

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

DK CROWN HOLDINGS INC. (f/k/a DRAFTKINGS INC.),

Petitioner,

v.

INTERACTIVE GAMES LLC,

Patent Owner.

IPR2026-00493

PATENT NO. 12,406,284

DECLARATION OF MICHAEL IAN SHAMOS, PH.D., J.D.

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I, Michael I. Shamos, declare as follows.

I. INTRODUCTION AND QUALIFICATIONS

1. I have been retained by Baker Botts LLP on behalf of Petitioner DK Crown Holdings Inc. (“DK” or “Petitioner”) to provide my opinions concerning the validity of claims 1-18 (the “Challenged Claims”) of U.S. Patent No. 12,406,284 (“’284 Patent,” or the “Patent,” EX1001) in support of Petitioner’s “Petition for Inter Partes Review of U.S. Patent 12,406,284” (the “Petition”).

2. I have been retained as an independent expert consultant in this proceeding before the United States Patent and Trademark Office. Although I am being compensated at my rate of \$650 per hour for the time I spend on this matter, no part of my compensation depends on the outcome of this proceeding. I have no financial interest in Patent Owner or the ’284 Patent. It is conceivable that I may own mutual funds whose portfolios include stock in Petitioner. If this is the case, the value of such holding would not constitute a material part of my net worth.

3. A detailed description of my professional qualifications, including a listing of my specialties/expertise and professional activities and publications, is contained in my curriculum vitae, a copy of which is provided as **Attachment 1** hereto. Below is a short summary of my professional qualifications.

4. I received an A.B. (1968) from Princeton University in Physics; a M.A. (1970) from Vassar College in Physics; a M.S. (1972) from American University in

Technology of Management, a field that covers quantitative tools used in managing organizations, such as statistics, operations research and cost-benefit analysis; a M.S. (1973), and M.Phil. (1974) and a Ph.D. (1974) from Yale University in Computer Science; and a J.D. (1981) from Duquesne University.

5. I currently hold the title of Distinguished Career Professor in the School of Computer Science at Carnegie Mellon University in Pittsburgh, Pennsylvania. I am a member of two departments in that School, the Software and Societal Systems Department and the Language Technologies Institute. I was a founder and Co-Director of the Institute for eCommerce at Carnegie Mellon from 1998-2004 and from 2004-2018 was Director of the eBusiness Technology graduate program in the Carnegie Mellon University School of Computer Science. From 2018-2026, I was Director of the M.S. in Artificial Intelligence and Innovation degree program at Carnegie Mellon. I am now Associate Director.

6. I have taught graduate courses at Carnegie Mellon in Electronic Commerce, including eCommerce Technology, Electronic Payment Systems, Electronic Voting, Internet of Things, Electronic Payment Systems and eCommerce Law and Regulation, as well as Analysis of Algorithms. Since 2007, I have taught an annual course in Law of Computer Technology. I currently also teach Artificial Intelligence and Future Markets.

7. I am the author and lecturer in a 24-hour video course on Internet protocols and have taught computer networking, wireless communication, and Internet architecture since 1999.

8. From 2001-2021, I was a Visiting Professor at the University of Hong Kong, where I taught an annual course in Electronic Payment Systems. This is one of only a handful of graduate courses taught on this subject in the world.

9. I was the Director of Carnegie Mellon's graduate degree program in eBusiness Technology from 1999-2018 and am now a faculty member in the Privacy Engineering degree program at Carnegie Mellon. My course on Law of Computer Technology is required for all students in that program, the M.S. in Artificial Intelligence and Innovation program and in the Societal Computing Ph.D. program.

10. From 1979-1987, I was the founder and president of two computer software development companies in Pittsburgh, Pennsylvania, Unilogic, Ltd. and Lexeme Corporation.

11. I am an attorney admitted to practice in Pennsylvania and have been admitted to the Bar of the U.S. Patent and Trademark Office since 1981. I have been asked to render opinions in this Declaration as a technical expert. I have not been asked to offer any opinions on patent law in this proceeding.

12. I am a named co-inventor on the following six issued patents relating to electronic commerce: U.S. Patent Nos. 7,330,839, 7,421,278, 7,747,465, 8,195,197, 8,280,773, and 9,456,299.

13. I have previously served as an expert in over 410 cases concerning computer technology.

14. I am aware of contemporaneous litigation involving Petitioner and the Patent in a case captioned *Interactive Games LLC v. DraftKings Inc.*, 1:26-cv-11544-WGY (D. Mass.) (the “Litigation”).

15. This IPR petition involves the ’284 Patent, which was filed on May 1, 2024 and entitled “Mobile Device Proximity Tracking for Selective Content Delivery and Formatting.” The Patent is one of a series of continuations dating back to Application 12/147,005 (the “’005 Application”), filed February 13, 2009. I understand that pre-AIA law applies to the ’284 Patent.

16. I have been asked to assume, for purposes of this IPR proceeding only, that the claims of the Patent are all entitled to a priority date of February 13, 2009 (“Priority Date”).

17. The statements made and opinions provided in this Declaration are based on my own personal knowledge and, if called as a witness, I could and would testify in a manner consistent with this Declaration.

18. In this Declaration, all emphasis has been added unless otherwise noted.

II. MATERIALS CONSIDERED

19. In forming my opinions, I have reviewed and am familiar with the '284 Patent and its prosecution history, the materials cited herein, and the following exhibits to the Petition.

Exhibit No.	Description
1001	U.S. Patent No. 12,406,284 B2 (the '284 Patent) to Lutnick et al.
1002	Prosecution history of the '284 Patent
1003	Expert Declaration of Michael Ian Shamos, Ph.D., J.D.
1004	International Patent Application Publication No. WO 2009/061651 A1 to Gagner et al. ("Gagner")
1005	U.S. Patent Application Publication No. 2008/0311893 A1 to Liu et al. ("Liu")
1006	U.S. Patent Application Publication No. 2009/0286553 A1 to Northway et al. ("Northway")
1007	U.S. Patent Application Publication No. 2008/0057894 A1 to Aleksic et al. ("Aleksic")
1008	U.S. Patent Application Publication No. 2009/0209293 A1 to Louch ("Louch")
1009	U.S. Patent Application Publication No. 2002/0138735 A1 to Felt et al. ("Felt")
1010	U.S. Patent No. 6,983,331 B1 to Mitchell et al. ("Mitchell")
1011	U.S. Patent Publication No. 2005/0174975 A1 to Mgrdechian et al. ("Mgrdechian")
1012	U.S. Patent Application Publication No. 2006/0223518 A1 to Haney ("Haney")

Exhibit No.	Description
1013	Dynamic IP Address Definition, Linux Information Project, (Oct. 10, 2005) (available at https://www.linfo.org/dynamic_ip_address.html)
1014	Microsoft Computer Dictionary (4th Edition), Microsoft Press (1999)
1015	Overview of International Video Coding Standards (preceding H.264/AVC), Gary J. Sullivan, Ph.D. (Jul. 22-23, 2005)
1016	Line Transmission of Non-Telephone Signals, Codecs For Videoconferencing Using Primary Digital Group Transmission, International Telecommunication Union (Mar. 1993) retrieved from (https://www.itu.int/rec/T-REC-H.120-199303-I/en)
1017	K. Boudreau, Let a Thousand Flowers Bloom? An Early Look at Large Numbers of Software App Developers and Patterns of Innovation, Organization Science Vol. 23, No. 5, (September–October 2012)
1018	Apple unveils iPhone SDK (March 6, 2008)
1019	U.S. Patent Application Publication No. 2003/0096651 to Black (“Black”)
1020	G. Kewney, Orange SPV, ZDNET (October 30, 2002) (available at https://web.archive.org/web/20220906021727/https://www.zdnet.com/product/orange-spv/)
1021	J. Johnson et al., The Xerox Star: a retrospective, Computer, vol. 22, no. 9, (September 1989) (doi: 10.1109/2.35211)
1022	Guide to the IBM Personal Computers, Byte The Small Systems Journal, IBM, (September 1984)
1023	B Meyers, A Brief History of Human-Computer Interaction Technology, Interactions, vol. 5, no. 2, (Mar. 1, 1998) (doi: 10.1145/274430.274436)
1024	Nevada Assembly Bill AB471
1025	Technical Standard 4 Mobile Gaming Systems, Nevada Gaming Commission (Date Adopted March 23, 2006)

Exhibit No.	Description
1026	History of Adopted Regulations, Nevada Gaming Commission (available at https://www.gaming.nv.gov/divisions/administration-division/history-of-adopted-regulations-technical-standards-and-technical-policies/)
1027	Mobile Gaming System Policies, Nevada Gaming Commission (Date Adopted May 18, 2006)
1028	Claim Chart for U.S. Patent No. 12,406,284, <i>Interactive Games, LLC v. DraftKings, Inc.</i> , No. 1:26-cv-11544-WGY (D. Mass. Apr. 2, 2026), ECF No. 1-12, Ex. 12
1029	U.S. Patent No. 5,519,760 to Borkowski et al. (“Borkowski”)
1030	U.S. Patent No. 6,246,751 to Bergl et al. (“Bergl”)
1031	Cascading Style Sheets, level 2 CSS2 Specification, W3C Recommendation, (May 12, 1998) (available at https://www.w3.org/TR/1998/REC-CSS2-19980512/cover.html#minitoc) (“W3C”)
1032	T. Richardson et al., The RFB Protocol Version 3.3, (July 16, 1998) (available at https://web.mit.edu/cdsdev/src/rfbproto.pdf) (“Richardson”)
1033	U.S. Patent No. 6,036,601 to Heckel et al. (“Heckel”)
1034	International Patent Application Publication No. WO 99/59283 to De Boor et al. (“De Boor”)
1035	U.S. Patent No. 6,161,127 to Cezar et al. (“Cezar”)
1036	U.S. Patent No. 6,487,538 to Gupta et al. (“Gupta”)
1037	U.S. Patent No. 6,505,169 to Bhagavath et al. (“Bhagavath”)
1038	U.S. Patent No. 6,697,953 to Collins et al. (“Collins”)
1039	Internet X.509 Public Key Infrastructure Time-Stamp Protocol (TSP) Network Working Group Request for Comments: 3161, The Internet Society (August, 2001) (“RFC 3161”)

Exhibit No.	Description
1040	U.S. Patent No. 7,190,976 to Enns et al. (“Enns”)
1041	U.S. Patent Application Publication No. 2004/0015608 to Ellis et al. (“Ellis”)
1042	U.S. Patent Application Publication No. 2003/0106022 to Goodacre et al. (“Goodacre”)
1043	U.S. Patent Application Publication No. 2006/0039469 to Liebbrandt et al. (“Liebbrandt”)
1044	U.S. Patent Application Publication No. 2004/0059708 to Dean et al. (“Dean”)
1045	U.S. Patent Application Publication No. 2004/0254014 to Quraishi et al. (“Quraishi”)
1046	U.S. Patent Application Publication No. 2005/0198029 to Pohja et al. (“Pohja”)
1047	L. Aalto et al., Bluetooth and WAP Push Based Location-Aware Mobile Advertising System, MobiSys '04, (June 6–9, 2004) (“Aalto”)
1048	U.S. Patent Application Publication No. 2005/0283806 to Torvinen et al. (“Torvinen”)
1049	U.S. Patent Application Publication No. 2006/0004627 to Baluja et al. (“Baluja”)
1050	U.S. Patent No. 7,251,476 to Cortegiano (“Cortegiano”)
1051	U.S. Patent Application Publication No. 2005/0143136 to Lev et al. (“Lev”)
1052	Secure Neighbor Discovery (SEND) Network Working Group Request for Comments: 3971, The Internet Society (March, 2005) (“RFC 3971”)
1053	U.S. Patent Application Publication No. 2007/0215794 to Cernasov et al. (“Cernasov”)

Exhibit No.	Description
1054	U.S. Patent Application Publication No. 2008/0004097 to Maya et al. (“Maya”)
1055	International Patent Application Publication No. WO 2007/008597 to Amaitis et al. (“Amaitis”)
1056	Security and Accountability For Every Port Act of 2006, Pub. L. No. 109-347, 120 Stat. 1884 (2006) (“SAFE Act”)
1057	U.S. Patent Application Publication No. 2008/0102956 to Burman et al. (“Burman”)
1058	U.S. Patent Application Publication No. 2007/0146200 to Norin et al. (“Norin”)
1059	Apple Reinvents the Phone with iPhone, (January 9, 2007) (available at https://www.apple.com/newsroom/2007/01/09Apple-Reinvents-the-Phone-with-iPhone/) (“Apple iPhone”)
1060	U.S. Patent Application Publication No. 2007/0283247 to Brenneman et al. (“Brenneman”)
1061	U.S. Patent Application Publication No. 2010/0240455 to Gagner et al. (“Gagner 455”)
1062	U.S. Patent Application Publication No. 2009/0125376 to Sundaresan et al. (“Sundaresan”)
1063	International Patent Application Publication No. WO 2008/118318 to Pacey et al. (“Pacey”)
1064	U.S. Patent Application Publication No. 2009/0264190 to Davis et al. (“Davis”)
1065	Electronic Signature Formats for long term electronic signatures, Network Working Group Request for Comments: 3126, The Internet Society (September 2001) (“RFC 3126”)
1066	U.S. Patent Application Publication No. 2010/0105482 to Pacey et al.

Exhibit No.	Description
1067	Samir S. Soliman et al., <i>Geolocation technologies and applications for third generation wireless</i> , 2 Wireless Commc'ns & Mobile Computing 229, 229–51 (May 2002)

20. I have also relied on my education, skill, training, and experience in the relevant fields of technology. I have further considered the viewpoint of a person of ordinary skill in the art (“POSITA”) in the subject matter of the ’284 Patent as of the assumed Priority Date.

21. I reserve the right to supplement my opinions as expressed in this Declaration to address any new information obtained in the course of this proceeding, or based on any new positions taken by Patent Owner.

III. SUMMARY OF OPINIONS

22. It is my understanding that the following table summarizes the grounds raised in the Petition:

Ground	'284 Patent Claims	Basis for Challenge
1	1, 4, 11, 13-18	Obvious over Gagner ¹ (EX1004) in view of Liu ² (EX1005) and Mitchell ³ (EX1010)
2	2	Obvious over Gagner in view of Liu, Mitchell, and Northway ⁴ (EX1006)

¹ International Patent Application Publication No. WO 2009/061651 (“Gagner”).

² U.S. Patent Application Publication No. 2008/0311893 (“Liu”).

³ U.S. Patent No. 6,983,331 (“Mitchell”).

⁴ U.S. Patent Application Publication No. 2009/0286553 (“Northway”).

3	3	Obvious over Gagner in view of Liu, Mitchell, and Haney ⁵ (EX1012)
4	5-7	Obvious over Gagner in view of Liu, Mitchell, and Aleksic ⁶ (EX1007)
5	8-9	Obvious over Gagner in view of Liu, Mitchell, and Louch ⁷ (EX1008)
6	10	Obvious over Gagner in view of Liu, Mitchell, and Felt ⁸ (EX1009)
7	12	Obvious over Gagner in view of Liu, Mitchell, and Mgrdechian ⁹ (EX1011)

23. After a review of the '284 Patent and the prior art, it is my opinion that the Challenged Claims are invalid as obvious. My opinions, and the bases therefore, are detailed throughout this Declaration.

IV. LEGAL PRINCIPLES

24. Counsel for Petitioner has informed me of the legal principles that apply in this proceeding.

25. I understand that a claim is unpatentable for obviousness under pre-AIA 35 U.S.C. § 103 “if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains.” Obviousness may be based upon a

⁵ U.S. Patent Application Publication No. 2006/0223518 (“Haney”).

⁶ U.S. Patent Application Publication No. 2008/0057894 (“Aleksic”).

⁷ U.S. Patent Application Publication No. 2009/0209293 (“Louch”).

⁸ U.S. Patent Application Publication No. 2002/0138735 (“Felt”).

⁹ U.S. Patent Application Publication No. 2005/0174975 (“Mgrdechian”).

combination of references. Obviousness may also be based on a single reference combined with the knowledge of a person of ordinary skill in the art (“POSITA”) at the time the filing of the application that led to patent.

26. A prior art reference can disclose a limitation that is not expressly disclosed in the reference if it is “inherently present” in the reference. I further understand that to be “inherently present,” the missing disclosure must necessarily and inevitably be present in the element or process described in the reference. It is my understanding that a limitation is not disclosed by inherency if the missing limitation is only probably present or if there is merely a possibility that it is present.

27. For a claim to be obvious in view of a combination of known elements, there must be some apparent reason to combine the known elements in the fashion of the claim at issue by considering the teachings of prior art references, the effects of demands known to people working in the field or present in the marketplace, and the background knowledge possessed by a POSITA. Identifying a reason the elements should be combined is important because inventions in many instances rely upon building blocks long since uncovered, and claimed discoveries almost of necessity will be combinations of what, in some sense, was already known. The prior art references themselves may provide a suggestion, motivation, or reason to combine, but the nexus linking two or more prior art references is sometimes simple common sense.

28. An obviousness inquiry requires consideration of the following factors: (1) the scope and content of the prior art; (2) the differences between the claims and the prior art; (3) the level of ordinary skill in the pertinent art; and (4) any objective indicia of non-obviousness, such as commercial success, long-felt but unresolved need, failure of others, industry recognition, copying, and unexpected results.

29. Such secondary considerations include: (a) commercial success of a product due to the merits of the claimed invention; (b) a long-felt, but unmet need for the invention; (c) failure of others to find the solution provided by the claimed invention; (d) deliberate copying of the invention by others; (e) unexpected results achieved by the invention; (f) praise of the invention by others skilled in the art; (g) the taking of licenses under the patent by others and (h) the patentee proceeded contrary to the accepted wisdom of the prior art. Secondary considerations are relevant where there is a connection, or nexus, between the evidence and the claimed invention. I am not aware of any such objective evidence of non-obviousness of the Challenged Claims at this time.

30. In addition, I understand that the obviousness inquiry should not be performed in hindsight, but must be performed using the perspective of a person of ordinary skill in the relevant art as of the effective filing date of the patent claims.

