC for the same reasons discussed for claim 1: incoming messages are (or obviously would be) displayed to a dispatcher in a user interface. *See supra* limitation [1-8].

e. Claims 8 and 14

188. Claims 8 and 14 respectively depend on claims 1 and 9. Both further require:

"wherein the web resources is configured to query [querying] wireless mobile devices for location information [includes accessing,] through an application programming interface (API) function[,] that accesses one or both of global positioning system (GPS) information and/or geolocation information."

189. This is taught by SARLOC. SARLOC explains that upon clicking a link in a texted URL, the "SARLOC web page" runs scripts that cause "functions of" a caller's "'smartphones' web browser" to "obtain a location for the handset." SARLOC at 7-8. These functions include the browser's "geo-location API." *Id*. at 7, 8.

2. Motivation to Combine

190. To begin, both Brooks and SARLOC are analogous art to the '016 patent. Both are in the same technical field: systems for handling emergency calls. And both address problems similar to that in the '016 patent: allowing for communication via some medium other than just voice, and obtaining more information (such as location information) from a caller.

191. A POSITA would also, in my opinion, have been motivated to employ the method of obtaining phone locations (and updating rescue personnel) discussed in the SARLOC article with Brooks.

192. While Brooks explains that its system uses messaging to obtain a caller's GPS location, it does not detail exactly how this occurs. Rather, Brooks explains that "[d]eterminiation of the position of a mobile station 106 may be accomplished in a variety of manners known in the art … and will not be discussed herein." Brooks, ¶ [0023].

193. In my opinion, a POSITA would have recognized that SARLOC provides this missing information. It exemplifies a system that does exactly what Brooks requires: it sends a text message that collects caller GPS location. To do so, a text message relayed to a phone user includes a clickable URL that directs the caller to a web site that collects location information and then relays it to appropriate emergency personnel. This similarity in purpose (both Brooks and SARLOC teach the collection of phone location), operation (both Brooks and SARLOC employ text messaging), and result (both Brooks and SARLOC relay location information to emergency service personnel) would have provided a POSITA with a strong motivation to apply SARLOC's teachings to Brooks.

194. In my opinion, the similarities between the systems (and the fact that SARLOC details how Brooks would be understood to function) is not the only thing

that motivates combination. SARLOC's system also has other benefits that not only would have motivated use of SARLOC in the first place, but would have further motivated its combination with Brooks. In particular, SARLOC also teaches a system and method for locating a "smartphone" "without having to install any software." SARLOC at 7. According to SARLOC, rather than using a dedicated, special piece of software, the system uses built-in functionality already existing on the smartphone—including text messaging, web browsers, and geolocation functionality—to determine location. *See id.*, pp. 7-8.

195. Moreover, the SARLOC article explains that the system it discusses does not require the phone user to have significant technical skills: the user "only needs to browse to the SARLOC web page" for phone location to be collected. *Id.*, p. 8. This is a significant benefit. Not all callers in need of emergency services are tech savvy. In my experience, during an emergency, even a tech savvy caller may have trouble navigating a new, and complicated procedure given the stress of the situation. Thus, simplifying the task a caller must complete is of utmost importance. This is exactly what the system discussed in the SARLOC article aims to do.

196. Next, the SARLOC article's system also employs existing database functionality to relay collected location information to emergency service providers. *See id.*

197. In my opinion, all of this would have provided a further, strong motivation to employ the SARLOC article's teachings with Brooks. No special purpose software would need to be installed on caller phones. Instead, the system would simply use existing smartphone functionality to collect location information.

198. Moreover, Brooks' system would be simplified: callers would be provided with a straight-forward, user-friendly way to relay location information to emergency dispatchers: the caller would simply click on a link provided in a text message. This accommodates less tech savvy callers, and avoids overcomplicating the tasks the caller must perform in a potentially stressful situation.

199. A POSITA would also have had a more than reasonable expectation of success. Brooks' emergency management system already employs text messaging to communicate. SARLOC simply provides an example of one type of text message such a system can transmit: a message with a link that collects phone location.

200. Moreover, Brooks' system is intended to both collect user location information and display that information to an emergency dispatcher. Again, a POSITA would understand that SARLOC facilitates this very thing.

C. *Ground 2*: Obviousness Over Salafia and Marr

201. In my opinion, a POSITA would have considered Salafia and Marr to be within the scope of the prior art and highly relevant to the patentability of the '016 patent's claims. Both relate generally to systems for facilitating communication

during an emergency or other situations where a caller is in need of assistance. Both employ text messaging to obtain information about a caller.

202. In my opinion, moreover, when viewed and considered in light of the knowledge possessed by a POSITA, Salafia and Marr together disclose all the limitations of and renders claims 1, 5-9, 13-17, and 25-27 of the '016 patent obvious.

1. Claim-by-Claim Analysis

a. Claims 1 and 9

203. I will again analyze claims 1 and 9 together.

[1-p] "1. A system configured to provide, to emergency operators, communication through textual messages, the system comprising:"

[9-p] "[9. A computer-implemented method for providing, to emergency operators, communication through textual messages, the method being performed by]"

204. To the extent this preamble language is limiting, it is disclosed by Salafia. Salafia relates to a "call handling system" that is "used by a call handler to communicate" with an individual who has "dial[ed] 911 seeking emergency assistance." Salafia, ¶ [0002].

205. Next, Salafia explains that unlike prior art systems that relied only on verbal communication and the manual inputting of information relating to emergencies, Salafia's system is "significantly enhanced through the incorporation of the transfer of visual and/or textual information." *Id.*, ¶¶ [0040], [0010]. In other words, both voice, text, and media communications can all occur.

206. To allow for "textual and visual communication," Salafia's system includes a "electronic message processing module" that allows textual messages to be sent to and received from emergency callers. *Id.*, ¶¶ [0062]-[0063].

[1-1]/[9-1] "one or more processors configured to execute computer program modules, <u>the computer program modules</u> [the method] comprising:"

207. This is also disclosed by Salafia. In particular, Salafia's system includes "call handler workstation 202" that allows a "call handler 104" to receive incoming emergency calls and compose outgoing messages. Salafia, ¶¶ [0054], [0059].

208. In addition to the workstation, the system also includes other modules. This includes an "electronic message processing module 228" to facilitate the transmission of messages to callers. *Id.*, ¶ [0062]; *see also id.*, ¶ [0021] (Salafia includes a "processor module"); ¶ [0063] (Salafia has both an "outgoing electronic message processor 214" and an "incoming electronic message processor 216").

209. The various call handling and messaging functions performed by these components are also facilitated by "software running at [a] PSAP 212." *Id.*, ¶ [0127].

210. In my opinion, a POSITA would have considered the workstation, message processing module, and PSAP hardware—along with the driving software—to all entail the use of the claimed ***"processors"*** that ***"execute computer program modules."***

[1-2]/[9-2] "<u>a call reception module configured to receive</u> [receiving] incoming emergency voice calls being placed to an emergency call center through an emergency communications network from wireless mobile devices, the incoming emergency voice calls including a first voice call placed from a first wireless mobile device;"

211. In my opinion, all of this is disclosed by Salafia. According to Salafia, its system includes a "telephonic interface" that allows for "audio communication between at least one call handler and at least one caller over a telephone network." Salafia, ¶ [0016].

212. An "emergency services call handler 104" receives and manages calls. Salafia, ¶ [0054].

213. The call handler may be located at a "PSAP" (or "Public Safety Answering Point"). *Id.*, ¶¶ [0004], [0010]; *see also id.*, ¶ [0021] ("The communication interface may be interconnected with a PSAP.")

214. The PSAP may be "staffed with a group of specially trained call handlers" that handle emergency calls "according to protocols" and "dispatch[] emergency service providers." *Id.*, ¶ [0004].

215. The call handler 104 manages and interacts with a "workstation 202" with a "phone 204 for audio communications…." *Id.*, ¶ [0059]. The PSAP (and call handler workstation) receives calls from a "cell phone" and has "the capability to generate, send, and receive electronic messages." *Id.*, ¶ [0058].

216. In operation, Salafia explains that "[a] typical … 911 call from a cell phone user" initiates communication via a "cellular network 222." *Id.*, ¶¶ [0060]-[0061]. The initiated call is then routed from the cellular network through a "PSTN 224" (or public switched telephone network) and on to a "PSAP 212." *Id.*, ¶¶ [0059], [0061]. So, incoming calls travel over both a cellular network and a traditional public switched telephone network on their way from the caller's device to the PSAP call handler's workstation.

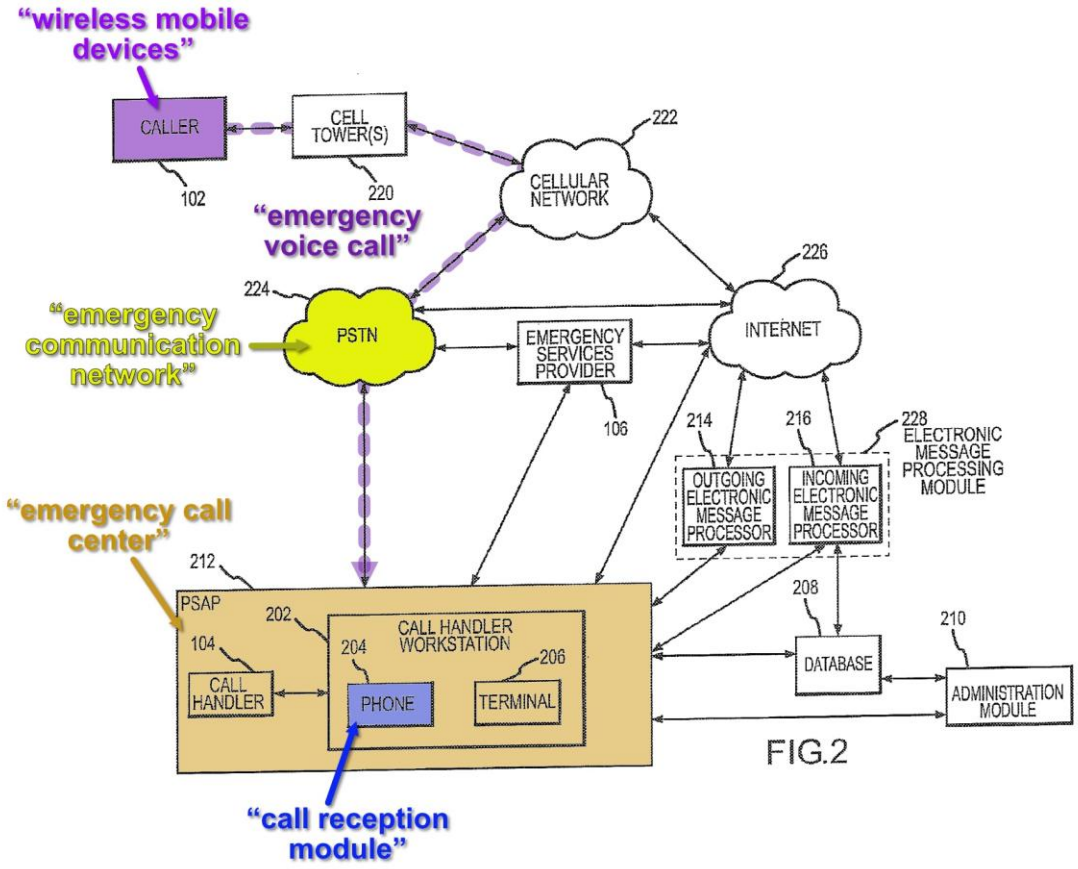
217. According to Salafia, upon connection over this telephone network, "[t]he call handler 104" at the PSAP "and the caller 102" establish an "audio communication link" for purposes of "discuss[ing] the emergency situation…." *Id.*, ¶ [0061]; *see also id.*, ¶ [0054] (a "caller 102" "dial[s] 911" and is "routed to an appropriate emergency services call handler 104"); *see also* Fig. 3 (a "911 call is presented to call handler" at step 306).