31. Obviousness may also be shown by demonstrating that it would have been obvious to modify what is taught in a single piece of prior art to create the

patented invention. Obviousness may be shown by establishing that it would have been obvious to combine the teachings of more than one item of prior art. In determining whether a piece of prior art could have been combined with other prior art or with other information within the knowledge of one of ordinary skill in the art, the following are examples of approaches and rationales that may be considered:

(A) Combining prior art elements according to known methods to yield predictable results; (B) Simple substitution of one known element for another to obtain predictable results; (C) Use of a known technique to improve similar devices (methods, or products) in the same way; (D) Applying a known technique to a known device (method, or product) ready for improvement to yield predictable results; (E) Applying a technique or approach that would have been “obvious to try” (*e.g.*, choosing from a finite number of identified, predictable solutions, with a reasonable expectation of success); (F) Known work in one field of endeavor may prompt variations of it for use in either the same field or a different one based on design incentives or other market forces if the variations would have been predictable to one of ordinary skill in the art; or (G) Some teaching, suggestion, or motivation in the prior art that would have led one of ordinary skill to modify the prior art reference or to combine prior art reference teachings to arrive at the claimed invention. I also understand this suggestion or motivation may come from such sources as explicit

statements in the prior art, or from the knowledge or common sense of one of ordinary skill in the art.

32. I understand that an invention that might be considered an obvious variation or modification of the prior art may be considered non-obvious if one or more prior art references discourages or lead away from the line of inquiry disclosed in the reference(s). A reference does not “teach away” from an invention simply because the reference suggests that another embodiment of the invention is better or preferred. My understanding is that for a reference to teach away the reference must clearly indicate that the combination should not be attempted (e.g., because it would not work or explicit statement saying the combination should not be made).

33. I further understand that obviousness must be determined in light of all of the facts, and that there is no rule that if a reference teaches away a finding of nonobviousness is mandated. I understand this to be the rule because, for example, a given course of action often has simultaneous advantages and disadvantages, and thus teaching away does not necessarily obviate motivation to combine. Thus, I understand that where the prior art contains apparently conflicting teachings (for example, where some references teach the combination and others teach away from it) each reference must be considered for its power to suggest solutions to a POSITA considering the degree to which one reference might accurately discredit another. I am informed that the degree of teaching away depends upon the particular facts of

each circumstance and that rigid rules that prevent the application of common sense are not mandated.

34. I further understand that obviousness also requires that a POSITA would have perceived that the proposed combination would have had a reasonable expectation of success. I am informed that reasonable expectation of success does not mean certainty of success. If a technique has been used to improve one device, and a person of ordinary skill at the time of invention would have recognized that it would improve similar devices in the same way, using the technique is obvious unless its actual application is beyond their skill.

35. Practical and common-sense considerations should guide a proper obviousness analysis, because familiar items may have obvious uses beyond their primary purposes. A POSITA looking to overcome a problem will often be able to fit together the teachings of multiple prior art references. An obviousness analysis therefore takes into account the inferences and creative steps that a person of ordinary skill would have employed at the time of invention.

36. A proper obviousness analysis focuses on what was known or obvious to a POSITA at the time of invention, not to the patentee. Accordingly, any need or problem known in the field of endeavor at the time of invention and addressed by the patent can provide a reason for combining the elements in the manner claimed.

37. Prior art teachings are properly combined if one of ordinary skill, having the understanding and knowledge reflected in the prior art and motivated by the general problem facing the inventor, would have been led to make the combination of elements recited in the claims. Under this analysis, the prior art references themselves, or any need or problem known in the field of endeavor at the time of the invention, can provide a reason for combining the elements of multiple prior art references in the claimed manner.

38. I understand that in an *inter partes* review, the petitioner shall have the burden of proving a proposition of unpatentability, including a proposition of obviousness, by a preponderance of the evidence.

V. OVERVIEW OF THE '284 PATENT¹⁰

39. The '284 Patent is related to the concept of ensuring that a user attempting to place a wager on a mobile gaming device is physically in an area where such wagering is permitted. EX1001, Abstract. It also concerns the display of two types of data on the user interface of the mobile gaming device: secondary content

¹⁰ Any statement regarding the content, scope, or disclosure of the '284 is provided for purposes of this *Inter Partes* Review only. At this time, I have not been asked to provide an opinion on written description, enablement, or priority of any claim or any subject matter, nor have I formed one. While I have reviewed the contents of the '284 patent and other relevant documents, I have reviewed these documents primarily to understand the claim language as found in the Challenged Claims. Neither this section nor any other should be used as a basis to show any claim or subject matter is or is not supported, described, enabled, or entitled to any asserted claim of priority.

data provided by servers and primary wagering game data. EX1001, Abstract. It recognizes that content may be required to meet certain characteristics such as size (*e.g.*, pixel count or file size), format, or color. EX1001, 93:38-49. The content must also be formatted properly for the device on which it is to be presented. EX1001, 59:26-40. The Patent also describes, at a high level, preserving battery level in the mobile gaming device. EX1001, 48:18-49:7. It also describes adjusting brightness and volume based on ambient light and noise levels. EX1001, 36:45-67; 28:10-17. Further, the Patent describes using one mobile gaming device to transmit promotional material to a nearby device. EX1001, 44:61-45:19. The Patent combines several well-known technologies to achieve these objectives.

40. The disclosed architecture, such as it is, of the system in which the mobile gaming device functions is shown in Fig. 1:

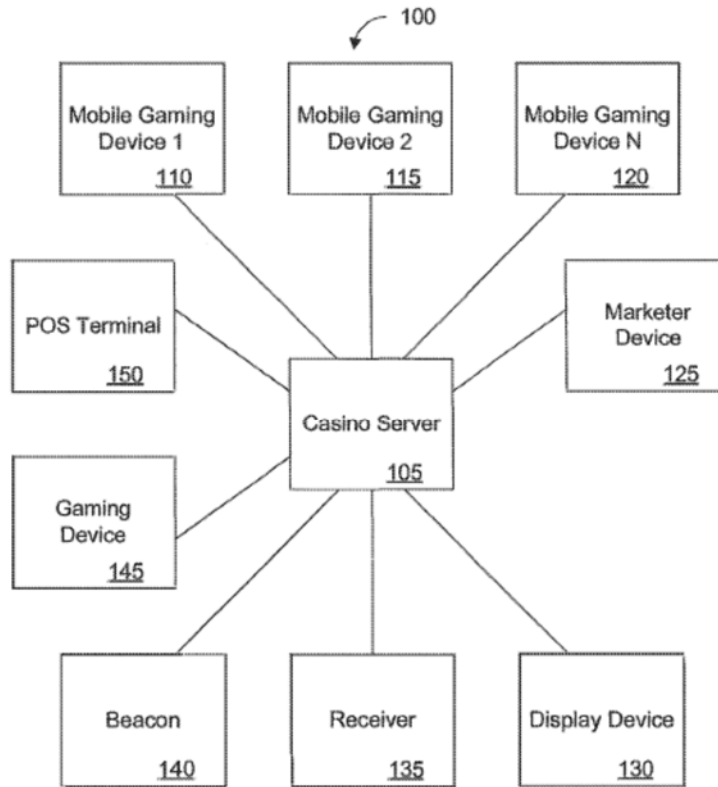


FIG. 1

EX1001, Fig. 1.

41. Mobile gaming devices (“MGDs”) 110, 115, 120 are utilized by persons engaged in wagering. EX1001, 18:46-19:31. Through Casino Server 105, the MGDs may receive wagering information from Gaming Device 145 and promotional information from Marketer Device 125. *Id.* Beacons 140 can broadcast positional information so an MGD can determine its position within a casino. EX1001, 13:33-67.

42. The Patent contains two independent claims, including independent claim 1. Claim 1 is a mobile phone (apparatus) claim. Claims 2-18 depend from claim 1.

VI. LEVEL OF ORDINARY SKILL IN THE ART

43. I understand that the Board will be asked to characterize a person having ordinary skill in the art (“POSITA”) at the time the purported invention was made. To make that determination, it is my understanding that the Board considers the following factors: (i) the educational level of active workers in the field, (ii) the type of problems encountered in the art, (iii) the prior art solutions to those problems, (iv) the rapidity with which innovations are made, and (v) the sophistication of the technology in the art. It is my understanding that the importance of each factor varies from case to case.

44. As explained in the “Overview of the ’284 Patent” section at §V, the Patent combines the following technologies: mobile gaming, geolocation, formatting data for various mobile gaming devices, detecting ambient light and noise, detecting nearby devices, and delivering data of at least two levels of priority.

45. In my opinion, in order to understand the Specification and make and use the claimed invention without undue experimentation as of the assumed Priority Date, one of ordinary skill in the art of the ’284 Patent would have had a bachelor’s degree in computer engineering, electrical engineering, computer science, applied

mathematics, or a similar field and at least two years of experience in the development of gambling game hardware or software functionality. A person with less education but more relevant practical experience may also meet this standard.

46. A POSITA familiar with the development of gambling game hardware or software would also be familiar with how gambling regulations impact design choices for wagering devices and how location-based services/techniques are used to determine wagering device location.

47. I had at least the background of such a POSITA at least as early as the assumed Priority Date.

VII. CLAIM CONSTRUCTION

48. I have accorded all of the claim terms their customary and ordinary meaning to a POSITA, as informed by the extensive definitional material at EX1001, 1:46-18:45. I understand that the statements made in EX1001, 1:46-18:45 may not conform to the law.

VIII. BACKGROUND OF THE PRIOR ART

49. The claims combine several overlapping fields of art: mobile gaming, geolocation, mobile interfaces, authentication by digital signature, nearby phone detection, and ambient condition (light and sound) detection. Mobile gaming of course overlaps with mobile interfaces, taking account of the small size of mobile screens. Mobile interfaces overlap with ambient condition detection, as it was

known to increase screen brightness in bright ambient and increase speaker volume in the presence of noise. Mobile gaming overlaps with geolocation because it was known, indeed, legally required, to prevent gambling in locations where it was not permitted. *See e.g.*, EX1024-1027. Mobile gaming also overlaps with authentication because gaming involves money and it was necessary to authenticate a user before deeming them liable for a debt.

50. In this section, I discuss the state of the art prior to the Patent as of the assumed Priority Date in chronological order. As a POSITA is presumed to have been familiar with all relevant prior art, a POSITA would have been familiar with the material in this section.

A. Borkowski

51. On June 22, 1994, Borkowski et al. filed a U.S. application that issued as U.S. Patent 5,519,760 on May 21, 1996, entitled “Cellular Network-Based Location System” (“Borkowski”) (EX1029). I understand that Borkowski is prior art to the Patent under at least pre-AIA 35 U.S.C §§ 102(a), (b), and (e). Borkowski was not considered by the Patent Office during the ’284 prosecution.

52. Borkowski deals with geolocation based on proximity to cell towers. It relates to mobile phones but not specifically to mobile gaming. Borkowski discloses determining the location of a mobile phone from cellular phone data, particularly based on a cell ID:

In a cellular system configuration, the location of a mobile station is determined from the acquisition of cellular network data pertaining to the mobile station, and the translation of such network data into a corresponding geographical position profile. The cellular system includes a mobile station locator entity for receiving from a mobile switching center the network data such as cell and/or sector ID and trunk group member number. The mobile station locator translates the network data into position information such as geographic coordinates (latitude and longitude), resolution (radius), and angle values for sectorized cells.

Borkowski, Abstract.

The present invention concerns an enhancement to the existing cellular network topology permitting the acquisition of a mobile station location using cellular parameters from the network. The cellular parameters define the placement of each mobile station within its cellular network and its relationship to other mobile stations.

Borkowski, 2:22-27.

53. Basically, the disclosure is that if one knows the location of a cell tower near a mobile phone, one can determine the phone's approximate location.

B. Bergl

54. On August 11, 1997, Bergl et al. filed a U.S. application that issued as U.S. Patent 6,246,751 on June 12, 2001, entitled "Apparatus and Methods for User Identification to Deny Access or Service to Unauthorized Users" ("Bergl")

(EX1030). I understand that Bergl is prior art to the Patent under at least pre-AIA 35 U.S.C. §§ 102(a), (b), and (e). Bergl was not considered by the Patent Office during the '284 prosecution.

55. Bergl discloses both (1) user authentication; and (2) determining that a user is near a telephone. The method disclosed by Bergl is to obtain a sample of the user's voice from the phone and match it to a known voice sample of an authorized user:

Apparatus for preventing unauthorized use of a voice dialing system and, particularly, a call forwarding feature associated with the system whereby system users may forward a telephone number respectively associated therewith to a remote location in order to receive phone calls at the remote location, comprises: a database for pre-storing telephone numbers of system users and for pre-storing acoustic models respectively representative of speech associated with each system user, the acoustic models respectively corresponding to the telephone numbers; and a speaker identification module operatively coupled to the database for obtaining and decoding a speech sample from a potential system user during the potential users' attempt to make a telephone call, the speaker identification module comparing the decoded speech sample obtained with the pre-stored acoustic model associated with the telephone number dialed by the potential user; whereby if the decoded speech sample substantially matches the pre-stored acoustic model, then the phone call attempted by the potential user is terminated.

Bergl, Abstract.

C. W3C

56. On May 12, 1998, the World Wide Web Consortium issued a recommendation, entitled “Cascading Style Sheets, level 2 CSS2 Specification” (“W3C”) (EX1031).¹¹ I understand that W3C is prior art to the Patent under at least pre-AIA 35 U.S.C. §§ 102(a) and (b). W3C was not considered by the Patent Office during the ’284 prosecution.

57. W3C explains that “The CSS box model describes the rectangular boxes that are generated for elements in the document tree and laid out according to the visual formatting model. The page box is a special kind of box that is described in detail in the section on paged media.” W3C, Chapter 8, page 10. W3C teaches a standardized CSS UI/layout model in which displayed elements are rectangular boxes having content, padding, borders, and margin areas, with “edges” and pixel-valued margins/padding used to maintain separation between displayed content and other elements.

58. W3C states:

Once a box has been laid out according to the normal flow [p. 105], it may be shifted relative to this position. This is called relative positioning. Offsetting a box (B1) in this way has no effect on the box

¹¹ Available at <https://www.w3.org/TR/1998/REC-CSS2-19980512/cover.html#minitoc>.

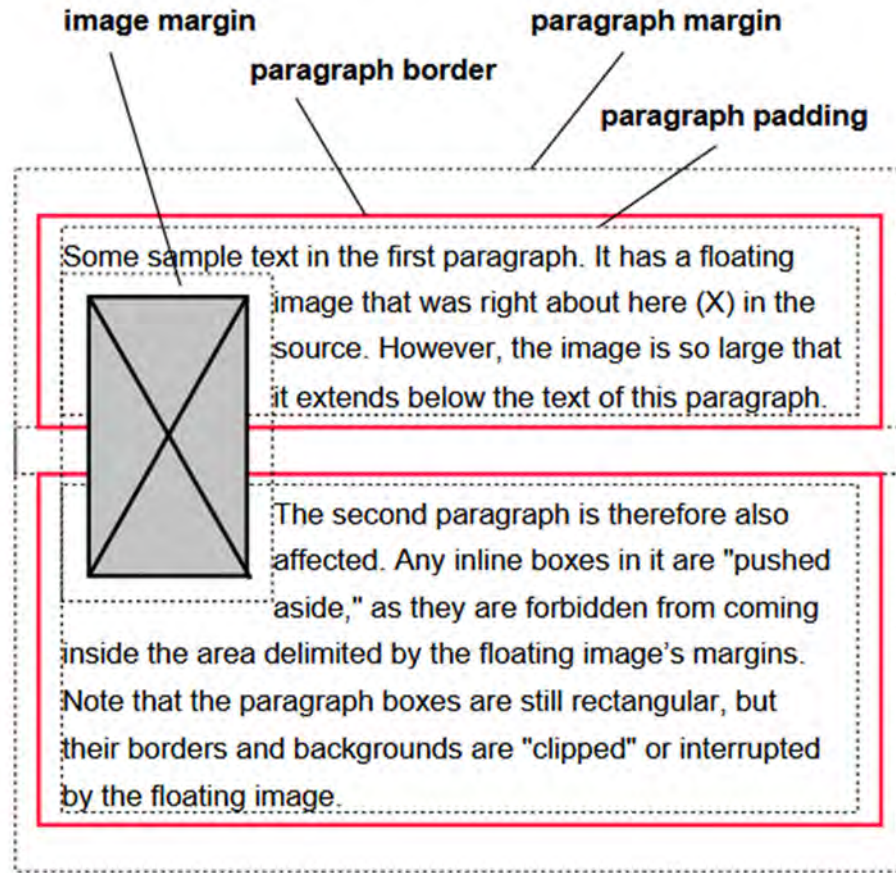
(B2) that follows: B2 is given a position as if B1 were not offset and B2 is not re-positioned after B1's offset is applied. This implies that relative positioning may cause boxes to overlap.

Relatively positioned boxes keep their normal flow size, including line breaks and the space originally reserved for them. A relatively positioned box establishes a new a new [sic] containing block [p. 96] for normal flow children and positioned descendants.

A relatively positioned box is generated when the 'position' property for an element has the value 'relative'. The offset is specified by the 'top', 'bottom', 'left', and 'right' properties.

W3C, Chapter 9.4.3, page 32.

A float can overlap other boxes in the normal flow (e.g., when a normal flow box next to a float has negative margins). When an inline box overlaps with a float, the content, background, and borders of the inline box are rendered in front of the float. When a block box overlaps, the background and borders of the block box are rendered behind the float and are only be visible where the box is transparent. The content of the block box is rendered in front of the float. Here is another illustration, showing what happens when a float overlaps borders of elements in the normal flow.



A floating image obscures borders of block boxes it overlaps.

W3C, Chapter 9.5, pages 34-36.

9.8.2 Relative positioning

To see the effect of relative positioning, we specify

```
#outer { position: relative; top: -12px; color: red }
```

```
#inner { position: relative; top: 12px; color: blue }
```

Text flows normally up to the outer element. The outer text is then flowed into its normal flow position and dimensions at the end of line 1. Then, the inline boxes containing the text (distributed over three lines) are shifted as a unit by '-12px' (upwards).

The contents of inner, as a child of outer, would normally flow immediately after the words "of outer contents" (on line 1.5).

However, the inner contents are themselves offset relative to the outer contents by '12px' (downwards), back to their original position on line 2.

W3C, Chapter 9.8.2, page 40-41.

D. Richardson

59. On July 16, 1998, Richardson et al. published “The RFB Protocol” (“Richardson”) (EX1032).¹² I understand that Richardson is prior art to the Patent under at least pre-AIA 35 U.S.C. §§ 102(a) and (b). Richardson was not considered by the Patent Office during the '284 prosecution.

60. “RFB” stands for “Remote Frame Buffer.” The protocol disclosed by Richardson describes remote access to graphical user interfaces. That is, a server can control what is shown on a remote user’s interface screen.

61. Richardson discloses server-provided UI/display data, displaying data at an identified area of a UI, pixel-coordinate location, width, and height, comparing area size to content size, reformatting / resizing / compressing / decompressing / color-format conversion, and sending user input or interaction events back to a server.

E. Gupta

62. On November 16, 1998, Gupta et al. filed a U.S. application that was issued as U.S. Patent 6,487,538 on November 26, 2002, entitled “Method and

¹² Available at <https://web.mit.edu/cdsdev/src/rfbproto.pdf>.

Apparatus for Local Advertising” (“Gupta”) (EX1036). I understand that Gupta is prior art to the Patent under at least pre-AIA 35 U.S.C. §§ 102(a), (b), and (e). Gupta was not considered by the Patent Office during the ’284 prosecution.

63. Gupta demonstrates that IP-address-based geographic ad targeting was already known in 1998. It discloses receiving/displaying advertising or promotional data, targeted advertising based on a user profile, demographic information, residence, preferences, browsing history, and network activity; the use of an IP address and port number to identify a user/profile; inserting an advertisement into an available display slot; using slot size/location characteristics to select or price an advertisement; rotating advertisements; and tracking, verifying, and logging ad delivery.

64. Location is determined by IP address:

Another advertising scheme attempts to guess the geographic location of a user based on the client's internet protocol (IP) address. When accessing the internet, individual clients are differentiated from each other by a unique number referred to as an IP address. In this advertising scheme, a database is maintained by the web host that contains a mapping that provides a correspondence between each IP address to a modem phone number. The mappings are created by retrieving the modem phone numbers and the different W addresses that the modem phone numbers correspond to from internet service providers (ISP) (ISPs are companies that provide internet access to users).

Gupta, 5:17-28.

65. The user may interact with an ad by clicking on it (“click-through”), for which a signal is sent to a server (web host):

Alternatively, an advertiser may only pay if a user clicks on the advertiser's banner or icon and views the advertiser's web page (referred to as a click-through). Further, a web host may also receive payment based on any completed transactions that result from a click through (e.g., the web host receives a percentage of the payment received by the advertiser from the user) (referred to as referral commissions).

Gupta, 4:29-36.

66. Positions and sizes for advertising may be specified:

Different characteristics may be specified as part of one tag or multiple tags. An ADSIZE tag may specify one or more of the standard defined sizes (e.g., half size or full size) for banner advertisements or the dimensions of the “slot” for the advertising banner.

An AD POSITION/ADLOCATION tag may specify the location for a particular advertisement on a web page (e.g., position 8 or 3 inches from top and 1 inch from left side of web page) and may be used in conjunction with an ADSIZE tag.

Gupta 15:27-36.

F. Heckel

67. On February 24, 1999, Heckel filed a U.S. application that issued as U.S. Patent 6,036,601 on March 14, 2000, entitled “Method for Advertising over a Computer Network Utilizing Virtual Environments of Games” (“Heckel”) (EX1033). I understand that Heckel is prior art to the Patent under at least pre-AIA 35 U.S.C. §§ 102(a), (b), and (e). Heckel was not considered by the Patent Office during the ’284 prosecution.

68. Heckel discloses computing statistics, including a “pixel display” showing the total number of pixels the ad occupies.

A method is provided for advertising within the virtual environments of games. Default images of games are replaced by alternative textures having advertisements implemented therein. An ad server coordinates the matching of ads to demographic data of the game player and properly accommodates ads in formats from game information provided by game sources. The game player is visually influenced by advertisements as he or she views the virtual world of the game, as plug-in software replaces the default images with virtual pictures and figures utilizing an advertisement.

Heckel, Abstract.

The ad server 26 contacts advertising sources 30 and provides them with advertising formats corresponding to the shapes of the default textures in the texture information 50 provided by the game sources 32. The ad sources 30 then generate and provide the graphical ad images based on a query from the ad server 26. The ad server 26 can

then correlate each ad image to an appropriate format to later load into the plug-in portion of the game server software 22.

Heckel, 3:59-65.

The plug-in 2 of the game software 16, then being implemented by the user computer 11, also keeps track of the view 10 statistics 33. These include the time each ad texture 15 is displayed, the number of ad textures 15 displayed, the size, in terms of pixels, each ad texture 15 occupies, and the type of views that the ad texture 15 is shown as.

Heckel, 5:9-14.

G. De Boor

69. On May 7, 1999, De Boor et al. filed a PCT application that was published as WO 99/59283 on November 18, 1999, entitled “Integrated Advertising for Wireless Communication Devices with Rich Content and Direct User Response Mechanism” (“De Boor”) (EX1034). I understand that De Boor is prior art to the Patent under at least pre-AIA 35 U.S.C. §§ 102(a) and (b). De Boor was not considered by the Patent Office during the ’284 prosecution.

70. De Boor discloses wireless-device advertising, in which ad files include priority levels; higher-priority ads are displayed more frequently than lower-priority ads and display slots are assigned based on priority.

71. De Boor discloses a priority relationship between ads and ceasing to display an ad when its time has expired:

A system, method, and software product provide integrated advertising capabilities to a wireless communication device. The system includes an advertising manager that manages the display of advertisements, an advertisement file store that stores advertisements, including full screen advertisements and banner advertisements, and an advertisement content handler that interprets and displays the content of an advertisement. The advertising manager selects advertisements from the advertisement file store and provides them to the advertisement content handler for display. Advertisements may be selected from a number of storage areas which contain groups of related advertisements. Advertisements are selected on randomized but priority basis, allowing higher priority advertisements to be displayed more frequently than lower priority ones. Also, advertisements may have expiration data indicating when they expire and are no longer to be displayed. Advertisements are authenticated when received from a remote server to prevent storage and display of unauthorized advertisements.

De Boor, Abstract.

H. Cezar

72. On June 17, 1999, Cezar et al. filed a U.S. application that issued as U.S. Patent 6,161,127 on December 12, 2000, entitled “Internet Advertising with Controlled and Timed Display of Ad Content from Browser” (“Cezar”) (EX1035). I understand that Cezar is prior art to the Patent under at least pre-AIA 35 U.S.C. §§ 102(a), (b), and (e). Cezar was not considered by the Patent Office during the ’284 prosecution.

73. Cezar discloses display of Internet advertising with a controlled timed display. Ad content has an individual timer, which starts when the ad is displayed. Display occurs until timeout, at which time the next ad content are retrieved and displayed in the same location until the timeout expires:

The system controller forwards a non-scrolling ad frame set, the “to be played list” of ads to be shown within the non-scrolling frame set, a unique cookie identifier having intervals for recording the identity of ads played together with the day and time of play and processing logic. Once the “to be played list” is installed at the browser, the processing logic compares the “to be played list” at the browser against the record of ads played in the browser cookie. Ads are then played in sequence from the browser in accordance with the “to be played list” with already played ads being eliminated from play by the browser. As each ad is played and timed out, report is made to the system controller at the peripheral web servers.

Cezar, 4:39-49.

I. Bhagavath

74. On January 26, 2000, Bhagavath et al. filed a U.S. application that issued as U.S. Patent 6,505,169 on January 7, 2003, entitled “Method for Adaptive Ad Insertion in Streaming Multimedia Content” (“Bhagavath”) (EX1037). I understand that Bhagavath is prior art to the Patent under at least pre-AIA 35 U.S.C. §§ 102(a), (b), and (e). Bhagavath was not considered by the Patent Office during the ’284 prosecution.

75. Bhagavath states:

The target audience demographics are defined as well as constraints on the times and dates of display of the ad. Constraints may be included on ad content vis-a-vis the other constraints. Willingness to pay by the advertiser based on current or cumulative recipients may also be included, as shown in particular in FIG. 9B. The Ad metadata file of FIGS. 9A and 9B is presented in XML format. The metadata, for example, includes type tags for “streaming” URL, tags for locating the stream, keywords for characterizing the ad, tags for identifying required audience demographics, tags placing time limits on presentation of the ad, and point tags representing the points on the graph of the acceptability graph for the ad to be presented.

Bhagavath, 6:30-42.

J. Collins

76. On November 15, 2000, Collins filed a U.S. application that issued as U.S. Patent 6,697,953 on February 24, 2004, entitled “Method for Reducing Power Consumption in Battery Powered Devices” (“Collins”) (EX1038). I understand that Collins is prior art to the Patent under at least pre-AIA 35 U.S.C. §§ 102(a), (b), and (e). Collins was not considered by the Patent Office during the ’284 prosecution.

77. Collins discloses battery-powered devices, including a cellphone, that automatically reduce power consumption when remaining battery capacity falls below feature-specific thresholds, including reducing backlight intensity, dimming display/backlight, disabling backlight, and controlling audio/display components.

Likewise the feature “Dim the display back-light” is associated with a battery capacity threshold of 60%, the feature “Decrease the predetermined time before power down of hard drive” is associated with a battery capacity threshold of 50%, the feature “Dim the display and back-light” is associated with a battery capacity threshold of 40%, the feature “Disable input/output ports” is associated with a battery capacity threshold of 30%, and the feature “Turn the display back-light off” is associated with a battery capacity threshold of 20%.

Collins, 5:24-33.

K. Black

78. On March 15, 2001, Black filed a PCT application in English, designated the U.S., and was published as WO 01/77861 on October 18, 2001, which serves as the priority filing for a U.S. application that was published as U.S. Publication 2003/0096651 on May 22, 2003, entitled “Betting Exchange System” (“Black”) (EX1019). I understand that Black is prior art to the Patent under at least pre-AIA 35 U.S.C. §§ 102(a), (b), and (e). Black was not considered by the Patent Office during the ’284 prosecution.

79. Black discloses accessing a betting service using a mobile phone.

According to the present invention, there is provided a betting exchange system comprising server means configured to receive bet requests from a plurality of users over a communications network, each of said requests comprising a bet backing an outcome or laying an outcome, wherein the server means is operable to match respective bets which back and lay a given outcome. Allowing a user access to

both sides of a betting transaction, by specifying whether he wishes to back or lay an outcome, provides the user with additional flexibility, and can facilitate a liquid two-way market. In addition, it can ensure the most efficient, and hence competitive, prices.

Black, Abstract.

Referring to FIG. 1, a betting exchange system according to the invention is implemented on a server 1, for example a server machine running Windows NT™, connected to a back office database system 2, for example an Oracle or SQL relational database server. The database server 2 includes database storage for a comprehensive sports statistics service to be provided in conjunction with a betting service. The server 1 is connected to the Internet 3. The server is accessed over the Internet 3 by a plurality of client machines 4, for example personal computers running web browser software such as Microsoft Internet Explorer™ or Netscape Navigator™ and using dial-up connections through respective Internet Service Providers 5. Access to the server 1 is restricted by, for example, a firewall and other known secured measures. Other access methods are also envisaged, for example use of WAP (Wireless Application Protocol) phones to access a betting service running on a WAP server.

Black, [0024].

L. RFC 3161

80. In August 2001, The Internet Society published Request for Comments (RFC) 3161, entitled “Internet X.509 Public Key Infrastructure Time-Stamp Protocol (TSP)” (“RFC 3161”) (EX1039). I understand that RFC 3161 is prior art

to the Patent under at least pre-AIA 35 U.S.C. §§ 102(a) and (b). RFC 3161 was not considered by the Patent Office during the '284 prosecution.

81. RFC 3161 discloses:

A time-stamping service supports assertions of proof that a datum existed before a particular time. A TSA may be operated as a Trusted Third Party (TTP) service, though other operational models may be appropriate, e.g., an organization might require a TSA for internal time-stamping purposes. Non-repudiation services [ISONR] require the ability to establish the existence of data before specified times. This protocol may be used as a building block to support such services. An example of how to prove that a digital signature was generated during the validity period of a public key certificate is given in an annex.

RFC 3161, 1-2.

M. RFC 3126

82. In September 2001, The Internet Society published Request for Comments (RFC) 3126, entitled “Electronic Signature Formats for long term electronic signature” (“RFC 3126”) (EX1065). I understand that RFC 3126 is prior art to the Patent under at least pre-AIA 35 U.S.C. §§ 102(a) and (b). RFC 3126 was not considered by the Patent Office during the '284 prosecution.

83. RFC 3126 discloses:

This document also specifies the uses of time-stamping services to prove the validity of a signature long after the normal lifetime of

critical elements of an electronic signature and to support non-repudiation.

RFC 3126, 5.

Additional data also includes time-stamps and other time related data used to provide evidence of the timing of given events. It is required, as a minimum, that either the signer or verifier obtains a time-stamp over the signer's signature or a secure time record of the electronic signature must be maintained. Such secure records must not be undetectably modified and must record the time close to when the signature was first validated.

RFC 3126, 8.

84. Thus, RFC 3126 establishes that using digital signatures and timestamps as a method of authentication in network communications was conventional and well known before 2009. These methods were not only conventional but were also the subject of multiple Internet standards.

N. Enns

85. On September 13, 2001, Enns et al. filed a U.S. application that was published as U.S. Publication 2002/0065110 on May 30, 2002, and issued as U.S. Patent 7,190,976 on March 13, 2007, entitled “Customizing the Display of a Mobile Computing Device” (“Enns”) (EX1040). I understand that Enns is prior art to the Patent under at least pre-AIA 35 U.S.C. §§ 102(a), (b), and (e). Enns was not considered by the Patent Office during the ’284 prosecution.

86. Enns discloses customizing the display of data on mobile computing devices, including cellular phones, pagers, and PDAs. It describes layout files, such as XML-based layout files, that define how content is displayed on the device; plug-ins that retrieve content such as carrier name, weather, sports scores, stock quotes, messages, appointments, and icons; and formatting attributes that control the content's location, color, font, borders, background, and display area.

Plug-ins may be included in layout files and coded to perform a variety of operations such as retrieving data related to a cellular carrier name, a four-day weather forecast, sports scores, or any other desired data. After data is retrieved by a plug-in, the layout file may format the data in any number of ways. One way the layout file may format retrieved data is to set one or more attributes associated with the plug-in, which modify the properties of the data retrieved by the plug-in. For example, different layout files may use the same plug-in to retrieve a cellular carrier name, yet display the cellular carrier name in different locations on a display, in different text colors, or in different fonts.

Enns, 2:52-63.

87. Enns also discloses maintaining battery/display efficiency: it identifies that redrawing a full display unnecessarily refreshes pixels and consumes power, and teaches redrawing only the portion of the display associated with updated content to reduce processor instructions and refreshed pixels.

The present invention relates to customizing the display of data on mobile computing devices. More specifically, the present invention relates to systems, methods, and computer program products for defining a layout for displaying data on a mobile computing device, customizing the display of data on a mobile computing device based on user selections, and efficiently displaying data on a mobile computing device in a manner that conserves power resources.

Enns, 1:15-23.

Finally, current display technology may redraw the complete area of a display even though only a portion of the displayed data is updated. Redrawing portions of the display that have not been updated increases the number of pixels that must be refreshed. This results in the execution of processor instructions needed to refresh the pixels, which consumes power resources.

Enns, 2:20-26.

O. Ellis

88. On November 29, 2001, Ellis et al. filed a U.S. application that was published as U.S. Publication 2004/0015608 on January 22, 2004, entitled “Method and System for Dynamically Incorporating Advertising Content into Multimedia Environments” (“Ellis”) (EX1041). I understand that Ellis is prior art to the Patent under at least pre-AIA 35 U.S.C. §§ 102(a), (b), and (e). Ellis was listed as considered by the Patent Office during the ’284 prosecution but was not applied in any office action.

89. Ellis states:

When an advertising tag is detected in step 206, the game client system checks in step 207 to see if it is already storing any ads available and appropriate to be placed in that location. In order to determine when a particular ad can be placed in the location or on the object that corresponds to an advertising tag, different criteria are used. The exact criteria examined are customizable and dependent upon the type of game and the advertisers. In certain scenarios some criteria may be relevant while others not. In one embodiment, three important criteria that are examined for appropriateness prior to inserting an ad into a particular advertising tag location are ad type, ad genre and ad scheduling time.

...

Further, each ad has associated scheduling information that prescribes when the advertisement can be placed in the game. For example, an advertiser may want their advertisements only to appear on weekends, and not during weekdays. The scheduling information about that advertisement would instruct the game client system only to insert that ad during the allowable scheduled times.

Ellis, [0049].

The scheduling data may indicate that there are no restrictions on when the ad can be placed into the game, or the scheduling data may tightly control when the advertisement can be placed. For instance, an advertiser may only want an advertisement placed into the game if it is after 10:00 pm local time. Determining the local time of the game client system may be as simple as checking the system time run by the operating system, or a lookup of the IP address could indicate the

general physical location of the server to which the user is connected, which could also indicate the local time.

Ellis, [0050].

90. Ellis also contains disclosures on ad formatting, e.g.:

Some video games place ads in a border region around a game play window. If the game play window connects to the Internet, some portals contain the banner ads as discussed above or other types of advertisements. Another technique is to download ad images prior to game play, and then insert the downloaded ad into an “ad-space” specifically created inside the game to display the ad.

Ellis, [0007].

Formatting a stored ad for insertion into the video game may be performed by calling functions or an application programming interface (API) provided in the SDK that was used to develop the game client system. Some of the functions may include de-encrypting the stored ad either at this step or when it was stored in the memory of the game client system, or decompressing the ad that was compressed for transmission from the ad server.

Ellis, [0055].

91. Ellis also discloses compressing as data:

Alternatively, in order to further minimize the scarce bandwidth resources of the dribble pipe, the data making up the advertisement to be placed in the game may be compressed prior to dividing it up into UDP packets and placed on the dribble pipe. The advertisement, once received by the game client system, may be uncompressed prior to

storing it in the client system memory, or the ad may remain in the memory of the game client system in its compressed format and decompressed only when actually being placed into the game. If the ad graphics are compressed or otherwise coded, they will need additional memory in the game client system for the decompression/decoding. Ad encryption can be handled similarly.

Ellis, [0048].

P. Goodacre

92. On December 5, 2001, Goodacre et al. filed a U.S. application that was published as U.S. Publication 2003/0106022 on June 5, 2003, entitled “Outputting Dynamic Local Content on Mobile Devices” (“Goodacre”) (EX1042). I understand that Goodacre is prior art to the Patent under at least pre-AIA 35 U.S.C. §§ 102(a), (b), and (e). Goodacre was not considered by the Patent Office during the ’284 prosecution.