218. In my opinion, this teaches everything this limitation requires. Salafia includes a ***"call reception module"*** (its workstation / telephonic interface that receives and manages incoming calls) associated with an ***"emergency call center"*** (the PSAP that includes the call handler).

219. Next, "***[w]ireless mobile devices"*** (caller cell phones) can make ***"emergency voice calls"*** (911 calls) that are received by this ***"call reception***

module" over an ***"emergency communication network"*** (the cell network / PSTN network that routes emergency calls to the PSAP).

220. These components are annotated in Figure 2 from Salafia:



Salafia, Fig. 2 (annotated).

[1-3]/[9-3] "<u>an outgoing message module configured to generate</u> [generating] outgoing textual messages for transmission to wireless mobile devices from which incoming emergency voice calls are received such that a first outgoing textual message is generated for transmission to the first wireless mobile device based on the first voice call;"

221. In my opinion, Salafia includes these claimed components. According to Salafia, its system includes a "call handler interface" that allows the call handler

receiving an emergency call to "generate at least one outgoing message" to be sent to the caller. Salafia, ¶ [0017].

222. "[T]he call handler interface may be in the form of a personal computer or computer terminal accessible by the call handler." *Id.* In one example, this is a "call handler workstation 202" with a "terminal 206" "in the form of a computer interface including, for example, a video display device, keyboard, and mouse." *Id.*, ¶ [0058].

223. The "outgoing message may be an electronic message" like an "electronic mail message." *Id.* Alternatively, it may be a "multimedia message service (MMS)" message that allows a "range of media formats to be attached to messages." *Id.*, ¶ [0130]; *see also id.* ("a call handler … can activate a function that sends an MMS message to the communication device … from which the caller is calling from"); ¶ [0008] (Salafia's system can "send[] a … MMS from the call center to the communication device").

224. According to Salafia, each outgoing message can include a "unique identifying component" that allows it to be associated with a particular incoming emergency call. *Id.*, ¶ [0018]; *see also id.*, ¶ [0068] ("[T]he call handler workstation 202 or a computer system within the SAP 212 may generate a unique identifying component, which may be used to identify an outgoing message from the call

handler 104 to the caller 102…."); Fig. 3 (referencing message generation steps 308-316); Fig. 6 (similarly showing message generation steps).

225. The outgoing message are intended to elicit, for example, a "textual message" or "visual response" from the caller. *Id.*, ¶ [0067]. It is the identifier appended to the outgoing message that allows Salafia's system to properly recognize responsive messages (and properly display them to the operator in association with the correct ongoing emergency call). *See id.,* ¶¶ [0067]-[0068],

226. This is what this limitation requires: Salafia includes an ***"outgoing message module"*** (within the call handler's workstation) that generates ***"outgoing textual messages"*** (electronic mail or MMS messages) for transmission to wireless devices that made emergency calls. This is shown in Figure 2:

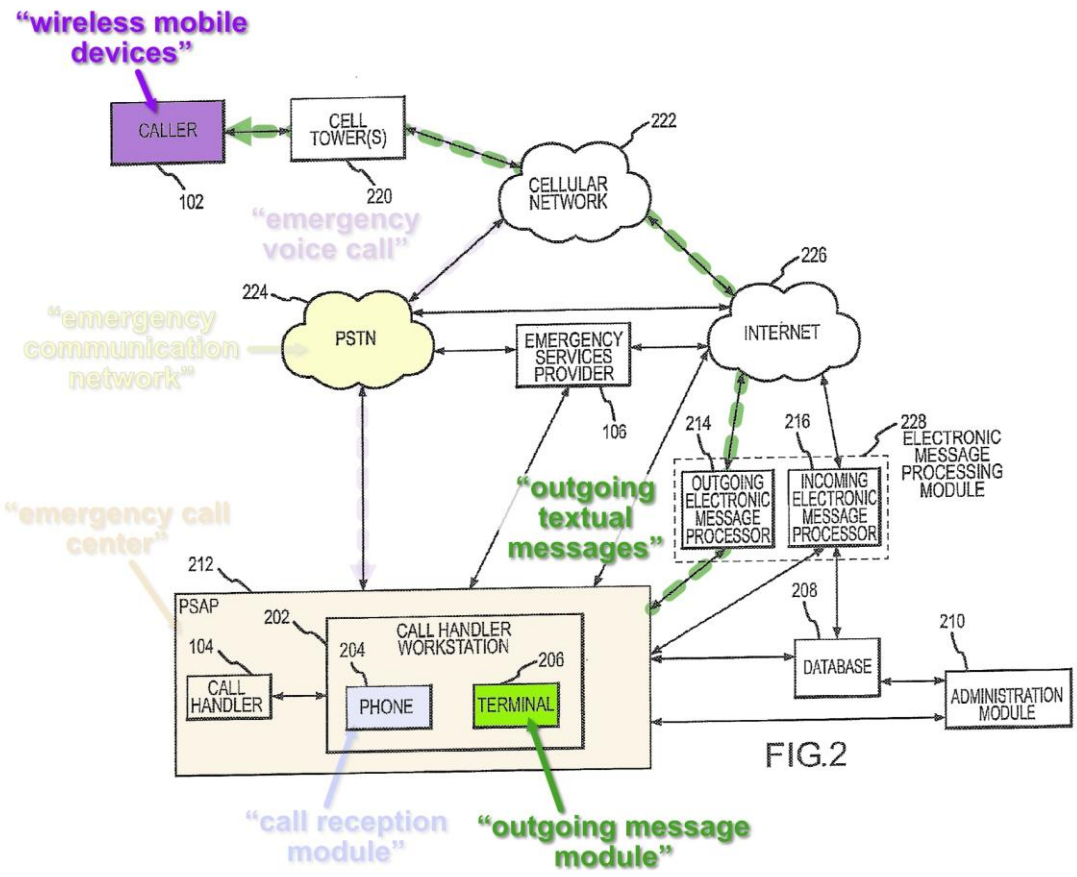


FIG.2

Salafia, Fig. 2 (annotated).

[1-4]/[9-4] "<u>a transmission module configured to transmit</u> [transmitting] the outgoing textual messages to the appropriate wireless mobile devices through a second communications network that is different than the emergency communications network such that the first outgoing textual message is transmitted to the first wireless mobile device through the second communications network; [wherein the first outgoing textual message includes a link to web resources;]"

227. This, in my opinion, is also taught by Salafia. Salafia explains that its "PSAP 212" (and the call handler workstation 202 it contains as I discuss above) either itself includes or is interconnected with what Salafia calls "an electronic message processing module 228." Salafia, ¶ [0062].

228. According to Salafia, this module "facilitate[s] the sending and receiving of electronic messages between the PSAP 212 and the Internet 226 and therefor to any other user or users connected to the Internet 226." *Id.*

229. To do so, Salafia explains that the "electronic message processing module" employs "one or more network interfaces." *Id.* Moreover, this particular module is also "operable to receive and transmit packetized information over a computer network" like the "Internet." *Id.*, ¶¶ [0015]; [0021] (similar).

230. In Figure 2, outgoing message transmission is handled by "outgoing electronic message processor 214" in this "electronic message processing module 228." *Id.*, ¶ [0063].

231. According to Salafia, after a call handler assembles a textual message for deliver to an emergency caller, the "message may then be transferred from the call handler workstation 202 to an outgoing electronic message processor 214." *Id.*, ¶ [0073].

232. "The outgoing electronic message processor 214" then "send[s] the electronic mail to the caller 102 over the Internet 226 and the caller's 102 cellular network 222." *Id.*; *see also id.*, Fig. 3 ("outgoing" message sent in step 316); Figs. 6-7 (similar).

233. So, as I have just summarized, Salafia includes the claimed ***"transmission module"*** (its messaging processing module 228 / outgoing electronic message processor 214).

234. This module transmits ***"outgoing textual messages"*** (the electronic mail or MMS messages generated by workstation 202) to ***"appropriate wireless mobile devices"*** (the original 911 caller's cell phone) via ***"a second communication network"*** (the Internet).

235. This is shown in Figure 2, which is reproduced in annotated form below:

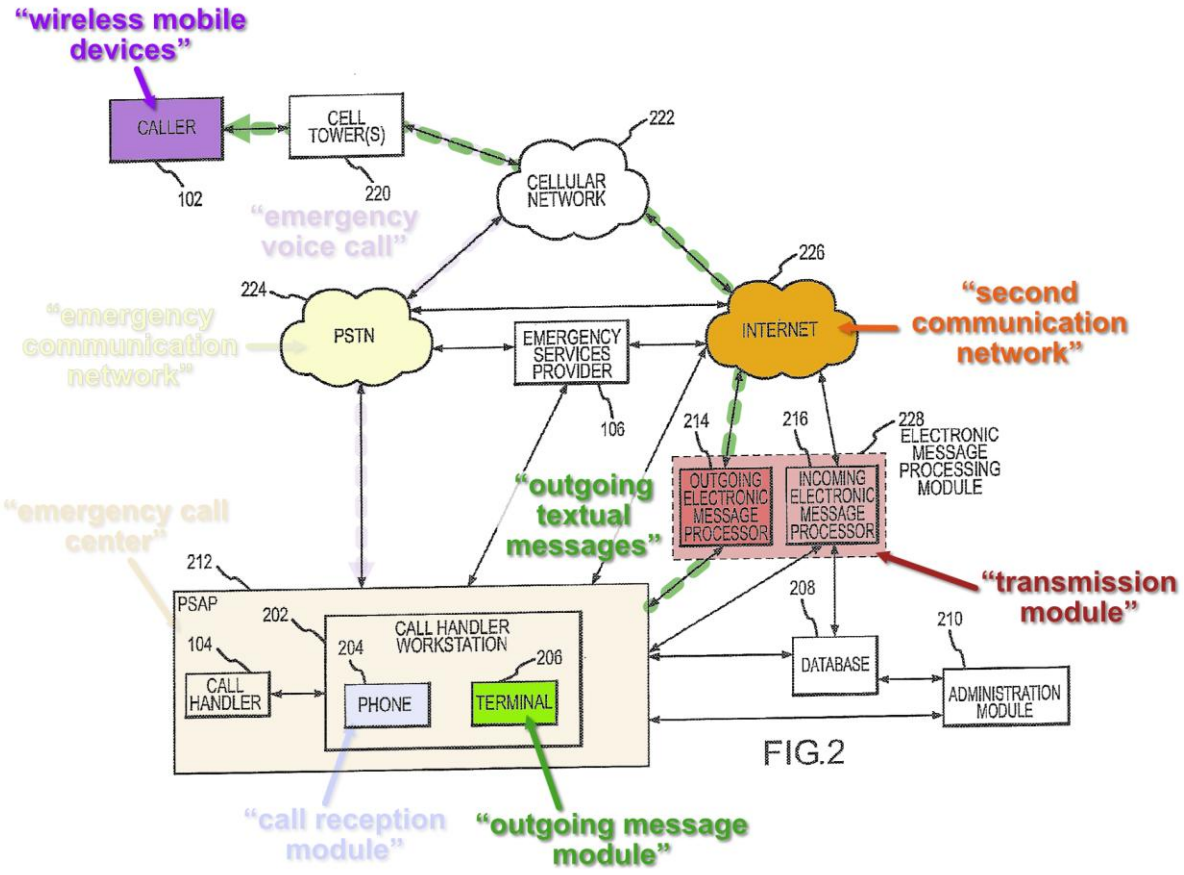


FIG.2

Salafia, Fig. 2 (annotated); *see also*

236. The prior art's teaching of the final requirement added to this limit by claim 9—"***wherein the first outgoing textual message includes a link to web resources"***—is discussed below when addressing limit [1-6].

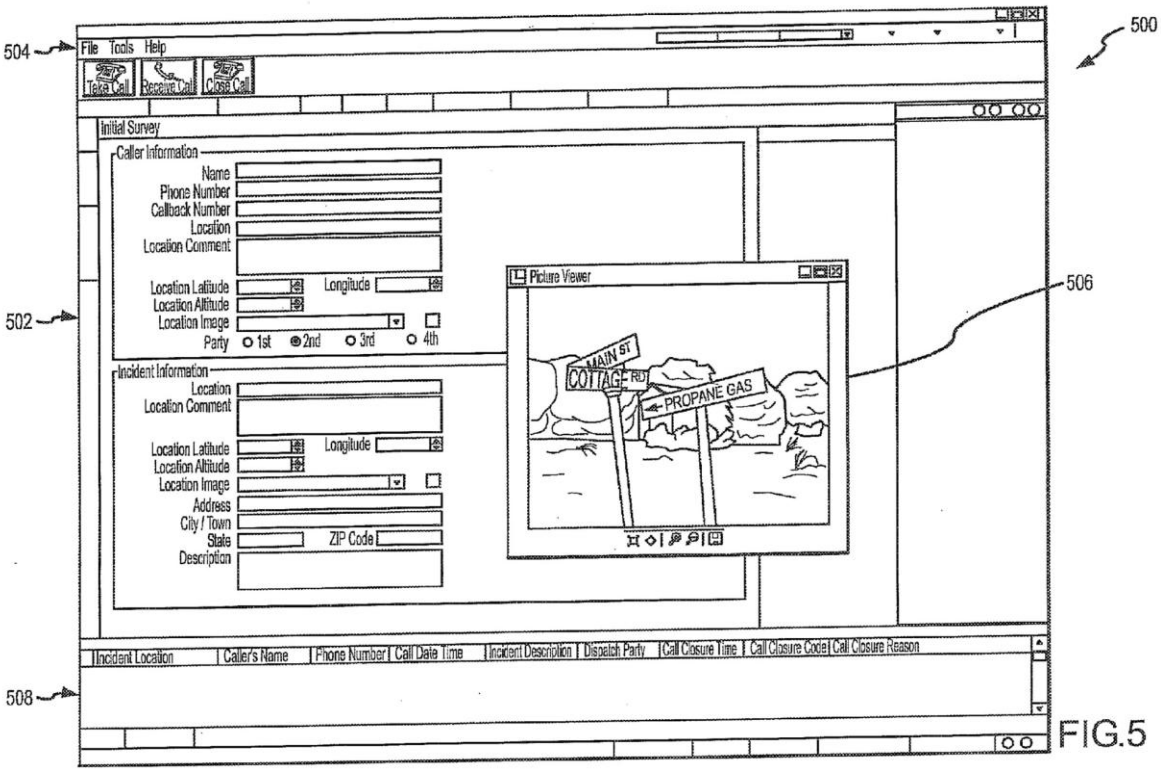
[1-5]/[9-5] "a presentation module configured to present [presenting] incoming emergency voice calls to emergency operators through a user interface, wherein the user interface includes a set of user-selectable options, and wherein the presentation module is further configured to receive [receiving] user input from emergency operators to select one or more of the set of user-selectable options; and [querying, through the web resources, wireless mobile devices for location information;]"

237. In my opinion, a POSITA would have understood that Salafia includes the claimed ***"presentation module"*** that ***"present[s] incoming emergency voice calls to emergency operators through a user interface."***

238. According to Salafia, its "call handler workstation 202" includes a "terminal 206" with a "video display device, keyboard and mouse." Salafia, ¶ [0059].

239. Upon receipt of an incoming emergency call, "[t]extual information about the call may appear on the terminal 206 of the call handler workstation 202" while the handler engages in "audio communication" with the caller. *Id.*, ¶ [0061]. Per Salafia, this displayed "textual information" may include the "phone number of the caller 102" along with any "location data forwarded to the PSAP 212 by the cellular network 222." *Id.*

240. Figure 5 "illustrat[es]" an example "graphical user interface for communicating textual and visual information to a call handler." *Id.*, ¶ [0044]



Id., Fig. 5. As shown, the display includes numerous call-associated fields, including "caller information" (with a "location" field), and "incident information."

241. The interface includes a "call display window 500" which itself includes a listing section 508 where "recent calls to the PSAP 212 or the particular call handler workstation 202 within the PSAP 212…" are displayed. *Id.*, ¶ [0078].

242. The interface's "main window 502 … display[s] details of an in-process call between the call hander 104 and the caller 102" including the "caller 102 name, a phone number, and location." *Id.* Salafia explains that this information may be

"populated automatically by the call handler workstation 202" if available. *Id.*, ¶¶ [0078]-[0079].

243. Next, Salafia's ***"user interface"*** includes ***"a set of user-selectable options"*** that can be selected via ***"user input from emergency operators."***

244. Salafia explains that "[o]nce it has been determined that an electronic message from the caller 102 would be beneficial[,]" messaging may be initiated by initiating an image acquisition protocol by "entering a command using a keyboard or clicking on a button on the display of terminal 206 using a mouse." Salafia, ¶ [0068]. A POSITA would have understood that this clickable button is one example of a ***"user selectable option"*** on a ***"user interface."*** Salafia would have obviously included numerous such selectable options given the range of functionality its system provides to a call handler. For example, Salafia explains that its system is capable of requesting and receiving *audio* files or other information from a caller in addition to image files. Salafia, ¶ [0094]. As a result, a POSITA would understand that an audio acquisition protocol in Salafia may also be initiated by clicking on a button (or selecting a menu option). A POSITA would understand that these options— initiating an audio acquisition protocol, an image acquisition protocol, or some other information request protocol—would be, or at least could obviously be, presented to a user as a set of user selectable options, like a drop-down list. A POSITA would be familiar with and understand that drop-down lists were a common

user interface element that allowed uses to select one of a multiple options. This is confirmed by Salafia's illustration of drop-down lists in the drawing it included of its user interface. Salafia, Fig. 4, ¶ [0069].

245. Selecting an acquisition protocol option causes a "pop-up window 400" like that shown in Figure 4 to be "displayed on the terminal 206…." Salafia, ¶ [0069]. The "pop-up window 400 may present multiple electronic mail templates to the call handler 104 in the form of a pull down list … accessed by activating the pull-down menu button 401 adjacent to the electronic mail template window 402 and selecting mail template." *Id.*

246. "[S]everal electronic mail templates" may be "available" asking for different information from the caller and providing different instructions. *Id.*; *see also id.*, ¶ [0017] ("The call handler interface may be operable to present the call handler a plurality of outgoing message templates" that can be "select[ed]" depending on the "circumstances of the call"). So, Salafia teaches multiple layers of selectable options: the call handler can select to send a message (by initiating an acquisition protocol), then further select a template to use for the message, and then of course further select to send the message.

247. An example is shown in Figure 4 (reproduced in annotated form below). As shown, Salafia includes a ***"user interface"*** (pop-up window 400 and

associated window 500) with ***"selectable options"*** (here at least the list of templates accessed by clicking menu button 401):

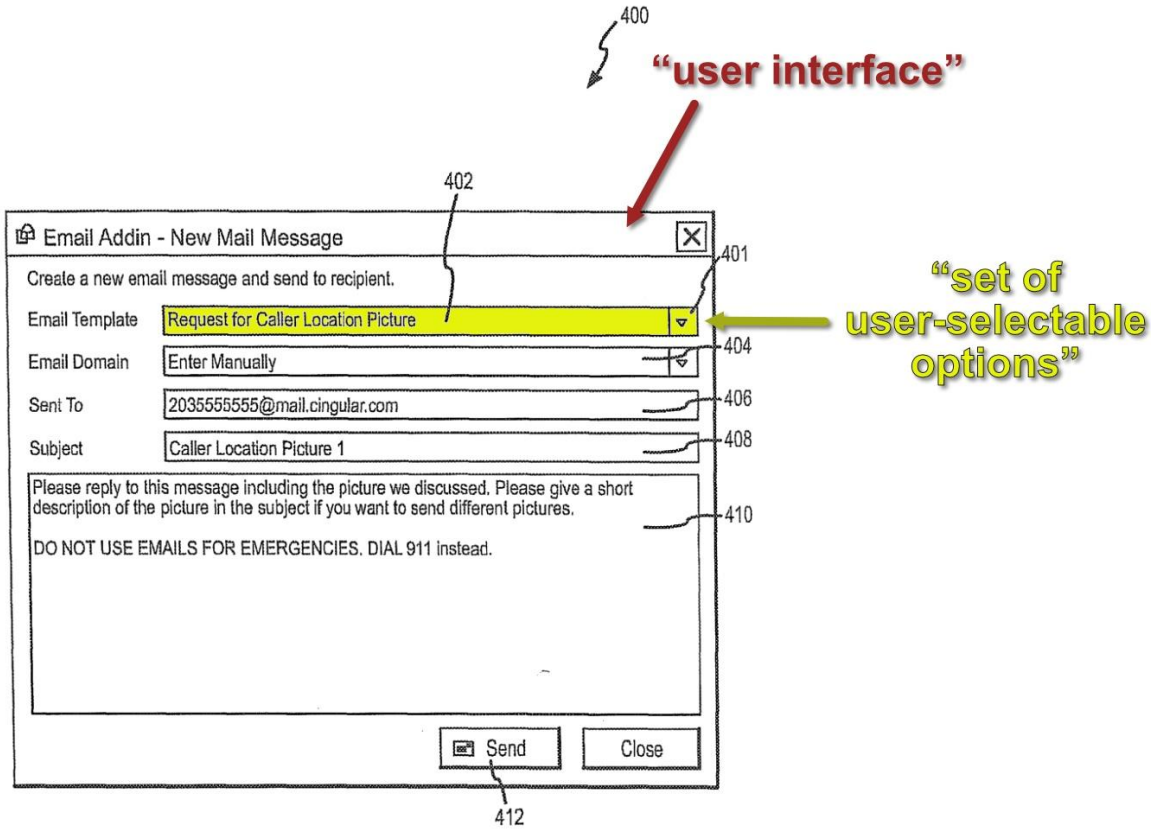


FIG.4

Id., Fig. 4 (annotated).