93. Goodacre contains many relevant disclosures, including a mobile phone to which a server delivers dynamic content. Template files contain static content, dynamic-content references, and layout information. It discloses displaying dynamic content at an “appropriate location” on a mobile display, and formatting text, graphics, audio, fonts, colors, and other media for display. *E.g.:*

Layout information corresponding to the static content may define what static content is to be displayed, how displayed static content is to be formatted, and where displayed static content is to be displayed on a display device. This may include determining a location on a

display device, determining a character set, determining a font, determining a font size, determining a font color, manipulating graphics images, manipulating audio tones, rendering static content in an appropriate location on a display device, or otherwise formatting raw static content so as to personalize for display to a user.

Goodacre, [0046].

Q. Dean

94. On December 6, 2002, Dean et al. filed a U.S. application that was published as U.S. Publication 2004/0059708 on March 25, 2004, entitled “Methods and Apparatus for Serving Relevant Advertisements” (“Dean”) (EX1044). I understand that Dean is prior art to the Patent under at least pre-AIA 35 U.S.C. §§ 102(a), (b), and (e). Dean was not considered by the Patent Office during the ’284 prosecution.

95. Dean teaches advertiser-entered campaign data including ad creatives, targeting information (including geographic targeting information), a start date, end date, and campaign-management data:

Among the other things that could be provided by an advertiser through ad entry and management component 210 are the following: one or more advertising creatives (simply referred to as “ads” or “advertisements”), one or more set of keywords or topics associated with those creatives (which may be used as targeting information for

the ads), geographic targeting information, a value indication for the advertisement, start date, end date, etc.

Dean, [0027].

Thus, as will be appreciated by those skilled in the art, the client devices may be personal computers, personal digital assistants [sic], mobile phones, content players, etc.

Dean, [0036].

R. Quraishi

96. On June 11, 2003, Quraishi et al. filed a U.S. application that was published as U.S. Publication 2004/0254014 on December 16, 2004, entitled “Protocols and Standards for USB Peripheral Communications” (“Quraishi”) (EX1045). I understand that Quraishi is prior art to the Patent under at least pre-AIA 35 U.S.C. §§ 102(a), (b), and (e). Quraishi was not considered by the Patent Office during the ’284 prosecution.

97. Quraishi discloses a mobile device gaming system fail-safe for communication timeout/disconnection: if a host fails to poll a device successfully within a timeout period, the device enters a safe state in which no monetary claim can be made. If no message is received or a cable is disconnected, the device prevents further gaming activity.

The remote gaming device may be connected to the host computer via a network of some type such as a local area network, a wide area network, an intranet or the Internet. The remote gaming device may

be a portable gaming device such as but not limited to a cell phone, a personal digital assistant, or a wireless game player.

Quraishi, [0060].

Based on the gaming jurisdiction in which the gaming machine is located, the USB device class manager 75 may load only the device interfaces that are legal in the local gaming jurisdiction. Therefore, in the case where a USB gaming peripheral is abstracted as a single device interface and the USB gaming peripheral is illegal, communications between the USB gaming peripheral and the gaming system may not be activated. In the case where the features of a USB gaming peripheral or USB gaming device are abstracted as a plurality of device interfaces and a portion of the device interfaces are illegal, the illegal features may be essentially deactivated. The illegal functions are essentially deactivated because the USB gaming peripheral will not load device drivers allowing the processes in the game OS 102 to communicate with the illegal features.

Quraishi, [0114].

The peripheral may be designed to receive polls from the host within a timeout period. When the host fails to poll within the timeout period, the peripheral may enter a safe state where no monetary claim can be made on the machine or the peripheral.

Quraishi, [0117].

S. Liebbrandt

98. On October 27, 2003, Liebbrandt filed a PCT application in English, designated the U.S., and published as WO 2004/047450 on June 3, 2004, which

serves as the priority filing for a U.S. application that was published as U.S. Publication 2006/0039469 on February 23, 2006, entitled “Scalable Video Compression Based on Remaining Battery Capacity” (“Liebbrandt”) (EX1043). I understand that Liebbrandt is prior art to the Patent under at least pre-AIA 35 U.S.C. §§ 102(a), (b), and (e). Liebbrandt was not considered by the Patent Office during the ’284 prosecution.

99. Liebbrandt discloses a mobile video playback device that substitutes lower-quality/lower-bit-rate content when remaining battery life on the mobile device is insufficient. A lower bit rate reduces power consumption and extends battery life:

According to another embodiment of the invention, a method and apparatus for displaying stored content on a display, wherein the stored content has been stored in a storage device in a layered format with a base layer and at least one enhancement layer, is disclosed. Content to be displayed in a first quality level is selected. The length of the content selected is then determined. The remaining battery life of the apparatus is determined. The quality level of the content displayed is changed to a lower quality level when the remaining battery life is less than the length of the selected content.

Liebbrandt, [0008].

T. Pohja

100. On February 5, 2004, Pohja et al. filed a U.S. application that was published as U.S. Publication 2005/0198029 on September 8, 2005, entitled “Ad-

Hoc Connection between Electronic Devices” (“Pohja”) (EX1046). I understand that Pohja is prior art to the Patent under at least pre-AIA 35 U.S.C. §§ 102(a), (b), and (e). Pohja was not considered by the Patent Office during the ’284 prosecution.

101. Pohja discloses that two mobile phones can establish an ad-hoc close-proximity connection. Bluetooth/WLAN/RFID signals and RSSI (Received Signal Strength Indicator) can be used to determine distance/proximity.

The invention relates to a method of creating an ad-hoc connection between two electronic devices. In order to enable a particularly user-friendly creation of such a connection, it is proposed that a first device detects a hugging state between the first device and a second device, in which the first device and the second device are in close vicinity and a piece of information is received at the first device directly from the second device. In case a hugging state is detected, a handle is obtained proceeding from the received piece of information. The handle comprises an address of some device other than the first device. Finally, a communication channel is established between the first device and the other device using the address included in the handle.

Pohja, Abstract.

As a further alternative to touching, a hugging state may be assumed to be given if one electronic device is brought into close proximity of another device, for example to a distance of 5 to 50 centimeters. Detecting the proximity of another device can be based on the same technologies as detecting a pointing, if means for measuring the

distance are added to the electronic devices. In addition, purely nondirectional signals, such as those used in WLAN, Bluetooth™ or Radio Frequency Identification (RFID), can be used. At least Bluetooth™ enables a measurement of the distance. More specifically, the distance can be derived from Receive Signal Strength Indicator (RSSI) measurements.

Pohja, [0022].

The handle which is obtained according to the invention can be or comprise, for instance, the IP-address or the Mobile Subscriber Integrated Services Digital Network (MSISDN) of the respective other electronic device.

Pohja, [0025].

U. Aalto

102. On June 6, 2004, Aalto et al. published “Bluetooth and WAP Push Based Location-Aware Mobile Advertising System” in MobiSys ’04: Proceedings of the 2nd international conference on Mobile systems, applications, and services, at pp. 49-58 (“Aalto”) (EX1047). I understand that Aalto is prior art to the Patent under at least pre-AIA 35 U.S.C. §§ 102(a) and (b). Aalto was not considered by the Patent Office during the ’284 prosecution.

103. Aalto discloses that a Bluetooth sensor discovers nearby phones by their Bluetooth device addresses, sends those addresses to an ad server; the server then maps them to user phone numbers, checks for undelivered ads, and advertisements are delivered to an end-user device.

Advertising on mobile devices has large potential due to the very personal and intimate nature of the devices and high targeting possibilities. We introduce a novel B-MAD system for delivering permission-based location-aware mobile advertisements to mobile phones using Bluetooth positioning and Wireless Application Protocol (WAP) Push.

Aalto, Abstract.

V. Torvinen

104. On June 18, 2004, Torvinen filed a U.S. application that was published as U.S. Publication 2005/0283806 on December 22, 2005, entitled “Method and Apparatus for Displaying User Interface Embedded Applications on a Mobile Terminal or Device” (“Torvinen”) (EX1048). I understand that Torvinen is prior art to the Patent under at least pre-AIA 35 U.S.C. §§ 102(a), (b), and (e). Torvinen was not considered by the Patent Office during the ’284 prosecution.

105. Torvinen contains many disclosures relevant to the ’284 Patent. It discloses embedded applications with user-interface displays on a mobile device to display Internet content, photos, SMS, and other information on a mobile-phone display in a personalized, configurable manner with a selected placement/location, size, and/or activation time. EX1048, [0004], [0028], [0037]. An embedded application may use GPRS or other network communications to obtain real-time content, such as stock rates, and display that content in relation to the normal menu of the mobile phone. EX1048, [0006], [0029], [0038]. It discloses displaying active

content on the terminal screen while the mobile device is still usable normally, through the use of placement schemes. EX1048, [0016], [0023]. In one implementation, active content can replace a part of the display so the user can continue working while the content remains visible; the content may be displayed in one part of the display while the normal menu is visible in another part. EX1048, [0017], [0029], [0045], Fig. 5.

106. Specifically, Torvinen discloses:

In many situations during the course of a day, a user of a mobile terminal or device may want to view and/or monitor relevant information about a certain area or group and make the relevant information easily available and immediately and continuously viewable in an end user defined personalized context(s). In particular, a user may access certain types of information or content, including wireless information or content from the Internet, photographic images, short messaging services (SMS) messages, etc. However, typically, the user has to open a totally separate application each time they want to access such relevant information, and thus may not notice changes thereto as soon as possible. Moreover, the user does not have the ability to display this information or content on the display of their mobile phone or terminal in a personalized user-defined configurable way for viewing the information or content with a certain placement or location, with a certain size and/or at a certain activation time on the display of their mobile terminal or device.

Torvinen, [0004].

The present invention will create the possibility to have active content on the terminal screen while still be able to use the mobile terminal or device normally by defining placement schemes for UI embedded applications. This would be a major benefit for those users, who feel that it is important for them to be aware of certain user relevant information all the time.

Torvinen, [0016].

107. Torvinen further discloses UI-embedded secondary content on a mobile device, configurable content placement and size, persistent or partial-screen display that does not obstruct normal UI usage, and network-delivered real-time content, including video or other dynamic information:

The present invention is intended to include providing a viewing configurability that is relational to different views or menus provided on the display, as well as providing real time wireless content, such as stock exchange information, visual radio, a video stream of home security, child care, or other suitable video stream. The content may always be visible on the display, or visible on one part of the display, while a normal menu is visible on another part of the display. The content may be visible during one or more predefined menus. The viewing configurability may depend on the type of content being displayed. The viewing configurability of one type of content may be configurable one way, while the viewing configurability of another type of content may be configurable another way. The content may be real time content that is displayed so the user can monitor the same. The content may also include selected information that is always

displayed and other information that is not always displayed, as well as different types of wireless content, each having a respective viewing configurability. The wireless content may be displayed as a background view in place of wallpaper/picture images, displayed in a permanent placement or displayed in a relational placement.

Torvinen, [0029]; *see also id.*, [0038], [0040]-[0043].

W. Baluja

108. On June 30, 2004, Baluja filed a U.S. application that was published as U.S. Publication 2006/0004627 on January 5, 2006, entitled “Advertisements for Devices with Call Functionality, Such as Mobile Phones” (“Baluja”) (EX1049). I understand that Baluja is prior art to the Patent under at least pre-AIA 35 U.S.C. §§ 102(a), (b), and (e). Baluja was not considered by the Patent Office during the ’284 prosecution.

109. Baluja discloses mobile phone ad serving based on device type, display size, and resolution. An ad server serves ads with graphics, text, images, audio and video based on geographic information. Ads are formatted to be consistent with the UI layout. User interaction with the ads is reported.

The search engine 220 may submit a request for ads to the ad server 120/210. The request may include a number of ads desired. This number may depend on the search results, the amount of screen or page space occupied by the search results, the size and shape of the ads, etc. In one embodiment, the number of desired ads will be from one to ten, and preferably from three to five. The request for ads may

also include the query (as entered or parsed), information based on the query (such as geolocation information, whether the query came from an affiliate and an identifier of such an affiliate, and/or as described below, information related to, and/or derived from, the search query), user device characteristics, and/or information associated with, or based on, the search results.

Baluja, [0031].

110. Baluja discloses ad targeting:

Each ad group may include targeting information (e.g., a set of keywords, a set of one or more topics, geolocation information, user profile information, user device characteristics, etc.), and price or offer information (e.g., maximum cost or cost per selection, maximum cost or cost per conversion, etc.)).

Baluja, [0026].

X. Cortegiano

111. On November 1, 2004, Cortegiano filed a U.S. application that was published as U.S. Publication 2006/0094410 on May 4, 2006, and issued as U.S. Patent 7,251,476 on July 31, 2007, entitled “Method for Advertising on Digital Cellular Telephones and Reducing Costs to the End User” (“Cortegiano”) (EX1050). I understand that Cortegiano is prior art to the Patent under at least pre-AIA 35 U.S.C. §§ 102(a), (b), and (e). Cortegiano was considered by the Patent Office during the ’284 prosecution.

112. Cortegiano discloses mobile phone advertising and a phone/ad system that stores current date, reads an Ads File containing advertisement data, notes start/end dates, compares the current date to those dates, and initiates ad play when the current date is after the start date and before the end date.

Another embodiment of the current invention is a method for providing information to a wireless phone user, comprising the steps of powering on the phone; storing a current date in a memory of the phone; registering with a home location register; checking a user profile to detect an information file which contains at least one advertisement; opening and reading the information file: noting a start date and an end date of the information file; comparing the current date with the start and end dates; downloading the information file if it is the first time the user has powered on the phone after the start date; and initiating a play sequence for the information file according to a display style if the current date is after the start date and before the end date.

Cortegiano, 3:47-59.

Y. Lev

113. On February 18, 2005, Lev et al. filed a U.S. application that was published as U.S. Publication 2005/0143136 on June 30, 2005, entitled “MMS System and Method with Protocol Conversion Suitable for Mobile/Portable Handset Display” (“Lev”) (EX1051). I understand that Lev is prior art to the Patent under at

least pre-AIA 35 U.S.C. §§ 102(a), (b), and (e). Lev was not considered by the Patent Office during the '284 prosecution.

114. In the title, “MMS” stands for “Multimedia Messaging System.” Lev discloses resizing images, color-depth/color-space conversion, file format conversion, compression/decompression, and size reduction so image content fits a target mobile device. Among the available functions is:

Image Transcode. Optimally convert content for a target phone. Automatically performs resizing, color palette reduction, compression, rotation, watermark detection and more, The transcode operation is controlled by a rule based system with configurable parameters for bandwidth utilization, format usage, Quality of Service and content preferences, Performs different transcoding operations based on automatic detection of the content type.

Lev, [0372].

The algorithm used by Transcode can be divided into three main stages, according to the above criteria.

Stage I: Resize-Fit

In this stage the image is resized to fit the target device. For better quality, other image attributes (like bit depth) are not reduced yet (actually they may even be enhanced). Different variant [sic] of the resizing algorithm are used for different contentType values. Some parameters that may influence the result of this stage are:

Device dimensions, scroll-size, maximal allowed pixels, etc.

Source and target aspect ratio of pixels

Lev, [0417]–[0421].

Z. RFC 3971

115. In March 2005, The Internet Society published Request for Comments (RFC) 3971 entitled, “SEcure Neighbor Discovery (SEND)” (“RFC 3971”) (EX1052). I understand that RFC 3971 is prior art to the Patent under at least pre-AIA 35 U.S.C. §§ 102(a) and (b). RFC 3971 was not considered by the Patent Office during the ’284 prosecution.

116. RFC 3971 discloses timestamping digital signatures:

9.2.5. Replay Attacks

This attack is described in Section 4.3.1 of [22]. SEND protects against attacks in Router Solicitation/Router Advertisement and Neighbor Solicitation/Neighbor Advertisement transactions by including a Nonce option in the solicitation and requiring that the advertisement include a matching option. Together with the signatures, this forms a challenge-response protocol. SEND protects against attacks from unsolicited messages such as Neighbor Advertisements, Router Advertisements, and Redirects by including a Timestamp option.

RFC 3971, 47.

117. Thus RFC 3971 establishes that trusted timestamping of digitally signed data was a conventional public-key infrastructure (PKI) operation well before 2009. It was not only conventional but was an Internet standard.

AA. Cernasov

118. On March 15, 2006, Cernasov filed a U.S. application that was published as U.S. Publication 2007/0215794 on September 20, 2007, entitled “Light Sensor and Light Sensing Method” (“Cernasov”) (EX1053). I understand that Cernasov is prior art to the Patent under at least pre-AIA 35 U.S.C. §§ 102(a), (b), and (e). Cernasov was not considered by the Patent Office during the ’284 prosecution.

119. Cernasov discloses that if an ambient light sensor detects bright environmental illumination—such as at a cell phone outside on a sunny day—the display brightness may be increased so the images remain viewable.

Ambient light sensors, such as sensor 100, may be incorporated into electronic devices such as televisions, computer monitors, and cell phones. In these devices, ambient light sensors provide environmental illumination information to backlight controllers or front light controllers of displays in the electronic devices. The information provided by the ambient light sensors assists in determining the brightness of the display in these devices. For example, if the ambient light sensor detects that the environmental illumination conditions are bright (e.g. a cell phone outside on a sunny day), the brightness of the display may be increased so that images on the displays may be viewable in the bright environmental conditions.

Cernasov, [0004].

BB. Maya

120. On June 30, 2006, Maya et al. filed a U.S. application that was published as U.S. Publication 2008/0004097 on January 3, 2008, entitled “Gaming Device with Customizable Template for Advertising Display” (“Maya”) (EX1054). I understand that Maya is prior art to the Patent under at least pre-AIA 35 U.S.C. §§ 102(a), (b), and (e). Maya was not considered by the Patent Office during the ’284 prosecution.

121. Maya discloses displaying low-priority/secondary-content on a gaming device that presents primary gaming information and secondary gaming information including casino content, incentives, future games, discounts, attractions, and advertisements. Templates allow an operator to choose what, where, when, and in what format ad information is displayed. Formatting parameters include size, shape, device, colors, and display locations. Maya also discloses scrolling tickers, flashing/fly-in ads, and time-aware advertising, touchscreen/player interaction with ads, and matching ad timing to game-machine state.

The invention provides for generating a customizable gaming-machine template for advertising on a gaming-machine. A customizable template may be generated to allow a user, such as a casino or licensee, to customize secondary gaming information to be displayed on the gaming-machine. The user may select what type of information is to be displayed, when is it displayed (e.g., times of days), triggers for its display (e.g., particular states of the gaming-

machine) and a format for its display (e.g., size, shape, device, colors, display locations, etc.).