248. The prior art's teaching of the final requirement added to this limit by claim 9—***"querying, through the web resources, wireless mobile devices for location information"***—is discussed below when addressing limit [1-6].

[1-6] "a web-hosting module configured to host web resources configured to: (i) query wireless mobile devices for location information; and (ii) share, responsive

to receipt of location information, received location information with the presentation module;"

249. This, in my opinion, is rendered obvious by the combination of Salafia and Marr.

250. To begin, Salafia explains that "a call handler working in a PSAP will receive textual information, displayed on a computer terminal, regarding the probable location of a caller." Salafia, ¶ [0005].

251. Salafia identifies various ways that this location information can be obtained. For instance, if the "caller is calling from a landline, systems at the PSAP may access an automatic location information (ALI) database to determine the location of the caller." *Id.*

252. If, however, the caller is calling "from a mobile wireless device (e.g., cell phone)" ALI database information is not available and location must be determined using other methods.

253. According to Salafia, one way to do so is "from triangulation signals transmitted by the cell phone." *Id.*

254. Alternatively, "[g]lobal Positioning System (GPS) location data may also be available if the caller is using a cell phone with GPS capabilities." Salafia, ¶ [0005].

255. This "GPS information" may be "obtained from the cell phone" and then displayed on the "call handler workstation 202" as "textual information about

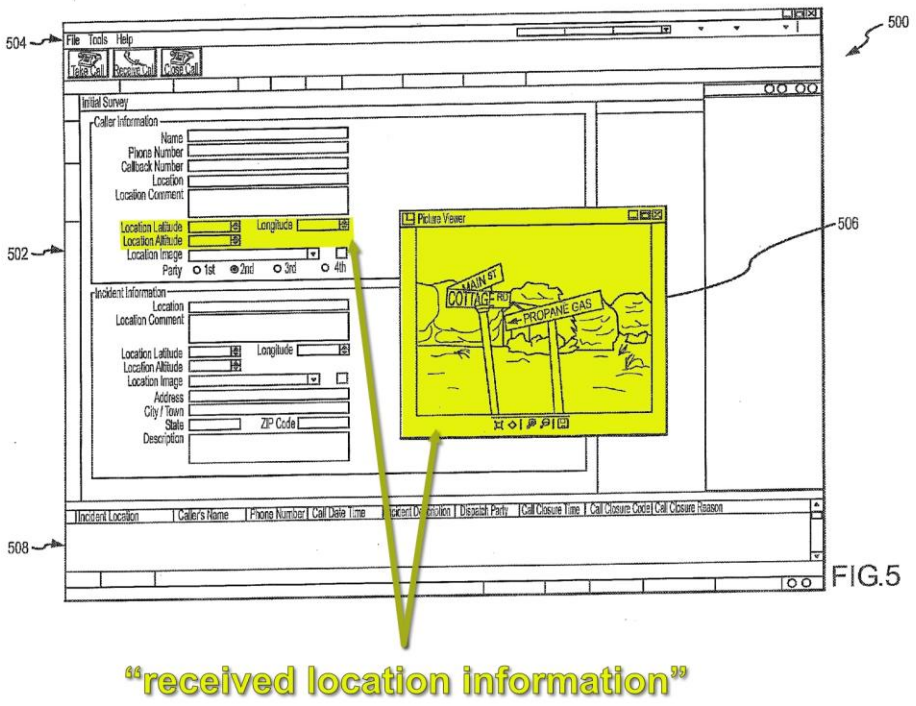
the call." *Id.*, ¶ [0061]; *see also id.*, ¶ [0066] (the "PSAP 212" provides the "call handler 104" with a "visual display of data associated with the call displayed on the terminal 206 of the call handler workstation 202" that includes the "approximate location of the caller 102.") As I note above (and also in an annotated figure below), there is a particular field in Salafia's interface window that is meant to display location information for the particular caller.

256. Moreover, Salafia's system also allows the call handler to message a caller to obtain additional details regarding the caller's location, including images showing the "location of an incident." *Id.*, ¶ [0069]; *see also id.*, ¶¶ [0010]-[0011] (a call handler may request and receive "visual information" relating to the "exact location of the caller").

257. According to Salafia, messages sent from the call handler to the caller can include "instruction[s,]" "forms, or Uniform Resource Locators (URLs)." *Id.*, ¶ [0011]; *see also id.*, ¶ [0120] ("outgoing messages to callers" can include "URLs" and other information).

258. When the caller responds to a message from the call handler, information provided by the caller automatically "appear[s] in front of the call handler 104" in a "pop-up window 506." *Id.*, ¶ [0081].

259. Both the fields listing GPS location and the pop-up window are shown (and annotated) in Figure 5 below:



Id., Fig. 5 (annotated).

260. Finally, Salafia explains that its system "may include web hosting capabilities" to allow for communications. *Id.*, ¶ [0118].

261. So, just as this limitation requires, Salafia teaches a system that responsively ***"share[s]" "received location information"*** (either received phone GPS information or location images provided via message) ***"with the presentation module"*** (location information is displayed in, for example, pop-up windows or appropriate interface fields in Salafia's interface).

262. Salafia also includes, as I've discussed, a ***"web-hosting module"*** (its web hosting capabilities: I recognize that Salafia does not note that this is specially configured in the way this limitation requires).

263. As I have also discussed, Salafia does mention that its system is intended to obtain GPS information from a caller's phone. Salafia does not, however, explain how its system does so.

264. In my opinion, a POSITA would have recognized that Marr provides this missing disclosure. Marr relates generally to a system for "initiating, managing, and responding to requests for a roadside service technician." Marr, ¶ [0002].

265. According to Marr, service systems employing a "phone-in process relies heavily" on the caller's "knowledge of his location." *Id.*, ¶ [0005]. But callers often do not know where they are located. *Id.*, ¶ [0006]. Thus, Marr notes that there is need for a system that "does not rely as heavily" on the caller's own knowledge. *Id.*, ¶ [0008].

266. Marr goes on to explain that "many modern web-enabled phones include GPS capability, which may give accurate longitude and latitude coordinates[,] … and … are configured to allow websites and applications to receive and use this location information." *Id.*, ¶ [0021]. A POSITA would of course have recognized that phones calling into Salafia's system include this capability. Indeed, as I note above, Salafia itself recognizes this (and intends its system to be able to collect this information).

267. Marr's system is designed to collect phone GPS information. To do so, the system includes a "computer 50" that is "operating under the control of a service request dispatcher." *Id.*, ¶¶ [0024]-[0025].

268. The system also includes a "server 40" that is "capable of serving web pages in response to client requests over the internet 45." *Id.*, ¶ [0024]. The web server may be connected to the same "local area network 42" as a "service request dispatcher" "computer 50." *Id.*

269. According to Marr, a "customer" may "initiate a service request by phone." *Id.*, ¶ [0037].

270. The "dispatcher" can then "provide a URL to the customer that, when accessed, will provide the user's location to the service request system." *Id.* In operation, a call-specific "SMS or other text message" is generated with a "customized URL to enable a GPS signal to be collected from the device." *Id.*, ¶ [0038]-[0039]. The URL may be "shortened" if necessary. *Id.* This is akin to Salafia's process whereby a unique identifier is appended to an outgoing text message. By employing a unique URL, Marr ensures that collected GPS information can be associated with the correct ongoing voice call.

271. The text with the URL is then "sent to the customer's mobile communication device through a messaging protocol such as text messaging or instant messaging." *Id.*, ¶ [0040].

272. "[W]hen a URL arrives through a messaging protocol" it is "recognized by the messaging client and can be sent to and opened by the internet client immediately." *Id.* "Upon accessing the URL, the web server receives a website request for the unique URL … which prompts the website to request GPS data from the client device…." *Id.*; *see also id.*, Fig. 4.

273. Received GPS data is "associated" with an existing "service request" being managed by a system dispatcher. *Id.*, ¶ [0040]. Further, per Marr, the collected GPS information is received back by the dispatcher while the dispatcher "is on the phone" with the caller. *Id.*, ¶ [0037].

274. Applying this to Salafia renders the rest of this claim limitation obvious.

275. As I have explained, Salafia's system is already intended to provide a call handler with GPS location information collected from a caller's cell phone. Salafia, ¶¶ [0005], [0061]. Salafia's system also allows the call handler to send textual messages—including messages with URLs—asking for further location information. *Id.*, ¶ [0011]. Moreover, in Salafia, the dispatcher can select a particular message to send using a user interface. *Id.*, ¶¶ [0017], [0069]. This message can thus account for the "circumstances of the call." *Id.* Salafia's system is also already able to include (and utilize) "web hosting capabilities." *Id.*, ¶ [0118].

276. So, in view of this disclosure, a POSITA would have understood that if the call handler in Salafia receives a call from a mobile device that has GPS

capability, the call handler would be able to select to send an outgoing message requesting the device to provide GPS position information. The message would include a URL like that taught by Marr.

277. Upon receipt, the message's URL would direct the caller's mobile device to a web page served by a web server like that referenced in Marr (or Salafia itself).

278. The web page would collect the mobile device's GPS location and relay it back to the call handler for display either in the appropriate interface field or via a pop-up window if desired. For instance, one obvious way to display this information would be in a pop-up window that displays a map to the call handler like that in Figure 5 of Marr:

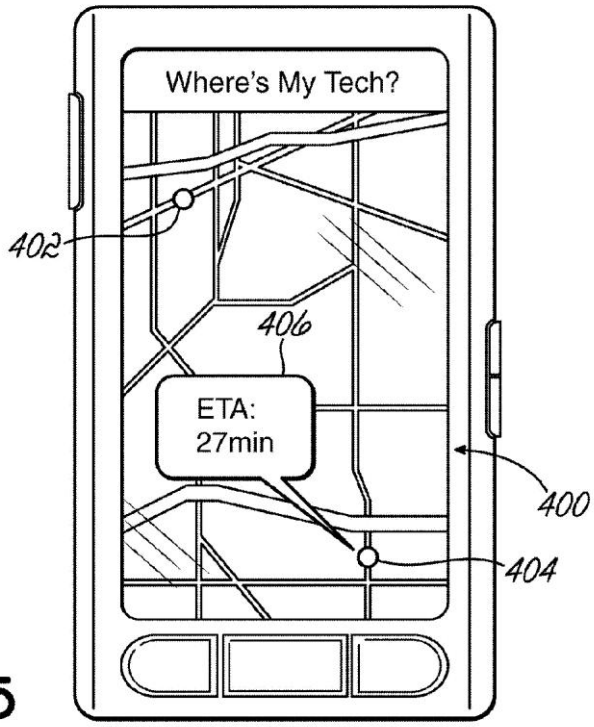


FIG. 5

Marr, Fig. 5.

279. In my opinion, this is exactly what this limitation requires. A ***"a web-hosting module"*** (Marr's web server) "***host[s] web resources"*** that ***"query wireless mobile devices for location information"*** (the web pages that obtain cell phone GPS location) and then provides this information to the ***"presentation module"*** (the location information is displayed by Marr's dispatcher 50 / Salafia's call handler interface window 500). *Id.*, ¶ _.