Maya, Abstract.

CC. Amaitis

122. On July 7, 2006, Amaitis et al. filed a PCT application in English, designated the U.S., and was published as WO 2007/008597 on January 18, 2007, entitled “System for Wireless Gaming with User Profiles” (“Amaitis”) (EX1055). I understand that Amaitis is prior art to the Patent under at least pre-AIA 35 U.S.C. §§ 102(a), (b), and (e). Amaitis was not considered by the Patent Office during the ’284 prosecution.

123. Amaitis discloses:

A gaming system is provided. The gaming system allows users to access applications via gaming communication devices coupled to a communication network. At least a portion of the network may be wireless. The gaming applications include gambling, financial, entertainment service, and other types of transactions. The system may include a user location determination feature to prevent users from conducting transactions from unauthorized areas. The gaming system may incorporate a user profile feature according to which certain information regarding users of the system may be maintained. Such information can include, without limitation, information relating to preferences, finances, activities participated in by the users, and trends and habits of the users.

Amaitis, Abstract.

124. Amaitis discloses geolocation and geofencing:

Preferably, the gaming system includes a location verification feature, which is operable to permit or disable gaming from a remote location depending upon whether or not the location meets one or more criteria. The criterion may be, for example, whether the location is within a pre-defined area in which gaming is permitted by law. As another example, the criterion may be whether the location is in a no-gaming zone, such as a school. The location verification technology used in the system may include, without limitation, “network-based” and/or “satellite-based” technology. Network-based technology may included [sic] such technologies as multilateration, triangulation and geofencing, for example. Satellite-based technologies may include global positioning satellite (GPS) technology, for example.

Amaitis, 21:12-21.

125. Amaitis discloses periodic location updates to prevent wagering when a user is not in a place where gaming is allowed:

In connection with any of the location determination methods, the gaming system may periodically update the location determination information. This may be done, for example, during a gaming session, at pre-defined time intervals to ensure that movement of the gaming communication device to an unauthorized area is detected during play, and not just upon login or initial access.

Amaitis, 24:5-9.

DD. SAFE Act

126. On October 13, 2006, the “Security and Accountability for Every Port Act of 2006” (“SAFE Act”) (EX1056) became Public Law 109-347. Its Title VIII is entitled “Unlawful Internet Gambling Enforcement,” also known as the “Unlawful Internet Gambling Enforcement Act of 2006.”

127. The SAFE Act defines “unlawful Internet gambling” and then provides:

“(B) INTRASTATE TRANSACTIONS.—The term ‘unlawful Internet gambling’ does not include placing, receiving, or otherwise transmitting a bet or wager where— “(i) the bet or wager is initiated and received or otherwise made exclusively within a single State; “(ii) the bet or wager and the method by which the bet or wager is initiated and received or otherwise made is expressly authorized by and placed in accordance with the laws of such State, and the State law or regulations include—

“(I) age and location verification requirements reasonably designed to block access to minors and persons located out of such State; and

“(II) appropriate data security standards to prevent unauthorized access by any person whose age and current location has not been verified in accordance with such State’s law or regulations;

SAFE Act, §5362(10)(B).

128. It is not an inventive act to comply with a statute. Nevertheless, many patent applications were filed after October 13, 2006, claiming systems and methods for complying with the SAFE Act.

EE. Burman

129. On October 16, 2006, Burman et al. filed a U.S. application that was published as U.S. Publication 2008/0102956 on May 1, 2008, entitled “System and Method for Wireless Gaming with Location Determination” (“Burman”) (EX1057). I understand that Burman is prior art to the Patent under at least pre-AIA 35 U.S.C. §§ 102(a) and (e). Burman was listed as considered by the Patent Office during the ’284 prosecution but was not applied in any office action.

130. Burman discloses wagering from mobile phones, GPS/location-verification, geofencing, and wager-disabling. EX1057, [0037]-[0039], [0064]-[0067]. Gaming participation may be limited by the user’s physical location, and the system may use geolocation devices, including GPS, GLONASS, Galileo, LORAN, cellular E911/network-based location, 802.11 access-point identification, RFID, IrDA, and other proximity/location systems for location-based enablement or disablement of gaming functions. If a gambling device is outside a predetermined area, gaming functions may be deactivated and replaced with non-gaming functions, and gambling functions may be deactivated in unauthorized cases.

131. Specifically, Burman discloses:

Location-based services provide the ability to tailor the function or result of an automated system based on a location input, typically the location of a geolocation device. Geolocation devices include satellite based geolocation systems, e.g., GPS, Glonass, Galileo, etc.; long

range terrestrial geolocation systems, e.g., LORAN; short-range network based geolocation systems, e.g., network based cellular e911; short range proximity location sensing, e.g., 802.11 access point identification, line-of-sight location identification, e.g., IRdA or other visible, sonic or invisible electromagnetic waves which are confined by barriers; RFID based location detectors; and the like.

Burman, [0012].

It is noted that, by practice or by law, certain areas within a casino may be unavailable for gaming. The portable terminal may implement such restrictions using its location sensor. If a portable terminal is outside of a predetermined area, the gaming functions may be deactivated, and, for example, be replaced with non-gaming functions. For example, a similar program may be activated which does not permit betting, but otherwise allows play. Further, gambling may be limited to certain subpopulations, such as those over age 21. A camera or other biometric sensor within the device may be active to limit use to a pre-authorized person, and thus limit or prohibit transfer or loan to another, unauthorized person. In the case of a camera, an automated facial recognition algorithm may be used to authenticate the user. Alternately, fingerprints, iris scans, or other biometric indicia may be employed. In an unauthorized case (e.g., use by a minor), the gambling functions may be deactivated, but optionally non-gambling functions may remain active.

Burman, [0019].

FF. Norin

132. On November 10, 2006, Norin et al. filed a U.S. application that was published as U.S. Publication 2007/0146200 on June 28, 2007, entitled “Method and Apparatus for Providing Advertising and Real Time Content to a Mobile Device Based Upon Location” (“Norin”) (EX1058). I understand that Norin is prior art to the Patent under at least pre-AIA 35 U.S.C. §§ 102(a), (b), and (e). Norin was not considered by the Patent Office during the ’284 prosecution.

133. Norin discloses controlling advertising or other content displayed on a mobile device according to the device’s location and boundaries conveyed to the device. It discloses an advertising signal that includes location information and advertising data, which location information may be a geographic range for which the ad is valid; the ad is displayed based on the receiving device’s location and may be displayed only if the user is located within a certain geographic area. Advertising data or real-time content is displayed when the receiver is within the area defined by location information.

134. Norin states:

As will be described below, the wireless communication signals may be entertainment content or boundary point data for areas of interest such as designated marketing areas. Areas of interest may also include traffic, weather, hazardous material warning areas, advertising marketing area [sic] near a particular store or region or other types of areas.

Norin, [0019].

The location receiver 52 is capable of providing latitude and longitude to the controller 60. The controller 60 may be used to compare the location signals from the location receiver 50, 52 to the boundaries of the areas of interest such that the mobile device can determine which areas of interest it is within and which areas of interest it is not within. From this determination it can control IRD behavior such as allowing or disallowing display of certain audio or video channels or advertising or the like. One application is to broadcast areas of interest that represent designated marketing areas to determine which designated marketing area the mobile device is within and which area it is not within, which signals the system should be receiving. These signals may coincide with or coordinate to the local broadcasting signals for the specific designated marketing area. It should be noted that more than one designated marketing area may be provided for a particular area. That is, adjacent areas may also be authorized for viewing. Various fringe regions may be used around a particular designated marketing area to provide hysteresis for the system.

Norin, [0025].

135. The disclosed “fringe regions” are near boundary edges.

GG. Apple iPhone

136. On January 9, 2007, Apple issued a press release, entitled “Apple Reinvents the Phone with iPhone” (“Apple iPhone”) (EX1059).¹³ I understand that the Apple iPhone is prior art to the Patent under at least pre-AIA 35 U.S.C. §§ 102(a) and (b). Apple iPhone was not considered by the Patent Office during the ’284 prosecution.

137. Apple iPhone discloses a touch-screen Internet-capable mobile phone, automatic brightness adjustment via an ambient-light sensor, iPhone sensors and brightness control for saving battery life, and a Bluetooth interface.

HH. Brenneman

138. On March 15, 2007, Brenneman et al. filed a U.S. application that was published as U.S. Publication 2007/0283247 on December 6, 2007, entitled “Automatic Display of Resized Images” (“Brenneman”) (EX1060). I understand that Brenneman is prior art to the Patent under at least pre-AIA 35 U.S.C. §§ 102(a), (b), and (e). Brenneman was not considered by the Patent Office during the ’284 prosecution.

139. Brenneman discloses that image display component size may be specified in pixels; the client determines display size and requests an image scaled

¹³ Available at <https://www.apple.com/newsroom/2007/01/09Apple-Reinvents-the-Phone-with-iPhone/>

to fit the available component area; the server scales the image according to the requested size:

When the webpage initially loads in the browser window and/or when the browser window is resized, the image may be displayed using a JavaScript component. Generally, the JavaScript component can be embedded in a typical webpage and sized according to a fixed or relative size. A fixed size may be specified in terms of a fixed number of pixels. A relative size may be specified relative to the size of the browser window, e.g., image width equal to $\frac{1}{2}$ the width of the browser window.

Once the JavaScript component determines the size of the image to be displayed, the JavaScript component makes a request to the backend server for an image scaled to fit within the available area of the component. When the server receives the request, the server may scale the image as requested using any suitable image scaling method. When the server responds with the appropriately scaled image, the browser window displays the scaled image in the JavaScript image component. Because the JavaScript component specifies the exact size to the backend server, the scaled image should fit within the available area of the JavaScript component.

Brenneman, [0022]-[0023].

II. Sundaresan

140. On November 14, 2007, Sundaresan et al. filed a U.S. application that was published as U.S. Publication 2009/0125376 on May 14, 2009, entitled

“Advertisements on Mobile Devices Using Integrations with Mobile Applications” (“Sundaresan”) (EX1062). I understand that Sundaresan is prior art to the Patent under at least pre-AIA 35 U.S.C. § 102(e). Sundaresan was not considered by the Patent Office during the ’284 prosecution.

141. Sundaresan discloses a mobile app sending an ad call to a server, a fixed ad position on a small mobile screen, fixed height and width, detecting the ad position, selecting an ad format that matches the dimensions, targeting based on user/location/device information, and delivering the ad to the ad position:

FIG. 5 illustrates a system for serving ads to the mobile device 112 of FIG. 2. The system includes a mobile device 112, a network 116, 130, an ad server 140 and ad database 144. Through a communication link 504 and over the network 116, 130, the mobile device 112 may submit an extensible markup language (XML) ad request to a mobile ad API 508, which is a part of the ad server 140 used for communicating with mobile devices 112. In return, over the network 116, 130 and through a communication link 512, the mobile ad API 508 returns one or more ads per the ad request of the mobile device 112. The processor 316 (FIG. 3) may execute the application and ad calls stored in the memory storage 320 so that the transmitter 308 transmits the communication link 504 and so that the receiver 312 receives the communication link 512. In addition to insertion of one of the received ads in the ad position 220, the mobile device 112 may also store in the memory storage 320 a plurality of received ads for rotatable insertion in the ad position 220 during the use of the application that made the

ad call. When the ad server 140 sends the one or more ads as requested by the ad call of the ad position 220, the ad server 140 selects an ad format, to include size, resolution, number of colors, etc., to best match the screen size and capabilities of the mobile device 112. This ad format will relate to the size and dimensions, etc., of the ad position 220 found at the fixed screen location 224 of the screen 212.

Sundaresan, [0039]; *see also id.*, [0032], [0042].

142. Sundaresan teaches delivery of multiple advertisements for storage on the mobile device for rotatable display in the same ad position:

FIG. 7 is a flow chart of another embodiment of the method of FIG. 6. At block 704, an ad position 220 is integrated within an application executable from a mobile device 112, wherein the ad position 220 remains substantially constant in a location 224 on a screen 212 of the mobile device 112 as viewed by a user throughout use of the application. At block 708, a plurality of advertisements are retrieved from an ad server 140 for display within the ad position 220. At block 712, the plurality of ads are stored in a storage 320 of the mobile device 112. At block 716, the plurality of ads are rotatably inserted in the ad position 220 during use of the application.

Sundaresan, [0044].

143. Sundaresan teaches a mobile device executing applications with a fixed ad position integrated into the application UI. An ad server returns ads for display

in a reserved ad position, the system selects ad size/resolution/color format to match the fixed display position, and the ad location may span pixel bands on the screen:

Direct integration of a dedicated ad position 220 into specific applications, e.g., coded into the applications for execution on the mobile device 112, allows the ad position 220 to be reserved in advance. The ad position 220 may be integrated directly into the source code of the application. The location 224 on the screen 212 of the ad position 220 will then remain substantially fixed absent updates or changes to the application itself. Ad position integration within mobile applications prevents the need to custom fit different types of ads within varying available positions of a web page or other content delivered within the applications, thus making ad delivery as disclosed herein content independent. For example, the bottom one-fourth of an SMS application screen could be reserved for an ad. Dedicated ad positions 220 will result in much more predictable space availability for these ads, with fixed height and width dimensions, similar to ads served on a personal computer. Ad position integration will provide better value for advertisers, and also enable greater reach as ads can be inserted in the ad position 220 each time the application is in use, regardless of whether the content enables such a position 220 for an ad.

Sundaresan, [0032]; see also *id.*, [0039].

JJ. Pacey

144. On March 19, 2008, Pacey et al. filed a PCT application in English, designating the U.S., that was published as WO 2008/118318 on October 2, 2008,

entitled “Wagering Game Environment Including an Ad Server” (“Pacey”) (EX1063). I understand that Pacey is prior art to the Patent under at least pre-AIA 35 U.S.C. §§ 102(a) and (e). Pacey was not considered by the Patent Office during the ’284 prosecution, but its U.S. counterpart, U.S. Patent Application Publication 2010/0105482 (EX1066), was considered.

145. Pacey discloses:

A wagering game machine network including wagering game machines and other devices includes an ad server operable to receive and store ads having ad components. The ads may be sent to any device on the wagering game machine network. Ad components for ads and the ads themselves may be selected based on the capabilities of the device receiving the ad. Ads and ad components may be received from remote ad servers connected to the ad server via a network such as the Internet. Ads may be directed to devices at particular locations, such as a location where a particular wagering game player is located, or where a group of wagering game players having similar demographic characteristics or preferences is located. Ads may be selected based on statistics related to time, ad popularity, payment etc.

Pacey, Abstract.

146. Pacey discloses low-priority advertising and wagering-game display in a wagering-game network with an ad server that receives ad components, selects devices to receive ads, selects ad components based on device capabilities, sends ads

to wagering-game devices and other devices, receives user input/responses, tracks click-through or presentation data, controls ad priority, and displays ads in screen regions that preferably do not significantly affect wagering-game play.

KK. Davis

147. On April 21, 2008, Davis et al. filed a U.S. application that was published as U.S. Publication 2009/0264190 on October 22, 2009, entitled “Customized Player Alerts” (“Davis”) (EX1064). I understand that Davis is prior art to the Patent under at least pre-AIA 35 U.S.C. § 102(e). Davis was not considered by the Patent Office during the ’284 prosecution.

148. Davis discloses a wagering system in which a player specifies wagering-condition notification parameters and notification modes such as text message, email, or voice message; one or more servers/host devices monitor wagering conditions and notify the player when conditions match the parameters. It also discloses mobile-device implementations including PDA/cellular telephone usage, device type/identification for notifications, text/graphics presentation, player-loyalty/player-preference data, location/navigation information, GPS-capable geolocation modules, Wi-Fi/Bluetooth/cellular-type wireless communications, touchscreen interfaces, cameras, and audio systems.

Some implementations of the invention allow a player to specify type(s) of wagering conditions about which the player would like to receive notification. The player may also be able to specify the mode

of notification desired, e.g., text message, email, voice message, etc.
Wager gaming notification parameters may, for example, comprise information regarding an occurrence of a wager gaming outcome. Some such wager gaming notification parameters may involve an occurrence (or a non-occurrence) of a wager gaming outcome within a specified time or a specified number of plays. Player notifications may include raw data, probability data, graphical data, navigation data and/or location data.

Davis, Abstract.

LL. Conclusions Regarding the Prior Art

149. The claims of the '284 combine conventional components and basic features of internet-enabled devices. The narrative of the art is clear: a POSITA would be well familiar with the conventional components and limitations of the '284 Patent. The claimed features are combinations of well-known technologies, which simply apply conventional processes involving mobile wagering, location determination, touchscreen interfaces, and ad targeting.

150. My understanding of the knowledge of a POSITA is informed by all relevant art. The challenged claims would have been obvious over the following grounds of unpatentability.

IX. GROUND OF UNPATENTABILITY:

A. Summary of Applied Prior Art

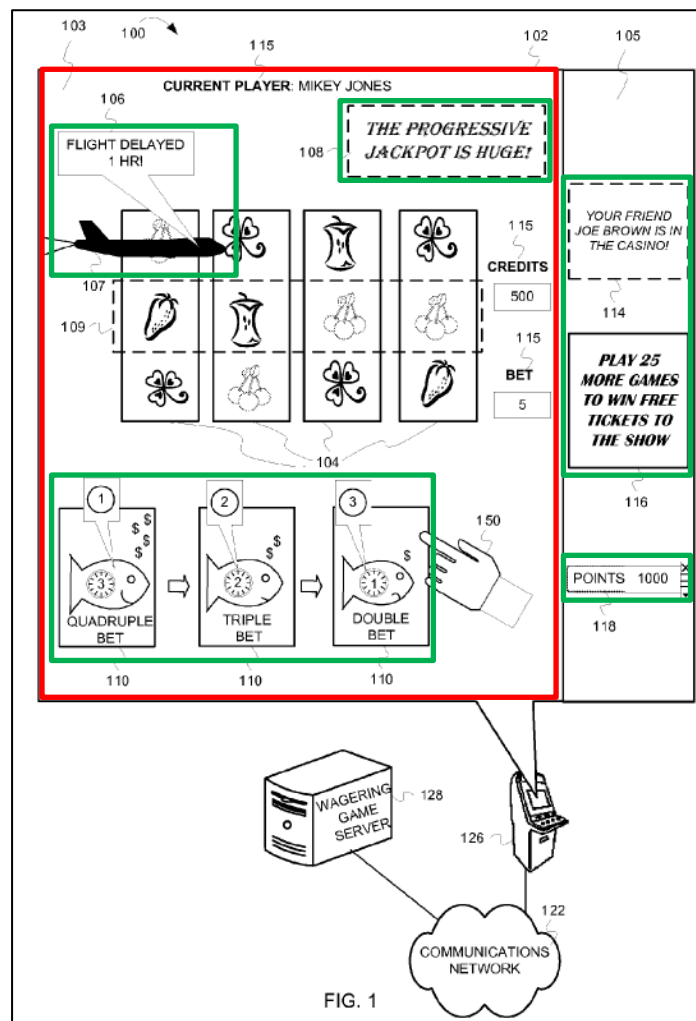
1. Gagner (EX1004)

151. International Patent Application Publication No. WO 2009/061651 (“Gagner”) was filed on October 29, 2008, designated the U.S., and published in English on May 14, 2009. EX1004, Face. Gagner therefore qualifies as prior art to the ’284 Patent under pre-AIA 35 U.S.C. § 102(e) as of October 29, 2008. Gagner also claims priority to U.S. Provisional Application No. 60/986,729, filed November 9, 2007.