280. These components (and how they communicate) are highlighted in Figure 1 of Marr below:

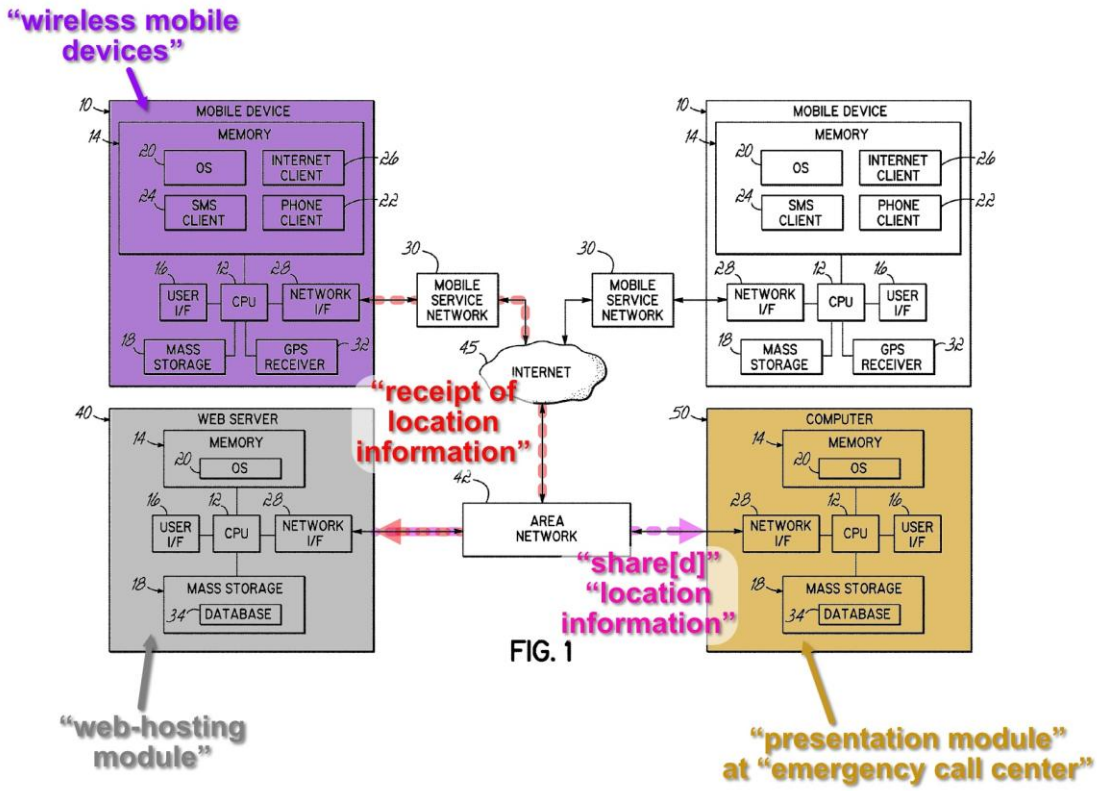


FIG. 1

Marr, Fig. 1 (annotated).

[1-7] "wherein the first outgoing textual message includes a uniform resource locator (URL) link to the web resources; and;"

281. This is taught by Salafia and Marr. Salafia explains that its outgoing messages can include "Uniform Resource Locators (URLs)." Salafia, ¶¶ [0011], [0120].

282. Marr likewise teaches that caller location can be obtained by sending a text message that includes a "URL to enable a GPS signal to be collected" from the caller's phone. Marr, ¶¶ [0038]-[0041]. As I have explained, the messaged URL directs the phone to a "web server" that hosts a "website" able to collect the required GPS data. *Id.*; *see also*

[1-8] "wherein the presentation module is further configured to present shared queried location information to emergency operators through the user interface."

[9-6] "sharing, responsive to receipt of location information, received location information with the presentation module user interface; and presenting shared queried location information to emergency operators through the user interface."

283. This is also taught by Salafia and Marr. Marr explains that "received location data" collected by its "web server" is "associated with" a particular "service request" so that it can be viewed by a service dispatcher. Marr, ¶ [0041]. This allows the dispatcher to not only send messages to callers, but "confirm receipt of the GPS location while" still "on the phone" with the caller. *Id.*, ¶ [0037].

284. As I have already explained above, Salafia's system also provides a dispatcher/call handler with information regarding the call. In particular, the system includes a "graphical user interface for communicating textual and visual information to a call handler." Salafia, ¶ [0044].

285. The interface's "main window 502" lists, among other information, the caller's "location." *Id.* Per Salafia, this information may be "populated automatically by the call handler workstation 202" if available. *Id.*, ¶¶ [0078]-[0079].

286. Further, Salafia's system can also display caller message responses in a "pop-up window 506." *Id.*, ¶ [0081]; *see also id.*, Fig. 7 (incoming messages are "correlate[d]" to a particular "call" so that they can be displayed).

287. Thus, a POSITA would have understood that upon receipt of ***"shared queried location information"*** (the caller's GPS location collected by Marr's web server), Salafia's ***"presentation module"*** (the call handler interface) would ***"present"*** this information to the ***"emergency operators through the user interface"*** (the call handler would be provided with the collected GPS information by either populating the relevant location fields in the interface and/or through a pop-up window).

b. Claims 5 and 13

288. Claims 5 and 13 respectively depend on claims 1 and 9. Both further require:

"wherein the outgoing textual messages include one or both of short message service (SMS) messages and/or multimedia messaging service (MMS) messages."

289. This is disclosed by Salafia. According to Salafia, the outgoing messages sent by its system may be "multimedia message service (MMS)" messages. Salafia, ¶ [0130]; *see also id.*, ¶¶ [0008]-[0009] (explaining that Salafia's system can send a "MMS from the call center to the communication device").

c. Claims 6 and 15

290. Claims 6 and 15 respectively depend on claims 1 and 9. Both further require:

"<u>wherein the transmission module is further configured to receive</u> [receiving] textual messages from wireless mobile devices through the second communications network."

291. This is disclosed by Salafia. Salafia's "electronic message processing module 228" includes an "incoming electronic message processor 216." Salafia, ¶¶ [0062]-[0063]. This "incoming electronic message processor" receives messages sent by callers to the "PSAP 212" over the "Internet 226." *Id.*

292. So, ***"textual messages from wireless mobile devices"*** (incoming messages) are received by Salafia's ***"transmission module"*** (electronic processing module 228 / incoming processor 216) via the same ***"second communications network"*** (the Internet) over which outbound messages are sent.

293. This is shown in Figure 2, which is reproduced in annotated form below:

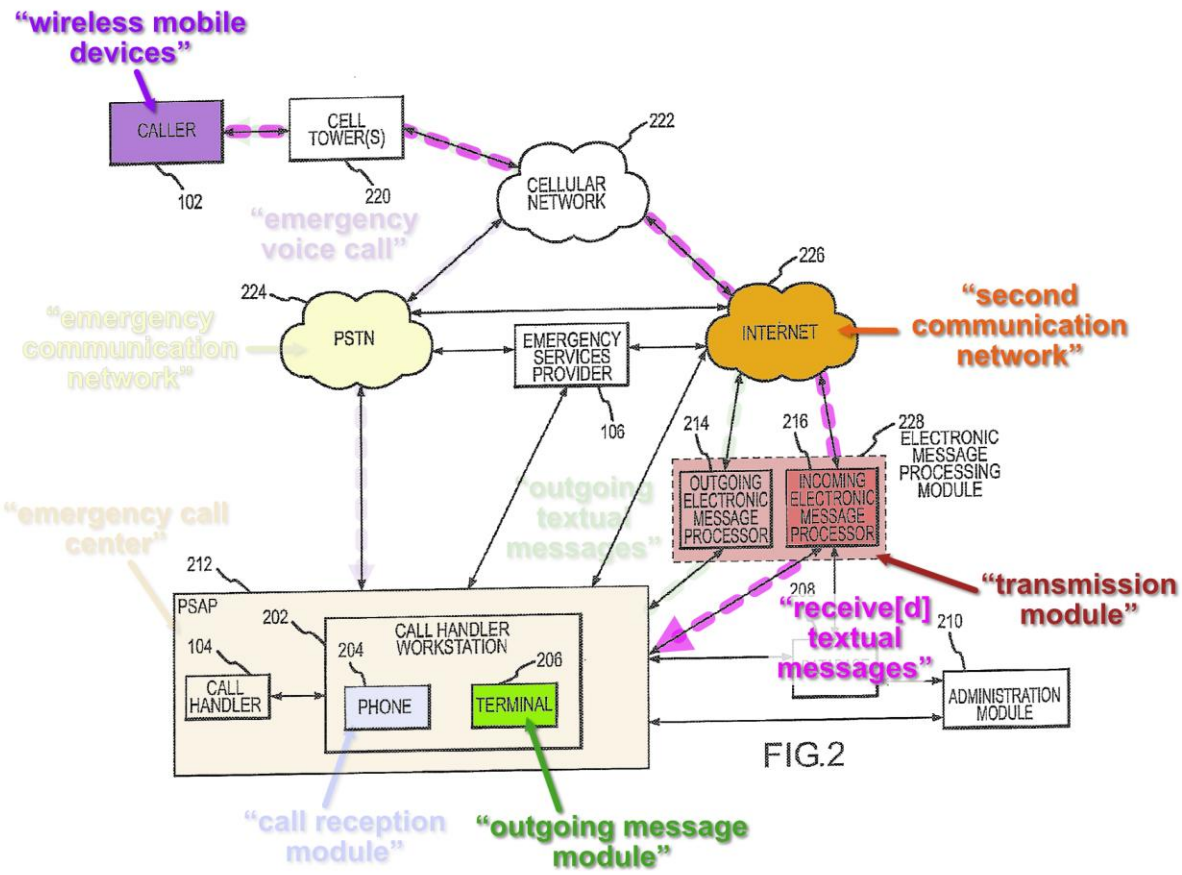


FIG.2

Id., Fig. 2 (annotated).

d. Claims 7 and 16

294. Claims 7 and 16 respectively depend on claims 6 and 15. Both further require:

"wherein the presentation module is further configured to present received textual messages through the user interface."

295. This is disclosed by Salafia. Message responses from callers automatically "appear[s] in front of the call handler 104" in a "pop-up window 506"

displayed by the call handler interface. Salafia, ¶ [0081]; *see also id.*, ¶ [0077] (incoming messages automatically displayed); Fig. 5.

e. Claims 8 and 14

296. Claims 8 and 14 respectively depend on claims 1 and 9. Both further require:

"wherein <u>the web resources is configured to query</u> [querying] wireless mobile devices for location information [includes accessing,] through an application programming interface (API) function[,] <u>that accesses</u> one or both of global positioning system (GPS) information and/or geolocation information."

297. This is obvious over Salafia and Marr. Again, Salafia's system is designed to obtain calling cell phone GPS information. Salafia, ¶ [0061].

298. A POSITA would have understood that in Marr, this occurs using a website that accesses an "***application programming interface (API)"*** on the user's cell phone for purposes of obtaining ***"global positioning system (GPS) information***."

299. In particular, rather than requiring users to enter location information and activate GPS functionality themselves, this occurs automatically and behind the scenes upon message receipt.

300. According to Marr, "[o]n many web-enabled mobile devices, when a URL arrives through a messaging protocol, it is recognized by the messaging client and can be sent to and opened by the internet client immediately." Marr, ¶ [0040].