152. I understand that U.S. Publication 2010/0240455 to Gagner et al. (EX1061) is cited on the face of the ’284 Patent. I understand that U.S. Publication 2010/0240455 was listed as considered by the Patent Office during the ’284 prosecution but was not applied in any office action. While Gagner itself was not considered by the Patent Office during the ’284 prosecution, it is substantially identical to US 2010/0240455.

153. Gagner addresses a problem in wagering environments in which players absorbed in electronic wager-based gaming may ignore external advertisements, announcements, or other casino activity notices. EX1004, [0036]. To address that problem, Gagner presents “secondary content” during a wagering game, including on the same display that presents primary wagering-game content. *Id.*, [0037]–[0038].

154. Figure 1 of Gagner, reproduced below, illustrates the point. The wagering game system display includes a primary content section for slot reels or other wagering-game content (red), while secondary content (green) may appear either in a separate secondary content section or directly within the primary content section, depending on the importance of the notification and its relationship to the primary content. EX1004, [0037], [0040], [0043].



EX1004, Fig. 1.

155. Gagner's secondary content includes information ancillary to the primary game, such as pictures, graphics, sounds, advertisements, reminders, additional wagering-game information, and other notifications. EX1004, [0038]. Figure 1 gives concrete examples, including a flight-delay alert with an airplane graphic, a progressive-jackpot notification, an interactive wager-multiplier object that changes appearance over time, friend-presence notices, casino-event advertising, and point-status information. EX1004, [0040]–[0043].

156. Gagner also discloses how the system controls the presentation of the secondary content. The system uses predetermined rules, control information, and priority information to determine when secondary content appears, where it appears, how intrusive it is relative to primary content, and how conflicts between presentation requests are resolved. EX1004, [0039], [0058]–[0060]. Those same priority teachings allow terminals to determine display areas, overlay ordering, and size for selected content. EX1004, [0060].

157. The architecture is a client-server architecture. A wagering game server can include a presentation coordinator, primary and secondary content units, and a user account manager, while the terminal can act as a smart client that transmits player input, processes control information, and renders primary and secondary content using its presentation controller, graphics unit, audio unit, and content store. EX1004, [0046]–[0053], Fig. 2. Gagner also discloses that control information can

specify content parameters, including locations in the player interface, timing, volume, and other presentation parameters. EX1004, [0058].

158. Gagner also expressly contemplates mobile wagering devices: its wagering game machines may take the form of handheld mobile units and may also include non-dedicated devices, such as mobile phones, personal digital assistants, and personal computers, that operate as thin, thick, or intermediate clients with the wagering game server. EX1004, [0062]–[0063].

159. Gagner further teaches personalization and contextual selection of secondary content. The secondary content server can determine the current player, retrieve account information and preferences, compare those user-related data to wagering-game-related information, and select or generate secondary content based on that correlation. EX1004, [0068]–[0070]. Gagner also discloses selecting content based on factors such as user-related information, a predetermined schedule, random selection, or a player's location, including location within a casino, on a wide area network, or on the Internet. EX1004, [0078], [0090].

160. Gagner discloses an example relating to baseball, which illustrates the full flow. The server correlates a player's preferences with an upcoming game schedule, selects a baseball diamond icon, generates an interactive notification regarding a betting opportunity, and sends the notification or instructions needed to assemble the notification to the wagering game device. EX1004, [0070]–[0071]. The

wagering game device may already store the icon and code for assembly, and it uses content, control information, and priority information to present the notification in the display. EX1004, [0071]. Gagner expressly teaches presenting the notification close to the wagering-game content without interfering with outcome-significant symbols or gameplay elements requiring player interaction. EX1004, [0088].

2. Liu (EX1005)

161. U.S. Patent Application Publication No. 2008/0311893 (“Liu”) was filed June 14, 2007, and published December 18, 2008. EX1005, Face. Liu therefore qualifies as prior art to the ’284 Patent under pre-AIA 35 U.S.C. §§ 102(a) and 102(e). Liu was not considered by the Patent Office during the ’284 prosecution.

162. Liu is directed to controlling access to online gambling activities on a mobile device based on the device’s geographic location. EX1005, Abstract. Liu recognized that “[o]ne category of online gaming that has not been widely implemented for mobile devices is gambling” because of “the difficulty in ensuring that the activity remains confined to a particular jurisdiction.” EX1005, [0004]. To solve this problem, Liu discloses a system in which “location information provided by location server 160 is used by game server 150 to determine whether the user of mobile terminal 100 should be allowed to participate in the online gambling activities hosted by game server.” EX1005, [0024].

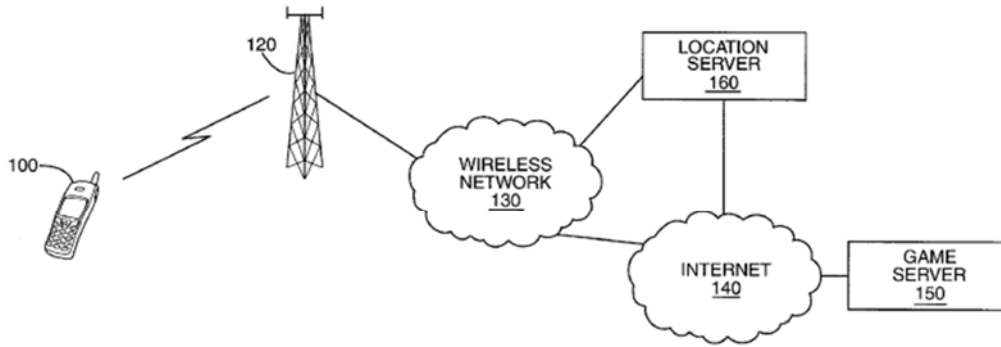


FIG. 1

EX1005, Fig. 1.

163. Liu’s architecture includes a location server that determines “the geographic location of mobile terminals” using multiple technologies, including GPS, Assisted-GPS, cell-ID, and triangulation methods such as TDOA (Time Difference of Arrival) and E-OTD (Enhanced Observed Time Difference). EX1005, [0020]–[0022]. Liu teaches that “location information obtained by two or more techniques may be combined to form a refined estimate of the location of the mobile terminal.” EX1005, [0022]. The location server “provides location information designating a current position of mobile terminal 100 in terms of latitude and longitude, or in terms of a street address.” EX1005, [0023].

164. Once location is determined, Liu’s game server determines the jurisdiction in which the device is located and authorizes or denies access accordingly. Liu explains that the game server “compares these coordinates to jurisdictional boundaries, *e.g.*, a digital map, to determine the jurisdiction from which mobile terminal 100 made the access request” and then “determines whether

the requested activity is permitted in that jurisdiction.” EX1005, [0027]. Figure 3 illustrates this process: when a mobile terminal requests access, the game server compares its location to jurisdictional boundaries and determines whether “Mobile X is located in Jurisdiction A, where gambling is permitted” or “Jurisdiction B, where gambling is [sic] not allowed.” EX1005, [0028]–[0029]. If the device is in an approved jurisdiction, access is granted; if not, access is denied. EX1005, [0029], [0039]–[0040].

165. Liu also discloses providing compliance information to the mobile terminal when access is denied. This compliance information can include directions to an alternate location where gambling is permitted, instructions for authorizing location requests, information explaining a technical failure to establish a location signal, and suggestions for alternative wagering activities that are permitted at the user’s current location. EX1005, [0046]–[0051], Figs. 5-7.

166. Liu further discloses that the game server includes an “authorization module 850” that “compares the received geographic location information to jurisdiction information and/or rules contained in the jurisdiction/rules database 860.” EX1005, [0057]. “If the location information indicates that mobile terminal 100 is located in an approved area, then mobile terminal 100 is allowed to access gambling applications 805 via mobile terminal interface 810.” EX1005, [0057]. Liu also teaches periodically requesting updated location information “in order to

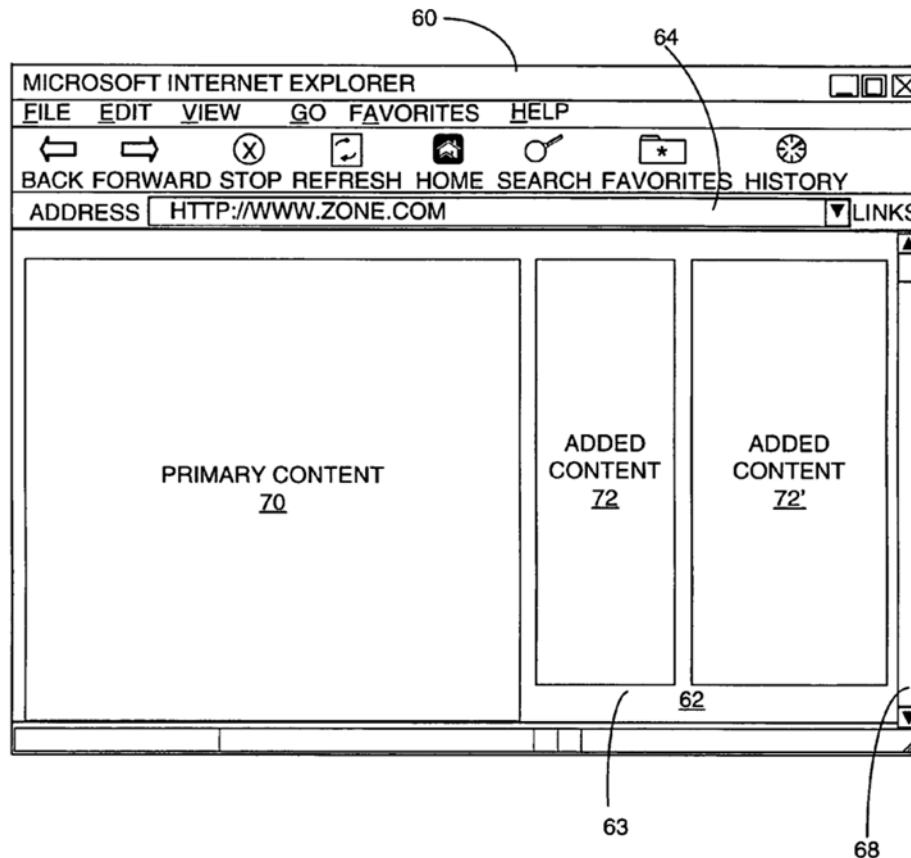
determine whether the user remains within an approved area,” and terminating the gambling activity if the mobile terminal has “strayed from the approved area[.]” EX1005, [0041], [0044]–[0045].

3. Mitchell (EX1010)

167. U.S. Patent No. 6,983,331 (“Mitchell”) was filed October 7, 2000, and issued January 3, 2006. EX1010, Face. Mitchell therefore qualifies as prior art to the ’284 Patent under pre-AIA 35 U.S.C. §§ 102(a), (b), and (e). Mitchell was not considered by the Patent Office during the ’284 prosecution.

168. Mitchell teaches a browser-based graphics-handling technique that determines the usable content display area and renders additional content only when it can be displayed with primary content without requiring scrolling in more than one direction. EX1010, Figs. 2D, 5-6, 3:19-41, 14:43-56. Mitchell teaches a client-server architecture that splits the responsibilities of content display, with the server deciding when, what, and where, with the client device duly executing and rendering the content. EX1010, Figs. 1, 4.

169. Mitchell teaches filling the available areas around the primary content and using an iterative process to best fit added content. EX1010, Figs. 5-6, 3:59-63. Mitchell teaches that the relevant measurement is the pixel space available for rendering content rather than merely the device’s nominal screen resolution. EX1010, 12:12-22, 13:20-27, 15:11-17.



EX1010, Fig. 2D.

170. The disclosed browser-window examples show primary content occupying a designed region and added content positioned in unused display space to the right, left, or in multiple columns when sufficient area exists.

171. A server-side control object parses the request header to identify browser type and version, appends compatible script instructions to the requested page, and causes client-side event-handler logic to run on page load, resize, or another trigger. EX1010, 10:4-42, 10:56-11:6. The event handler calls browser Document Object Model (DOM) components to obtain display dimensions, including JavaScript for Internet Explorer calling the Document object's

“clientWidth” property to determine the content display area’s width in pixels.

EX1010, 12:12-22.

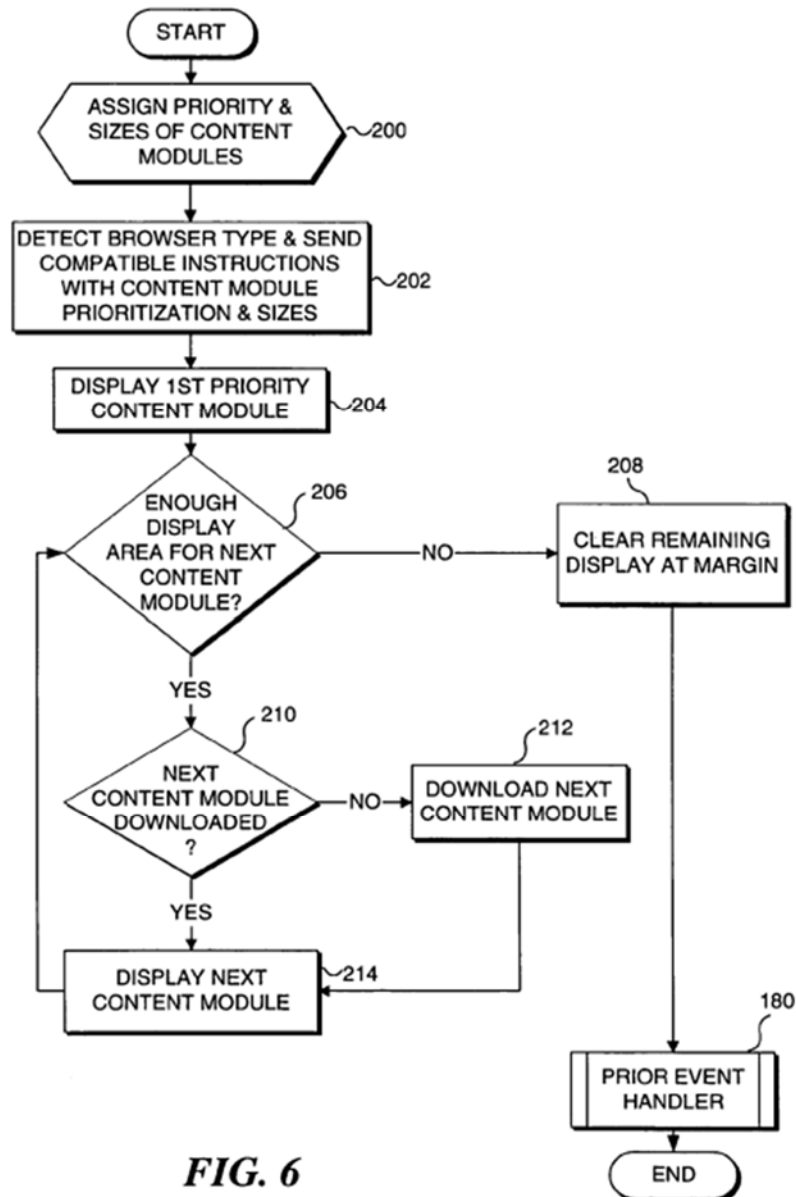


FIG. 6

EX1010, Fig. 6.

172. The server provides browser-specific executable instructions to the client device, which can further react to events and other updates on the screen to

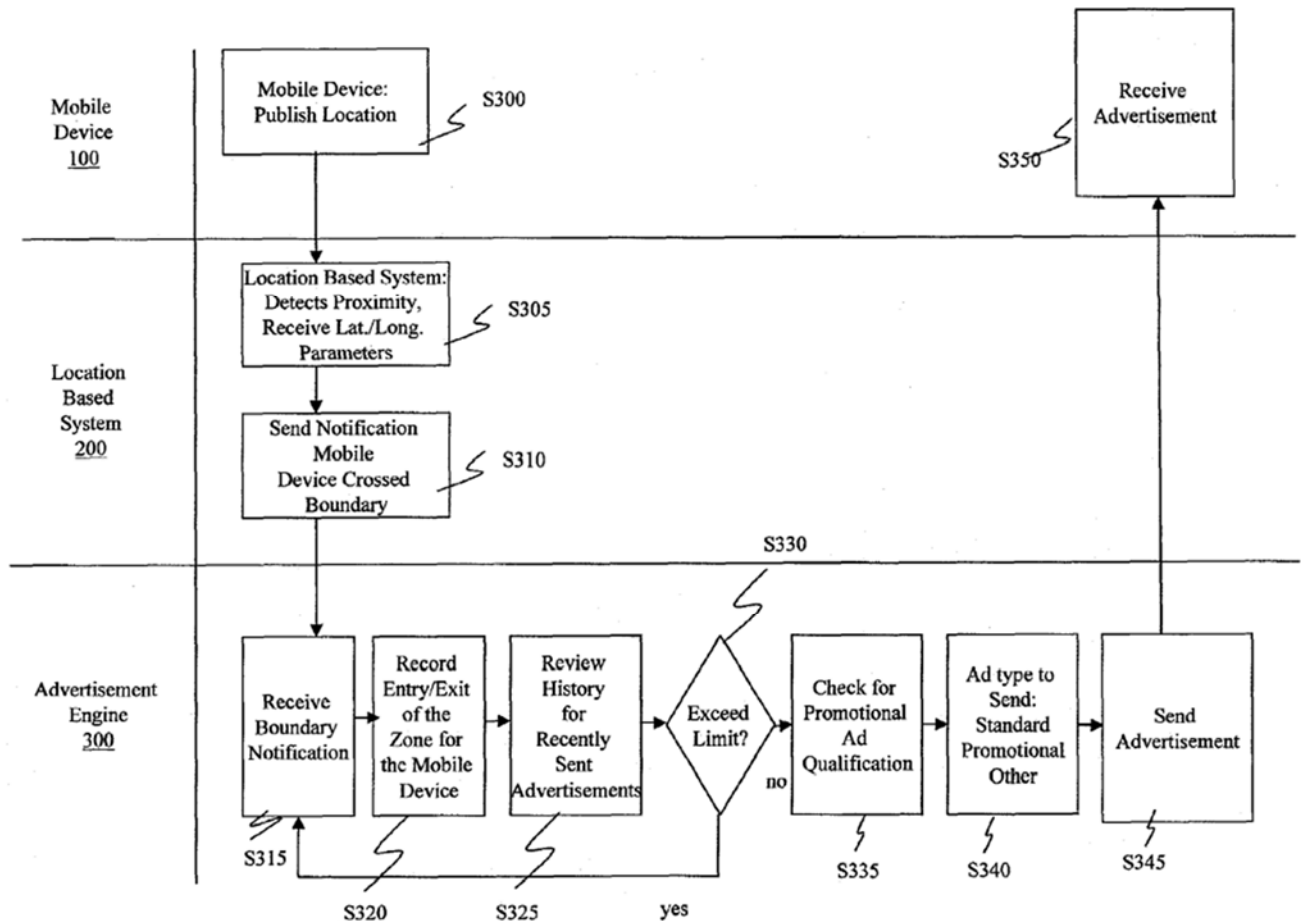
initially render content and update rendered content as the user interacts with the device. EX1010, 11:41-46, 13:20-29.