301. This in turn causes the device to contact the "web server" and the "web site to request GPS data from the client device." *Id.*

302. Again, because this process is occurring automatically, behind-the-scenes, and without direct user intervention, a POSITA would have understood that it entails the use of APIs on the user's phone. Consistent with this, Salafia explains that systems that obtain information from callers (which both Salafia and Marr do) employ "middleware" that "can expose its functionality to existing applications" to collect information from emergency callers. *See* Salafia, ¶ [0138]. A POSITA would have understood this "middleware" to include APIs on the caller's phone.

f. Claim 17

303. Claim 17 depends on claim 1 and further requires:

"wherein the user interface includes a first interface element and a second interface element, and the presentation module is configured to display the set of user-selectable options via the first interface element and to display another set of user-selectable options via the second interface element, and wherein the another set of user selectable options displayed via the second interface element changes depending on selection made to the set of user-selectable options"

304. In my opinion, this is disclosed (or at very least rendered obvious) by Salafia.

305. As I have explained, a handler can "initiat[e] … image acquisition protocol" by, for example, "clicking on a button" in Salafia's interface. *Id.*, [0068]-[0069].

306. Performing this action results in a "pop-up window 400" with "pull-down menu button[s]" allowing for selection of different template messages. *Id.*

307. Salafia's system can also be employed to generate a variety of messages, including requests for images, audio, and other information. *Id.*, [0058], [0069], [0093], [0130].

308. In my opinion, a POSITA would understand that Salafia's interface would (or at the very least obviously could) include multiple separate options/buttons to initiate messaging for different categories of information like images and audio (the claimed ***"first interface element"*** with ***"the set of user-selectable options"***).

309. After receiving a selection of one of these buttons and initiating the desired type of information acquisition, Salafia's system would then generate a different pop-up window corresponding to the pressed button with message category specific templates (the ***"second interface element"*** with ***"another set of user-selectable options"*** that ***"change"*** depending upon whether images/audio/other originally selected).

310. Alternatively, in my opinion, the pop-up window itself satisfies this claim.

311. Again, Salafia employs a "pop-up window 400" (part of the claimed ***"user interface"***) that allows the call handler to generate outgoing text messages. Salafia, [0069].

312. Per Salafia, this window employs interface elements such as "pull-down menu[s]" and fillable "template" fields. *Id.*, [0070].

313. The window can be employed to generate a variety of messages, including requests for images, audio, and other information. *Id.*, [0058], [0069], [0093], [0130].

314. In my opinion, a POSITA would have recognized that the window includes a ***"first interface element"*** with a ***"set of user-selectable options"***: the top of the window includes a "template" section with a "pull-down menu button 401" that displays—and allows the handler to select—different available message templates. *Id.*, [0069].

315. Selection of a particular message template will cause template-specific "pre-determined fields" to appear and/or become populated. *Id*. This includes further "pull-down menu[s]" like element 404, fillable fields like elements 406 and 408, and message specific editable text in body 410. *Id.*, [0070]-[0071].

316. A POSITA would have understood that these fields—and the options they provide to the call-handler—would obviously change depending on the selected

template. In particular, a different template (and different fields with different message options) will appear depending upon which template the dispatcher selects.

317. The area of the window displaying these fields is the claimed ***"second interface area."*** And the template-specific options and interface elements they provide to the call handler—the fields, pull-down menus, and editable text—are the claimed ***"another set of user selectable options"*** that ***"changes"*** depending on the selected template. This is shown below:

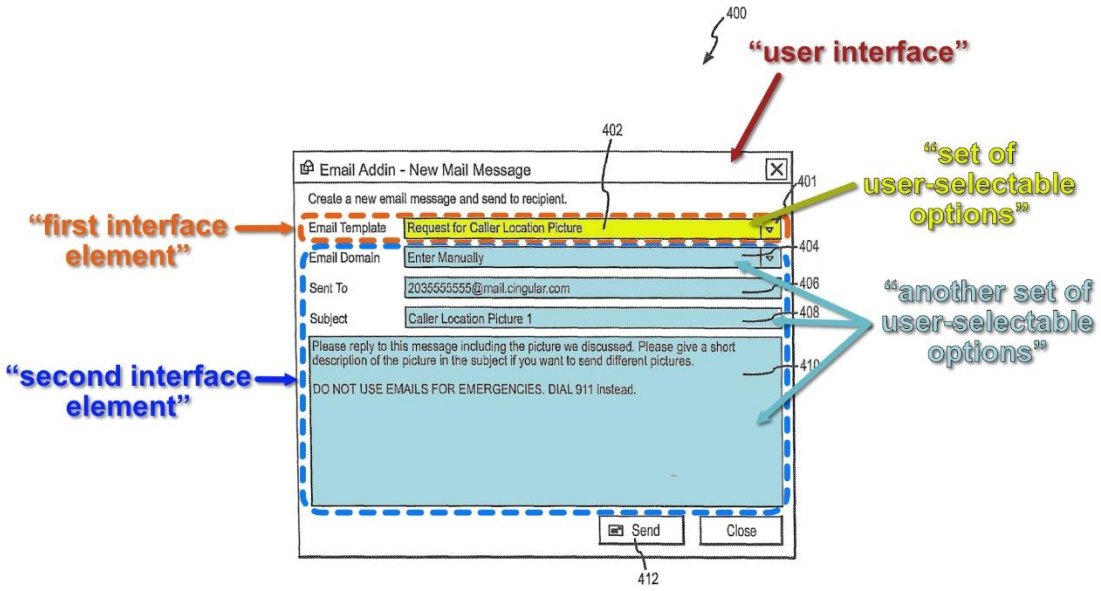


FIG.4

Salafia, Fig. 4 (annotated). While certain of this menu area is shown as text fields in Figure 4, a POSITA would have understood that another obvious design choice would be to simply employ a collection of message-specific pull-down menus (or a combination of pull-down menus and text fields) that themselves allow the particular

message template that was selected to be customized by the handler before the message is sent.

g. Claim 25

318. Claim 25 depends on claim 1 and further requires:

"wherein the presentation module is further configured to present, with respect to the first voice call, historical emergency information that is associated with one or more previous emergency voice calls."

319. This is disclosed by Salafia. Salafia explains that its "[c]all display window 500" not only displays information relating to an "in-process call" in a "main window 502," but also includes a "listing section 508 where recent calls to the PSAP 212 … may be displayed." Salafia, ¶ [0078]; Fig. 5.

h. Claim 26

320. Claim 26 depends on claim 25 and further requires:

"wherein the one or more previous emergency voice calls are related to the first voice call in view of at least one of a calling device, a caller, or a calling location."

321. Salafia's previous call "listing section 508" identifies calls (and allows for organization) by "Incident Location," "Caller's Name," and "Phone Number." Salafia, Fig. 5; *see also id.*, ¶ [0078]. Thus, the window will list ***"previous emergency voice calls"*** that are ***"related"*** the current call by ***"calling device," "caller,"*** or ***"calling location"*** as this claim requires.

i. Claim 27

322. Claim 27 depends on claim 25 and further requires:

"wherein the presentation module is further configured to present information from one or more emergency responders to at least one of the one or more previous emergency voice calls and the first voice call."

323. This is disclosed (or at least rendered obvious) by Salafia. Salafia explains that its system "may exchange information with emergency services provider 106 regarding the emergency and the status of the caller 102." Salafia, ¶ [0055]; *see also id.*, ¶¶ [0059], [0083]-[0084].

324. And as shown in Figure 5, Salafia's interface "sections 502 and 508 includes various information fields—such as "Dispatch Party," "Incident Description," and "Incident Information"—that would (or at least obviously could) reflect information relayed by emergency service providers. *See id.*, Fig. 5.

2. Motivation to Combine

325. To begin, even though it relates to a system for handling vehicle roadside service requests—and not a 911 call system like the '016 patent or the other prior art discussed in this Petition—a POSITA would nonetheless have considered Marr to be analogous art.

326. I have been informed and understand that art is analogous if it is either "from the same field of endeavor" of the patent-at-issue, or "is reasonably pertinent to the particular problem" addressed by the patent.

327. Here, the '016 patent explains that it relates to a communication system for "emergency operators." Ex. 1001, 1:22-24. This "operator" can be a

"dispatcher" handling a variety of "first response" issues. *Id.*, 1:28-41. While these issues can include "police, fire," or "medical" events, the patent explains that it also extends to "other types of first response." *Id.*

328. Marr teaches one such "other" system: its system facilitates response to vehicle roadside emergencies. *See* Marr, ¶ [0002]. So, Marr is in fact in the same field of invention as the '016 patent.

329. POSITA would also have considered Marr pertinent to the purported problem addressed by the '016 patent. According to the patent, dispatchers often have difficulty gathering information—including location—during an emergency call. Ex. 1001, 1:28-45. The '016 patent's system attempts to address this by allowing "communication through textual messages." *Id.*, 1:22-24.

330. Marr similarly notes that service requests relying only on phone conversations are problematic. Marr, ¶¶ [0005]-[0006]. And it presents, among other things, the same solution as the '016 patent: a dispatcher can send text messages to a caller to obtain further information. *Id.*, ¶¶ [0037]-[0040]. So, a POSITA would have plainly recognized that both the '016 patent and Marr address similar problems. This, in my opinion, makes Marr analogous art. Salafia is also, of course, analogous art. It relates to the very same thing as the '016 patent: an emergency call system that allows for text communication.

331. Next, in my opinion, a POSITA also would have considered it obvious and would have been motivated to apply Marr's teachings to Salafia.

332. Salafia's system is meant to obtain GPS information from caller cell phones. But Salafia does not explain exactly how this occurs. Thus, a POSITA implementing Salafia would have considered other references discussing this required functionality.

333. A POSITA would have recognized Marr to be one such reference. Just as Salafia requires, Marr's system allows a dispatcher to request and then obtain GPS location data from the caller's phone. Moreover, it does so by sending a text message to a caller. This is the very same mechanism and approach that Salafia itself uses to obtain further location information from a caller: Salafia also sends textual messages (including an MMS message) to callers to obtain location information.

334. Marr also articulates several benefits deriving from its specific system and procedure for obtaining phone location. These also would have motivated a POSITA to employ Marr when implementing Salafia.

335. According to Marr, "many modern web-enabled phones include GPS capability" allowing for very accurate location determination. Marr, ¶ [0021]. Marr's system is designed to employ this widely used, already built-in functionality to obtain needed location information. A POSITA would have understood that

phones calling into Salafia's system as of the filing of the '016 patent would also include this built-in functionality and thus could receive (and use) the type of messages Marr's system sends.

336. Next, Marr notes that "the most relevant information, and often the most difficult to accurately determine, is the location of the vehicle." Marr, ¶ [0020]. Marr explains that using "web-enabled devices" to collect GPS information "increase[s] the accuracy and availability of information while putting fewer demands on" a caller's "time, memory, and knowledge." Marr, ¶ [0021].

337. According to Marr, using text messages with URLs to obtain position information is particularly useful "whenever a customer is not particularly technologically savvy about the data-related functions of his or her mobile device." *Id.*, ¶ [0038].