4. Northway (EX1006)

173. U.S. Patent Application Publication No. 2009/0286553 (“Northway”) was filed May 15, 2008, and published November 19, 2009. EX1006, Face. Northway, therefore, qualifies as prior art to the ’284 Patent under pre-AIA 35 U.S.C. § 102(e). Northway was not considered by the Patent Office during the ’284 prosecution.

174. Northway teaches a location-based advertising system that uses multiple geographic boundaries, or “geo-boundaries,” to define zones around stores, buildings, or other environments and to target advertisements to users of mobile devices based on their movement relative to those boundaries. EX1006, [0016]–[0018]. Rather than relying on a single proximity radius, the disclosed system uses bounds of a zone to define entry and exit points for the zone, enabling the system to determine whether a mobile user has crossed a relevant boundary and whether the user entered or exited an advertised location. EX1006, [0005], [0017]–[0018] The mobile device’s location may be determined using GPS, assisted GPS, cellular-tower triangulation, signal-strength techniques, or a local agent on the device, and that location information is then used by a location-based system and/or advertisement engine to select and deliver advertising. EX1006, [0018], [0037]–[0040]. The

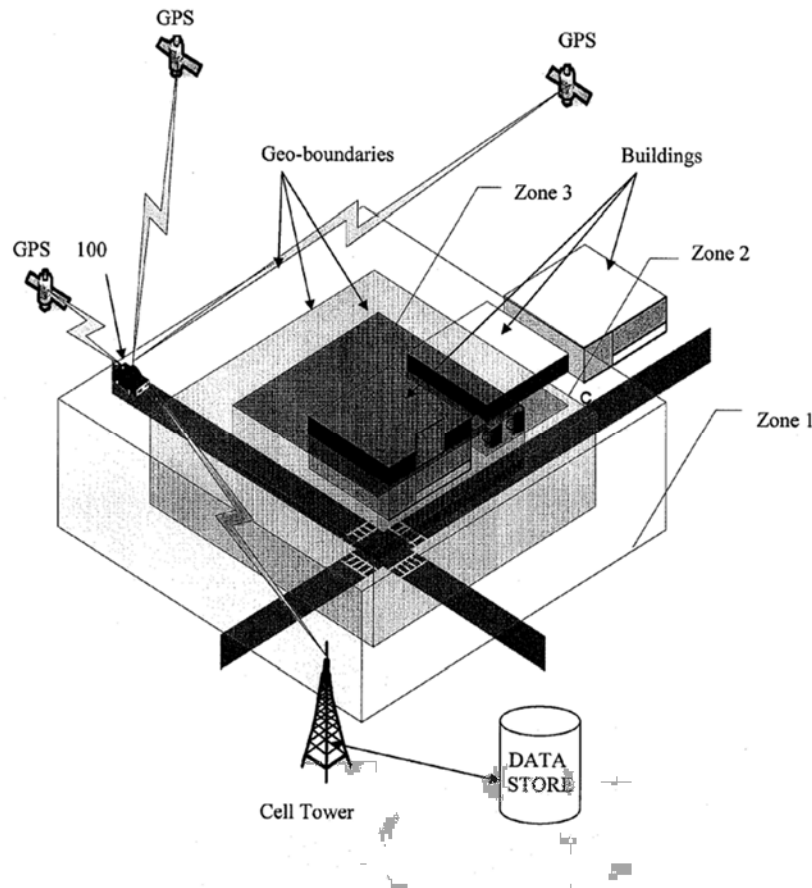
advertisements can be served when a mobile phone is at, crosses, or approaches a geographic boundary. EX1006, [0007]–[0009], [0044]–[0046].



EX1006, Fig. 3.

175. Figure 3 is a swim-lane process diagram showing the interaction among the mobile device, location-based system, and advertisement engine. EX1006, [0013], [0043]–[0046]. It illustrates the sequence in which the mobile device publishes its location, the location-based system detects proximity and boundary crossing, the advertisement engine receives the boundary notification, reviews

advertisement history, applies frequency-limit logic, determines the advertisement type, and sends the advertisement to the mobile device. EX1006, [0044]–[0046]. Figure 3 is therefore directly relevant to the boundary-triggered ad-serving functionality relied upon here. EX1006, [0044]–[0046].



EX1006, Fig. 4.

176. Figure 4 illustrates an implementation in which multiple zones are bounded by geo-boundaries, with a mobile device detected through GPS, assisted GPS, or triangulation as it crosses boundaries associated with buildings or other landmarks. EX1006, [0014], [0047]–[0049].

5. Haney (EX1012)

177. U.S. Patent Application Publication No. 2006/0223518 (“Haney”) was filed April 4, 2005, and published October 5, 2006. EX1012, Face. Haney, therefore, qualifies as prior art to the ’284 Patent under pre-AIA 35 U.S.C. §§102(a), (b), and (e). Haney was not considered by the Patent Office during the ’284 prosecution.

178. Haney teaches GPS-equipped mobile phones and PDAs running a client application that communicates with the device’s own GPS receiver and transmits the resulting position data to a server. Specifically, Haney’s devices include “cell phones and Personal Digital Assistants or other web enabled wireless products with global positioning system (GPS) receivers.” EX1012, [0007]. Haney expressly states that the “programmed phone or PDA must be able to retrieve GPS position data directly or indirectly from a GPS receiver in the phone or PDA” and “wirelessly send the GPS position data to the Buddy Watch server either periodically or on demand from the server[.]” EX1012, [0179]-[0180]. The phones are “web enabled to be able to send and receive TCP/IP or other protocol packets over the internet to the Buddy Watch server,” with each device sending “TCP/IP compliant data packets” through its cellular carrier network to the server. EX1012, [0007], [0059]. These devices may use “Java or similar software to exchange digital data with the Buddy Watch server using a wireless web application program” and are configured to “send location data and receive downstream messages and requests

from the Buddy Watch server.” EX1012, [0179]–[0185]. Moreover, Haney’s devices are “programmed with software” to provide “mutual tracking and optional position mapping” and operate with “a Buddy Watch™ server coupled to the internet,” with “[p]osition information exchanged via radio transmission on the cellular infrastructure.” EX1012, [0009], [0011].

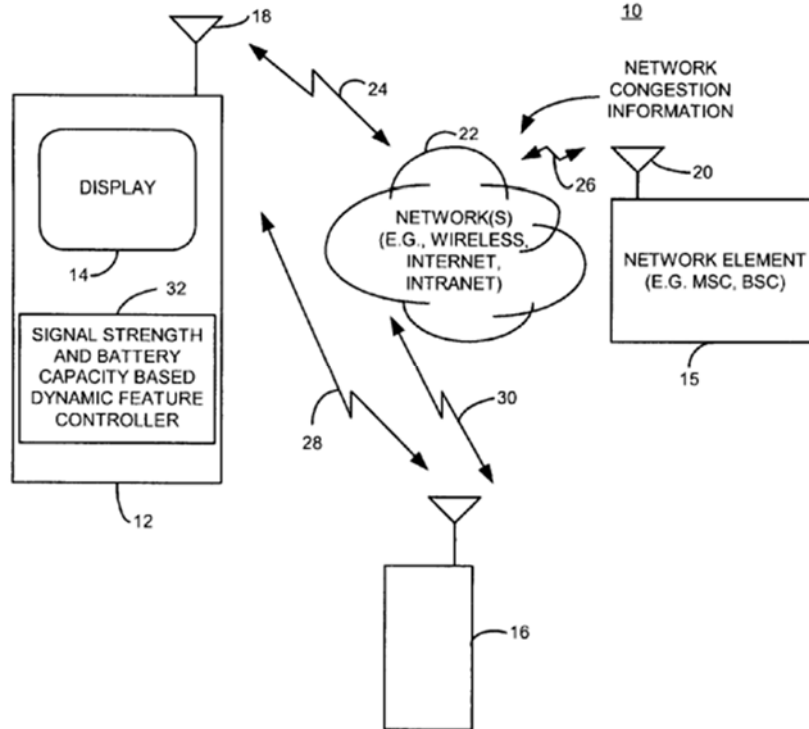
179. Haney further teaches repeatedly reporting the device’s location: position reporting may occur automatically or on demand, including “periodically send[ing] their GPS position data” at configurable intervals or whenever the device’s position changes from its last report by a programmable amount. EX1012, [0066], [0133], [0180]. The server processes the received packet and can return a response, including “data needed to render a map on the recipient wireless device display,” in a TCP/IP packet sent back through the Internet and cellular network. EX1012, [0059]. Haney explains that “utiliz[ing] existing platforms and infrastructure” on the phone, such as existing GPS receiver and cellular/Internet connection to repeatedly determine and report the phone’s location, requires neither “new cell phone or PDA technology” nor “new cellular communication infrastructure.” EX1012, [0010].

6. Aleksic (EX1007)

180. U.S. Patent Application Publication No. 2008/0057894 (“Aleksic”) was filed August 31, 2006, and published March 6, 2008. EX1007, Face. Aleksic,

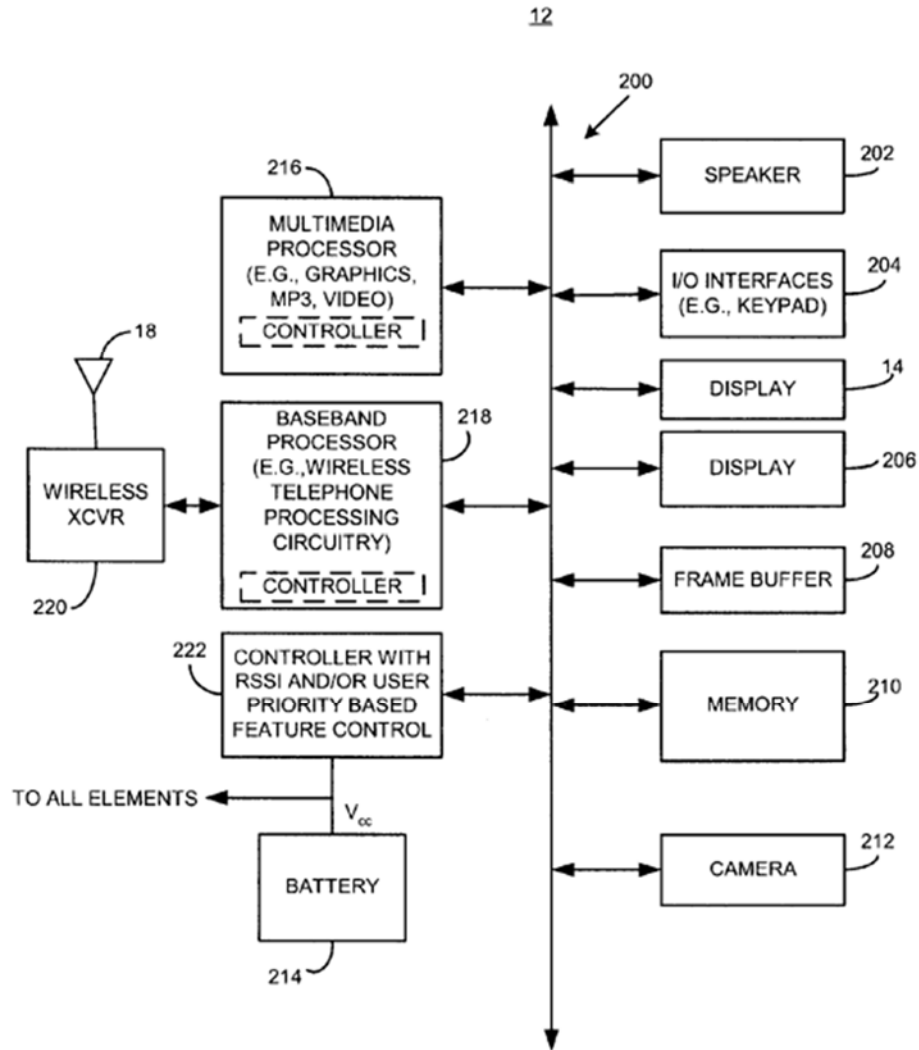
therefore, qualifies as prior art to the '284 Patent under pre-AIA 35 U.S.C. §§ 102(a) and (e). Aleksic was not considered by the Patent Office during the '284 prosecution.

181. Aleksic is directed to battery-powered portable devices and improved power-management operations for such devices. EX1007, [0001], [0004]. Portable devices, including cell phones, cameras, and digital audio/video players, have limited battery capacity and may need to reduce functionality as battery capacity decreases. EX1007, [0002]–[0003]. Aleksic primarily focuses on a controller that dynamically controls device features based on remaining battery capacity, device power-consumption rate, and user-prioritized functionality, so that higher-priority features receive power at the expense of lower-priority features. EX1007, [0022]. Furthermore, operations can be adjusted, including ending processes or reducing quality, in order to meet power usage requirements. EX1007, [0033]–[0034], [0038].



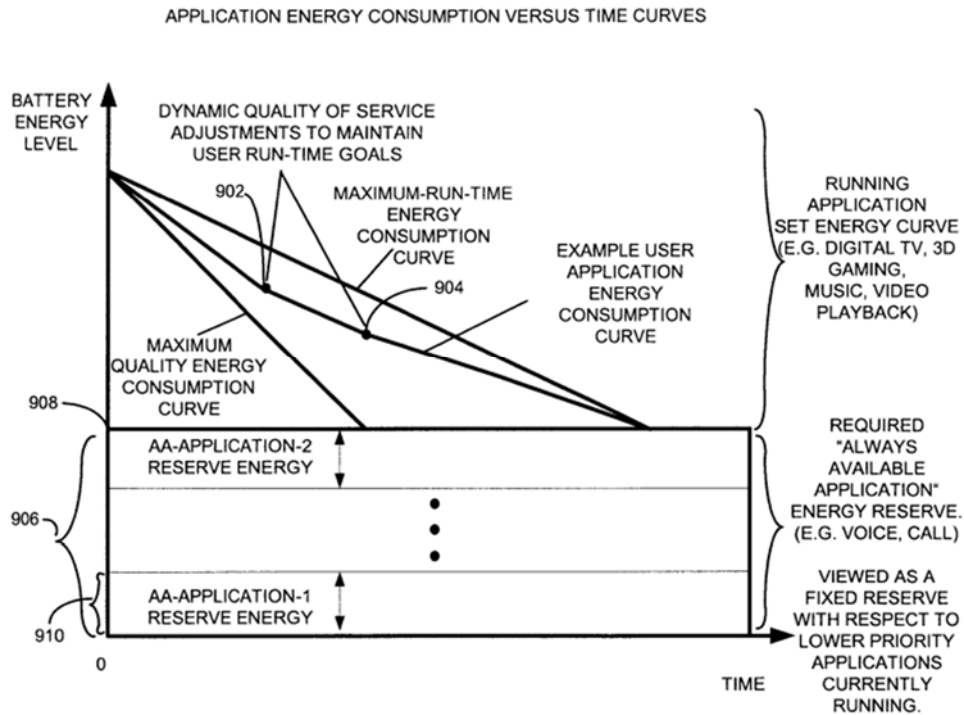
EX1007, Fig. 1.

182. Aleksic is primarily focused on wireless portable devices communicating within a network, where power management is necessary for ongoing operation. EX1007, [0006], [0026]–[0028].



EX1007, Fig. 2.

183. Aleksic teaches an exemplary portable device with processors, controllers, memory with instructions, and connections to the battery for power management. EX1007, [0007], [0029]–[0031].



EX1007, Fig. 9.

184. Figure 9 depicts application energy-consumption-versus-time curves and reserve battery-energy levels (predetermined thresholds) for higher-priority applications, including voice calls. EX1007, [0014], [0041]. The figure illustrates threshold-based power conservation because, once a battery-energy level is reached, certain applications are not allowed to execute, and at an emergency-call level only voice communications may remain available. [0041].

7. Louch (EX1008)

185. U.S. Patent Application Publication No. 2009/0209293 (“Louch”) was filed February 19, 2008, and published August 20, 2009. EX1008, Face. Louch,

therefore, qualifies as prior art to the '284 Patent under pre-AIA 35 U.S.C. § 102(e).

Louch was not considered by the Patent Office during the '284 prosecution.

186. Louch describes a mobile device configured to automatically control a speakerphone system based on a detected device state inferred from sensor inputs to trigger corresponding control actions. EX1008, [0010]–[0013]. The system integrates a microphone and loudspeaker within the device or in communication with external audio components, enabling hands-free and conventional use modes. *Id.*, [0003], [0010]–[0013].

187. The embodiments illustrate that device state may be defined by orientation, position, or interaction context relative to a user or environment. EX1008, Abstract, [0057]. For example, when the device is positioned flat on a surface or docked in a substantially vertical orientation, the system may infer hands-free usage and activate the speakerphone. *Id.*, [0011], [0014], [0025].