338. So, Marr's system obtains accurate position information without imposing significant burdens on the callers. As I explain above when discussing Ground 1, a POSITA would consider this particularly beneficial. Many emergency callers will not be tech savvy. And even tech savvy callers may have difficulty following complicated instructions when confronted with the stress of an emergency. The simplicity of Marr's system minimizes the problems that could arise in such circumstances and would have significantly increased the odds of successful location information collection.

339. A POSITA would have recognized that using Marr's approach—as opposed to some other method to obtain phone location, like relying on voice communication or pinpointing a location from a transmitted picture—would have improved Salafia in the same way discussed in Marr.

340. Extensive modification of Salafia's system would not be required: phone GPS location would be obtained using web-browser and GPS functionality that is already built into cell phones calling into Salafia's PSAP / call handler workstation.

341. Further, callers would be able to supply location information without technical difficulty: they would simply click on links in sent electronic mail or text messages.

342. This would ensure that Salafia's call handler has access to accurate GPS location information (as a supplement to any other location information provided by the telephone network) whenever available.

343. Next, a POSITA would have recognized that Salafia and Marr have similar purposes, operation, and functionality. This also would have motivated combination of the references.

344. Both Salafia and Marr teach dispatcher systems. Both teach systems that receive incoming calls reporting emergency events and engage in textual

communication with callers to obtain further information. And both teach systems that allow for collection of caller position information during a call.

345. These similarities would not only have led a POSITA to identify and consider Marr when implementing Salafia, but would have motivated application of Marr's teachings.

346. I also understand that when a patent simply arranges old elements with each performing the same function it had been known to perform and yields no more than one would expect from such an arrangement, the combination is obvious.

347. This, in my opinion, is all the '016 patent (and the combination of Salafia and Marr) does here.

348. When combined with Marr, Salafia's system would continue to allow an emergency call handler to receive an emergency call and then engage in text messaging with the caller to obtain further information about the emergency. This would include—as Salafia repeatedly explains—visual information about the location and nature of the caller's emergency.

349. Application of Marr would simply provide one more message option—allowing Salafia's call handler to request, and obtain, cell phone GPS information if available.

350. A POSITA would have recognized that this would have ensured that information collected during call is complete and accurate, increasing the chances

that emergency personnel will be able to locate and appropriately respond to an emergency.

351. In my opinion, a POSITA would also have had more than a reasonable expectation of success.

352. As I have explained, Salafia's system is already designed to obtain caller GPS location and display this to a call handler. Salafia, ¶ [0061].

353. The system also already allows for the transmission of textual messages—including messages with URLs—to callers to obtain information. *See, e.g., id.*, ¶¶ [0010]-[0011].

354. And the system already includes "web hosting capabilities." *Id.*, ¶ [0018].

355. Given this, a POSITA would have recognized that Salafia's system is not only able to request, collect, and display the same type of GPS position information discussed in Marr, but already possesses the components required to do so (*i.e.*, the ability to send text messages with URLs, obtain and use GPS location information, employ web resources, and receive and display text message responses).

D. *Ground 3*: Obviousness Over Brooks, SARLOC, and Salafia

356. In my opinion, a POSITA would have considered Brooks, SARLOC, and Salafia to be within the scope of the prior art and highly relevant to the

patentability of the ’016 patent’s claims. All of these references relate generally to systems for facilitating communication during an emergency. And all of these references employ text messaging to obtain information about a caller. As I explain in the sections above, a POSITA also would have considered all these references to be analogous art to the ’016 patent.

357. In my opinion, moreover, when viewed and considered in light of the knowledge possessed by a POSITA, Brooks, SARLOC and Salafia together disclose all the limitations of and renders claims 1, 5-9, 13-17, and 25-27 of the ’016 patent obvious

358. As explained in Ground 1, Brooks and SARLOC themselves teach everything independent claims 1 and 9 require.

359. While neither reference uses the phrases “call reception module,” “outgoing message module,” “transmission module,” or “presentation module,” as I have explained a POSITA would nonetheless have understood that they teach a system that performs the functions the claims require: calls are received, outgoing messages are generated and transmitted, and responses are presented to a call operator.

360. Moreover, as explained, a POSITA would have considered it obvious that this functionality would all be effectuated by processors running appropriate computer software.

361. Patent Owner explained during prosecution that this is all the claimed "module[s]" are: "computer program modules that are executed by processors." Ex. 1003, 168-169.

362. While Brooks' and SARLOC's disclosures alone are sufficient for purposes of the claims, if it is determined for some reason that additional structural detail is required, in my opinion the claims would still be obvious when Salafia's teachings are applied.

363. Salafia discusses an emergency call system—including the hardware components such a system uses—at length.

364. In particular, according to Salafia, a call handler workstation 202 located at a PSAP 212 receives incoming emergency calls over a cellular and PSTN network. *See* Salafia, ¶¶ [0059]-[0061]; Fig. 2.

365. A POSITA would have understood that the ***"call reception module"*** in Brooks includes the same structure: a workstation at a PSAP would similarly receive emergency calls over cellular and traditional telephone networks.

366. Next, in Salafia, the workstation 202 provides a call handler with a user interface—a call display window 500—that displays information such as caller location, includes various selectable options, and allows for text message generation. *See* Salafia, ¶¶ [0044], [0059], [0061], [0078]-[0079], Fig. 5.

367. In my opinion, a POSITA would have understood that Brooks' and SARLOC's ***"presentation module"*** and ***"outgoing message module"*** would be similarly structured: the call handler's / dispatcher's workstation would provide various user interface options (including different types of text messages to send), facilitate the generation of text messages. The same interface would of course also obviously display information received from or about the caller (including the caller's responses to any sent text messages).

368. Salafia also includes an "electronic message processing module 228" that allows its system to transmit messages to and receive messages from callers over the Internet. Salafia, ¶ [0062]; Fig. 2.

369. In my opinion, a POSITA would have understood that Brooks' and SARLOC's ***"transmission module"*** would include an analogous module 228 to similarly facilitate transmission of texts generated by the dispatcher's workstation to callers over the Internet.

370. Additional details regarding Salafia's teaching of the claimed "modules"—along with the limitations added by certain dependent claims not already discussed in Ground 1—is provided above. *See* my above discussion of limitations [1-1]-[1-5] in Ground 1.

371. In my opinion, a POSITA would have been motivated to employ Salafia's structural components when implementing Brooks' and SARLOC's emergency call system and would have expected to succeed when doing so.

372. Salafia is in the same technical field as Brooks and SARLOC: all three references relate to systems for communicating and relaying information during emergency calls. *See* Salafia, Abstract; Brooks, Abstract; SARLOC at 7.

373. Salafia's system is also designed in a way that provides the very functionality Brooks' system requires: it is structured and receives emergency calls and then facilitates textual messaging with callers. This similarity in purpose and function would have provided a POSITA with a strong motivation to employ Salafia.

374. Moreover, Salafia uses well-known, widely available componentry, including public safety answering point hardware, workstations, displays, and modules that are designed to communicate over known networks like a PSTN and the Internet.

375. In my opinion, this would have further motivated use of Salafia and led a POSITA to conclude that doing so would result in success. Brooks and SARLOC already detail how their emergency call system is to function. Salafia simply identifies the well-known components—the PSAP, the call handler workstation, and the messaging modules—that would allow Brooks and SARLOC to perform these functions.

376. Additionally, a POSITA would have recognized that use of Salafia's system would have improved Brooks' and SARLOC's system. This would have further motivated combination.

377. In particular, the combined system would be able to not only request and receive GPS location and textual information, but could also request that callers send images of the emergency location. As explained in Salafia, this allows the "call handler" to "gain a better understanding of the emergency situation" and more "exact" information about the "location of the caller." Salafia, ¶ [0010]-[0011].

378. A POSITA would have understood that this would have enhanced Brooks' and SARLOC's ability to both gather information from a caller and then appropriately respond to the caller's emergency by providing the dispatcher with yet another message that could be sent. As a further improvement, Salafia teaches a comprehensive interface that provides the dispatcher with a wealth of information about (and selectable options to manage) a call. A POSITA would have recognized that use of such an interface would have improved Brooks and SARLOC by presenting the dispatcher with a clearer collection of information and user interface options.

E. Secondary Considerations of Non-Obviousness

379. Based on my review of the ’016 patent’s prosecution history, I note that no secondary considerations of non-obviousness were identified in connection with the patent’s claims.

380. I am not separately aware of any evidence of commercial success, skepticism, failure of others, industry praise, unexpected results, or the like. Instead, as discussed above, it is my opinion that the subject matter embraced by the ’016 patent’s claims was known in the art and would have been expected to function as a working system and method for emergency communication.

I declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true, and further that these statements were made with the knowledge that willfully false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1101 of Title 18 of the United States Code.

Date: May 2nd, 2025

Location: Taylors, South Carolina

Signature: 

GERALD CHRISTENSEN

ATTACHMENT A

Contact

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www.linkedin.com/in/gerrychristensen (LinkedIn)
www.46labs.com/ (Company)

Top Skills

Regulatory Compliance
Channel Partners
Cybersecurity

Certifications

Top 50 Global Thought Leaders and Influencers on Privacy 2025
Professional Engineer

Publications

Mobile Positioning and Location Management with GPS, Terrestrial Positioning, Non-cellular (RFID and WiFi) Positioning, and Managing Location Information
Data Decision Digest
Wireless Intelligent Networking
Data on SS7
Yes 2 Prepay

Patents

System and method for mediating service invocation from a communication device
System and method for service invocation and response with a communication device
Sender identification system and method

Gerry Christensen

Director of Product Management at 46 Labs
Greenville, South Carolina, United States

Summary

Information and Communication Technology (ICT) expert including Solutions, VoIP Policy, Business Strategy, Consumer Contact Regulations, and Telecom Intellectual Property | Gerry is an expert in technologies and solutions to facilitate accurate and consistent communications identity. This includes authentication and validation methods such as STIR/SHAKEN as well as various non-standard techniques. His expertise also includes non-network/telephone number methods such as cryptographically identifiable means of verifying organizational identity. In total, Christensen's knowledge and skills make him uniquely qualified as an industry expert in establishing a trust framework for supporting wanted business communications.

Experience

46 Labs

Director of Product Management
March 2025 - Present (2 months)
Dallas, Texas, United States

As Director of Product, I drive the strategic vision, roadmap, and execution for our comprehensive suite of VoIP platform and network solutions. I am passionate about defining and positioning innovative offerings that empower businesses with reliable and scalable communication capabilities.

My responsibilities span the entire product lifecycle, from initial concept and market analysis to successful launch and ongoing growth. This includes defining product vision, developing strategies, and ensuring successful execution to meet business objectives and customer needs. This requires collaboration with cross-functional teams, including engineering, marketing, sales, and customer support, to drive product innovation and market success.

A key focus of my role involves shaping our Platform as a Service (PaaS) and Software as a Service (SaaS) offerings, ensuring seamless network

connectivity and interoperability, and optimizing call routing and minutes of use. I am deeply involved in addressing the critical issue of unlawful robocalls, spearheading our mitigation strategies while also developing solutions for the responsible management of wanted robocalls vital for certain industry verticals such as education and public safety.

Beyond product definition, I serve as a subject matter expert in the crucial areas of business identity, telephone number reputation, and call authentication. I leverage my deep understanding of these domains to inform product strategy, educate internal teams and customers, and contribute to industry best practices. I thrive on collaborating with engineering, sales, and marketing teams to deliver impactful solutions that meet the evolving needs of our customers and the dynamic landscape of the telecommunications industry.

Caller ID Reputation®
Head of Partnerships and Regulatory Compliance
August 2023 - February 2025 (1 year 7 months)
Newport Beach, California, United States

Drive new business development and channel relationships for optimizing B2C engagement. Identify and communicate the Caller ID Reputation value proposition for mutually beneficial, scalable and high growth opportunities. Develop new business strategies and execute plans in alignment with corporate goals.

Build business cases aligned with solution definitions that leverage platform and service differentiation and optimize user experience. Develop and execute against revenue plans that leverage unique market positioning. Increase product market fit and reach of Caller ID Reputation services. Develop strategy and execute playbook for strategic partnerships and alliances.

Responsible for regulatory compliance as an internal advisor to the company and its customers as well as externally in terms of policy-making, industry solutions and standards.

YouMail Protective Services
Vice President of Business Development and Sales
May 2021 - July 2023 (2 years 3 months)
Irvine, California, United States

Within an early stage business model with limited proof points, I delivered new B2B SaaS and professional service customers that resulted in substantial net

ARR for YouMail, a company originally known as only a consumer and SMB app company.

With aspirations to parlay robocall protection capabilities developed initially for its own app users, the company hired me in May 2021 as their VP of BD and Sales for the carrier and enterprise market. In this capacity, I became a key employee within the company's Protective Services business unit, which provides B2B solutions for vendors, communication service providers and enterprise organizations.

In terms of full hunt selling, I identified and acquired new logos and ARR including a leading enterprise call filtering service provider and several VoIP network operators. I was also responsible for closing significant ARR deals with new logos for three major enterprises within the financial services industry. My efforts resulted in substantial new revenue streams for the company in the areas of Know Your Customer (KYC), enterprise reputation defense, regulatory and legal compliance.

My primary role was direct sales to acquire new B2B customers, expand offerings with existing clients, and develop channel relationships. I identified market needs for KYC, brand protection, and regulatory compliance solutions. Working directly with engineering and development, I ensured customer requirements aligned with service realization. I also worked closely with the campaign curation and telephone number reputation scoring team to ensure alignment of service delivery needs with regulatory directives such as compliance with the Federal Trade Commission's TSR.

In terms of market development and demand generation, I was relied upon as a thought leader and technology/solution evangelist for the company, authoring key outbound marketing material and messaging including whitepapers, eBook, webinars, podcasts, etc.

Transaction Network Services
Sr. Product Manager
May 2020 - April 2021 (1 year)
Olympia, Washington, United States

Telecom data and analytics product management for mitigating unwanted robocalls and enabling wanted enterprise calls via telephone number authentication, caller authorization, and branded calling. Was responsible for product management of TNS Call Guardian platform and embedded Analytics

Engine (AE) including support of existing services and identification of new data and analytics dependent offerings.

Was responsible for AE efficacy in support of call origination and termination services. This included internal customers, such as TNS branded calling, and external customers, such as carriers, enterprise, traffic aggregators, and call centers. Was responsible for related data strategy, product efficacy and continuous improvements.

Worked with data science team to ensure AE addresses emerging threats and opportunities. This included algorithm model tuning and decisions about data sources and usage. Ensured continuous improvement for terminating network customer protection. Identified and realized new and enhanced feature/functionality for call originators and traffic aggregators. Simultaneously balanced the protection needs of terminating network customers and call completion needs of originating networks.

Identified and collaborated with a diverse set of stakeholders to develop plans that target high-priorities across technology, product, and business needs. Identified opportunities, developed strategies and plans that mapped solutions to target customers and partners.

Wireless Waypoint
Founder and Principal Consultant
September 2010 - April 2020 (9 years 8 months)

Wireless Waypoint provides consulting, professional and expert services for the telecommunications, Internet, and commerce industries. Our primary focus is wireless technology, solutions and applications. Our core competency areas are switching, signaling, and related applications. Our practice areas include strategy and development of emerging business models and ecosystems, network infrastructure, circuit and IP based applications, operational and business support systems.

Mind Commerce
Founder
July 1999 - April 2020 (20 years 10 months)
Greater Seattle Area

Responsibilities for leading Technology Media and Telecom (TMT) research, consulting, and advisory company include overall company leadership and

oversight of Analyst/Author Relations, Commissioning, Content Licensing, Editing, Reseller Relations, Sales and Marketing.

Mind Commerce is an Information and Communications Technology (ICT) strategy company that has focused exclusively on ICT/TMT for over twenty years. With deep roots within the ICT industry, we are well-connected and often called upon by clients to improve their understanding of current challenges, identify future opportunities, and provide vision for the next 5 to 10 years.

Our ICT research provides key trends, projections, and in-depth analysis for infrastructure, platforms, devices, applications, services, emerging business models and opportunities. Our ICT research provides insights into the impact of emerging technologies on existing value chains including industry disruption and ecosystem evolution.

Our practice areas include: Artificial Intelligence, Broadband Wireless, Cloud Solutions, Data and Analytics, Immersive Technologies, IoT, Robotics, and Smart Cities.

GLG
Advisory Council Member
2010 - January 2020 (10 years)

Christensen has a strong working knowledge in many ICT areas and considered an expert and thought leader. As a knowledge transfer agent, Mr. Christensen is often called upon to put complex technology concepts into more easily digestible information. In addition to his knowledge and experience in ICT, Gerry has broad intellectual property experience including patent submission and prosecution, portfolio analysis, and strategy development. He assists clients with intellectual property development, assertion, and defense. He provides patent analysis from both a technological and business valuation point-of-view including forensic analysis of claims vs. potential infringing products. Mr. Christensen is also an inventor himself with patents in his name.

North Olympic Land Trust
Board Member
2014 - 2017 (3 years)
Port Angeles, Washington, United States

Contributor to strategic plan and helped Board ensure effective organizational planning, provide sufficient resources, and fulfill its obligations. Co-founded

and served on Board-owned LLC to manage acquired property and handle commercial matters.

Zoove, Corp.
Co-founder and CTO
September 2005 - September 2010 (5 years 1 month)
Palo Alto, California

Start-up venture with investment from Highland Capital, Worldview, Cardinal, Panorama, Rogers Wireless and Verizon. Solutions based upon a mobile advertising platform using mobile abbreviated dial codes (** or #) Created a new calling namespace to be used by marketers. Technical and product functionality direction for prototype application for company start-up. Provided overall technical vision and direction for the company. Led product management for wireless advertising technology, products, and services. Defined overall technical functionality, product and features for support of brand and advertising agency clients.

Remained with company in consulting capacity until acquisition by mBlox in 2014.

VeriSign, Inc.
Director of Wireless Business Development
July 2001 - September 2005 (4 years 3 months)
Mountain View, California

Developed strategies and plans for new network and application business with emphasis in the areas of wireless data, mobile messaging and content for organic growth as well as partnerships, mergers and acquisitions. Member of team that established strategy that resulted in acquiring three companies to fulfill company objectives in mobile messaging and content: Jamba!, Unimobile, and LightSurf.

SME on due diligence team for Jamba! and Unimobile acquisitions. Identified new product and business opportunities and guided VeriSign industry influence through leadership in the Mobile Marketing Association (MMA). Responsibilities included development through first stages of product gate process as well as resource allocation and proper hand off to product management for life cycle management.

SignalSoft
Director of Product Management
October 1999 - June 2001 (1 year 9 months)

Boulder, Colorado

Built and led group of product managers responsible for all corporate mobile location service software products on a global basis. Set direction and established strategic plans for mobile location service application product line. Directed requirements gathering, feature planning, and release management. Communicated strategy/plans in support of marketing and sales efforts. Managed cross-product functions and strategic initiatives.

ILLUMINET

Senior Product Manager, Wireless Services

August 1997 - October 1999 (2 years 3 months)

Overland Park, Kansas

Responsible for new Wireless Intelligent Network (WIN) service business development and life cycle product management of existing wireless network services. Developed WIN service strategy and plans for execution. Directed WIN implementation efforts and ongoing management and optimization of services and vendors/partner relationships. SME on team that engaged National Telemanagement Corporation (NTC) for partnership deals for WIN-based prepay wireless, which ultimately led to the acquisition of NTC.

AT&T

9 years 3 months

Manager of Network Strategic Planning and Implementation

February 1995 - July 1997 (2 years 6 months)

Atlanta, Georgia

Developed RFPs, managed selection process for vendors, and developed plans for company's own SS7 network and first stand-alone HLR. Led efforts of other staff members and market units to develop network strategies. Developed network evolution plans to support business strategy and in consideration of trends in technology, industry standards, and regulatory environment.

Identified, evaluated, and procured network elements required to implement network plans. Performed overall coordination for plan execution. Managed vendors for network optimization. Major projects included support for Local Number Portability (LNP) as well as Phase I and II of Enhanced 9-1-1 vendor selection and planning.

Signaling and Intelligent Network Planner/Engineer

November 1992 - February 1995 (2 years 4 months)

Birmingham, Alabama

Was responsible for planning and engineering of 1/3 of BellSouth Telecommunications SS7 network. Developed plans for network growth and evolution of signaling and intelligent network elements for nine state region. Interfaced with inter-exchange carriers, independent telephone companies, wireless providers, and internal business units to manage interconnection and determine future network requirements. Forecasted link and node capacity requirements based on interconnection expectations and feature deployment strategies. Engineered and monitored network elements to maintain capacity. Developed and monitored capital and expense budgets.

Manager
February 1992 - November 1992 (10 months)
Jacksonville, Florida

Managed order management group of nine people responsible for processing requests for switching services, new services, and enhancements.

Quality Consultant/Trainer
September 1991 - June 1992 (10 months)
Jacksonville, Florida

Provided training and consultation to internal customers regarding quality improvement and best practices. Focused on total quality management principles and use of process and efficiency improvement techniques from industrial engineering. Provided numerous structured training engagements to management and craft employees in classroom setting.

Equipment Engineer
August 1989 - February 1992 (2 years 7 months)
Jacksonville, Florida

Coordinated installation and removal of central office equipment. Estimated project material, labor, and engineering costs. Monitored vendor billing, material requirements, and internal charges for accuracy. Provided expense and budget information to upper management. Supervised seven Network Analyst Specialists whose responsibilities included payment of central office equipment invoices and maintenance of property records and budgets.

Network Design Engineer
May 1988 - August 1989 (1 year 4 months)
Jacksonville, Florida

Designed cost effective central office switching configurations based on estimated line and trunk growth and demand for new services. Analyzed communications traffic patterns and forecasted future network usage. Monitored switch performance to meet customer#s service objectives.

Gainesville Regional Utilities
Industrial Engineering Intern
April 1987 - April 1988 (1 year 1 month)
Gainesville, Florida, United States

US Navy
Industrial Engineering Intern
May 1986 - August 1986 (4 months)
Jacksonville, Florida, United States

Jax Naval Air Station Facilities Engineering Department

US Navy
Industrial Engineering Intern
September 1985 - December 1985 (4 months)
Jacksonville, Florida, United States

Jax Naval Air Station Facilities Engineering Department

Education

University of Florida
BSIE, Industrial Engineering · (August 1983 - April 1988)

Auburn University
MBA, Business Administration · (January 1993 - July 1997)