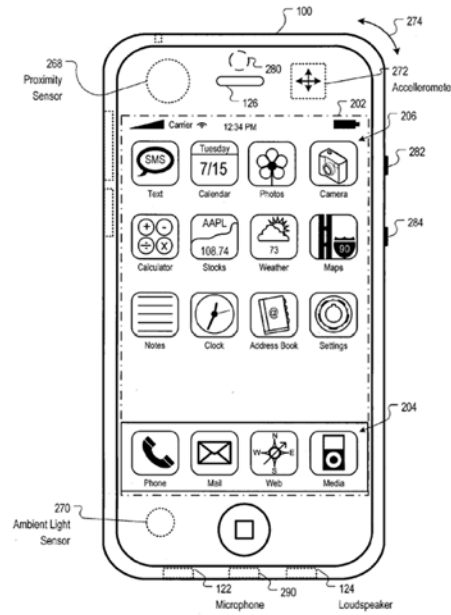


FIG. 2

EX1008, Fig. 2. A touch-sensitive graphical user interface (GUI) enables user interaction and can be dynamically resized, repositioned, or otherwise modified in response to the detected device state. EX1008, Fig. 2, Fig. 3, [0019], [0020], [0039].

188. The device includes a variety of sensors, including proximity sensors, ambient light sensors, and microphones used as volume detectors. These sensors alone or in combination provide real-time inputs indicating motion, proximity to a user, environmental conditions, and interaction patterns. EX1008, [0014], [0016], [0021]–[0023], [0033].

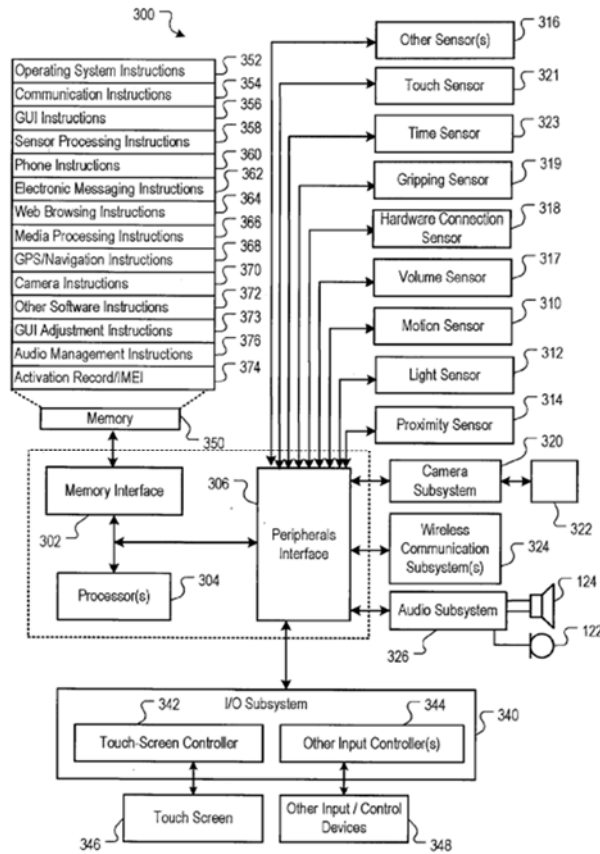


FIG. 3

EX1008, Fig. 3. A processor executes instructions stored in memory to implement a state machine that tracks device states based on sensor inputs. The system architecture includes sensor processing modules, audio management instructions, and GUI adjustment instructions. EX1008, [0013]-[0014], [0016]-[0017].

189. The operational process involves: (i) detecting sensor inputs to determine device state, (ii) mapping the detected state to one or more control actions, and (iii) automatically implementing those actions. EX1008, [0048]-[0050].

Mapping States to Control Actions

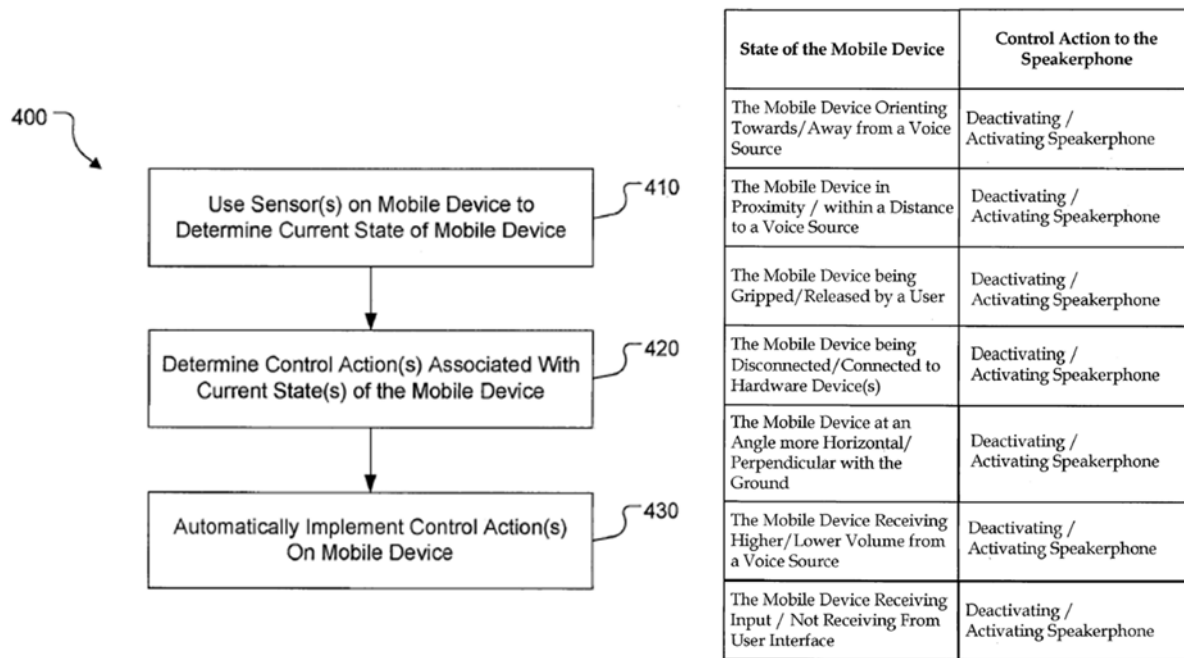


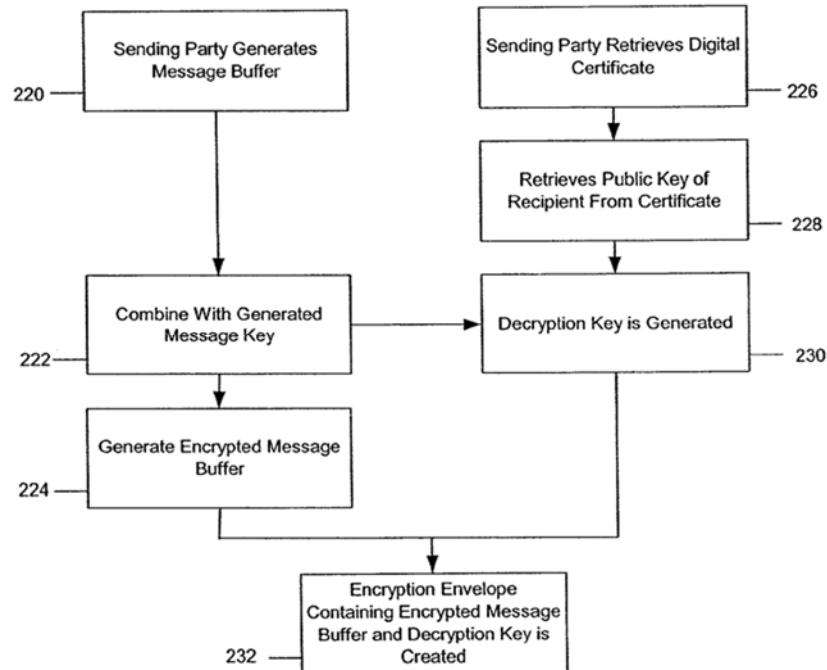
FIG. 5

EX1008, Fig. 4 (left), Fig. 5 (right).

8. Felt (EX1009)

190. U.S. Patent Application Publication No. 2002/0138735 (“Felt”) was filed February 21, 2002, and published September 26, 2002. EX1009, Face. Felt, therefore, qualifies as prior art to the ’284 Patent under pre-AIA 35 U.S.C. §§ 102(a), (b), and (e). Felt was not considered by the Patent Office during the ’284 prosecution.

191. Felt describes a secure messaging framework in a transaction processing system in which messages—such as advertisement or application-level messages—are transmitted within an encryption envelope that combines message-based encryption and digital signatures to ensure authenticity, integrity, and controlled temporal validity.

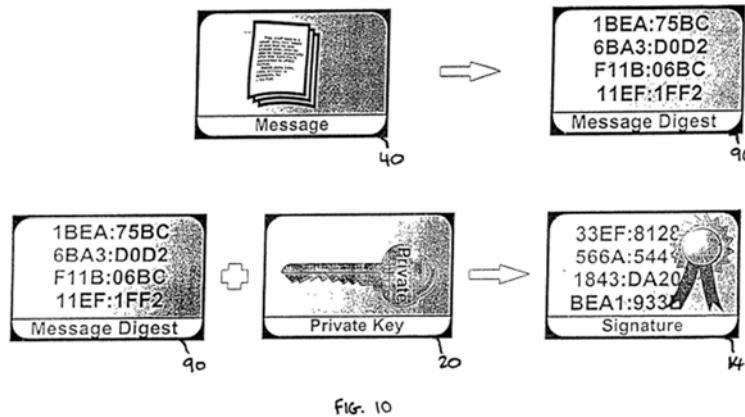


EX1009, Fig. 6.

192. Message security between devices (e.g., end user devices and servers) is a paramount concern. EX1009, [0004]–[0010]. A sending process generates a message buffer, encrypts the buffer using a message key, and then packages the encrypted message together with a decryption key (itself protected using the recipient’s public key) to form an encryption envelope. EX1009, [0107]–[0108].

193. The system further applies message-based digital signing. A digest of the message contents is generated and combined with the sender’s private key to produce a digital signature that accompanies the message or is included within the envelope. EX1009, [0119]–[0121]. The signature enables any recipient (or

intermediary) to authenticate the sender and verify that the message contents have not been altered. EX1009, [0123].



EX1009, Fig. 10.

194. A digital signature may include a timestamp based on the signer's local clock. The timestamp is incorporated as an authenticated attribute within the signature calculation such that any modification to the timestamp invalidates the signature. EX1009, [0114], [0223]. This cryptographically bound timestamp allows downstream systems to evaluate the temporal validity of a message. EX1009, [0016], [0019], [0301]–[0304].

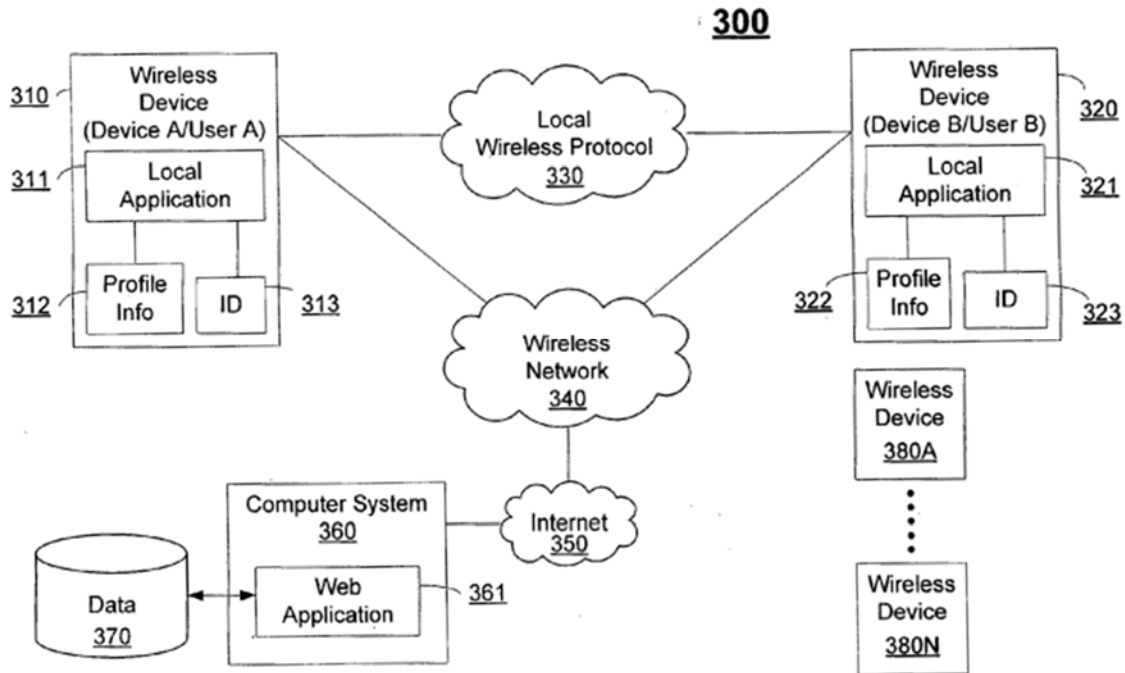
195. The system enforces temporal validity through configurable policies that define acceptable time ranges for signed messages. Specifically, administrative parameters establish forward-looking and backward-looking time windows relative to the verifying system clock, such that signatures with timestamps too far in the future or too far in the past are rejected. EX1009, [0301]–[0304]. These constraints

enable detection and mitigation of replay attacks, where previously valid messages (*e.g.*, advertisement messages) are retransmitted outside their intended validity period. EX1009, [0114], [0304].

9. Mgrdechian (EX1011)

196. U.S. Patent Application Publication No. 2005/0174975 (“Mgrdechian”) was filed February 10, 2005, and published August 11, 2005. EX1011, Face. Mgrdechian, therefore, qualifies as prior art to the ’284 Patent under pre-AIA 35 U.S.C. §§ 102(a), (b), and (e). Mgrdechian was not considered by the Patent Office during the ’284 prosecution.

197. Mgrdechian teaches a communication system in which a first wireless device receives identifications from other wireless devices, transmits at least one such identification to a remote computer system, and obtains information associated with the identified device or user. EX1011, [0012].



EX1011, Fig. 3A. The local wireless protocol allows the users to connect and share information locally without connecting through a remote server. *Compare* EX1011, Fig. 1 *with id.*, Fig. 3; *id.*, [0006], [0071].

198. Mgrdechian teaches local device discovery and communications using Bluetooth, 802.11, Zigbee, directional electromagnetic or ultrasonic beams, and equivalent wireless technologies. EX1011, [0026], [0033], [0072], [0092], [0109].

199. Mgrdechian supports device-to-device targeting: an initiating user may scan for neighboring devices, receive target device IDs, upload those IDs for profile retrieval, uniquely select a recipient, and then send a message or profile either directly to the target device or indirectly through the remote server. EX1011, [0028]–[0031], [0073]–[0075], [0077]–[0079], [0080]–[0081].

B. Ground 1 (Gagner + Liu + Mitchell)

1. Motivation to Combine

200. A POSITA would have been motivated to combine Gagner with Liu and Mitchell. Gagner, Liu, and Mitchell are analogous art to each other because they address mobile or networked client-server systems in which a server communicates with a user device to present content on the user device. They are also analogous art to the '284 Patent. Gagner discloses a networked wagering-game system in which a wagering game device presents primary wagering-game content and secondary content, and its network includes wagering game machines that may be handheld mobile units or non-dedicated devices such as mobile phones, personal digital assistants, and personal computers operating with wagering game servers. EX1004, [0037]–[0038], [0061]–[0063]. Secondary content may be selectively displayed after comparing user-related data, including location information, to wager-game-related information. EX1004, [0068]–[0070]. Liu likewise discloses a mobile terminal, such as a wireless phone, PDA, smartphone, or laptop computer, accessing online gambling applications provided by an Internet-connected game server. EX1005, [0016]–[0018]. The game server grants or denies a user permission to access wager-based games based on the location of the mobile device. EX1005, [0027]–[0029], [0039]–[0040]. Mitchell also discloses displaying primary and additional content (such as advertisements) on limited display areas, including on

mobile devices, using pixel-based size comparisons to determine whether and where content can be displayed. EX1010, Abstract, 5:41-50, 8:40-53, Figs. 2A-2E, 5-6. Mitchell provides solutions for displaying first content and secondary content on a client device in combination with high-level direction from a server. EX1010, 1:13-61, Figs. 2D, 5-6. Mitchell teaches filling unused space with additional content, which can increase revenue, without introducing undesirable elements such as scroll bars. EX1010, 1:25-34, 8:30-39. The '284 Patent's technical field likewise includes mobile devices that receive and display primary content data alongside lower-priority secondary content data while enabling or preventing wagering based on the type of mobile device or its location, including comparing the size of an identified display area to low-priority data and reformatting that data to fit the available display space. EX1001, Abstract, 19:32-48, 23:37-38, 48:13-15, claim 1.

201. A POSITA would have been motivated to combine Liu's teachings regarding location-based access control with Gagner's mobile wagering system to ensure that mobile wagering occurs only where it is legally permitted in order to comply with jurisdictional requirements. Gagner already uses location in its wagering system, including secondary content that can be selected based on a player's location within a casino, on a wide area network, or on the Internet, and Gagner's wagering game device can include a GPS receiver in its location unit. EX1004, [0082], [0090], [0097]. Liu identifies the regulatory problem that mobile

gambling was difficult to deploy because operators needed to ensure that wagering activity remained confined to permitted jurisdictions, and Liu solves that problem by using mobile-terminal location information to decide whether the user should be allowed continued participation in online gambling activities. EX1005, [0004]–[0006], [0024].

202. The combination would have addressed a known and practical problem in mobile wagering: a mobile device may move into, out of, or between jurisdictions while remaining connected to a wagering service. Liu’s location-based access-control process would allow Gagner’s system to continue delivering wagering-game content and secondary content while preventing wagering where location verification fails or where the device is outside an approved gaming area. EX1005, [0024]–[0027], [0038]–[0040], [0046]–[0051].

203. Gagner’s architecture was well suited for that integration. Gagner teaches wagering game devices and terminals communicating with wagering game servers and other servers over wired and wireless networks; its local-area networks include servers, access points, wireless communication links, and mobile wagering game machines; and its servers can serve wagering games and distribute content to devices in other casinos or other network locations. EX1004, [0061]–[0063].

204. While Gagner discloses that its mobile devices include a “location unit” with GPS capabilities (EX1004, [0097]) and teaches that its system communicates

with users via mobile devices over the Internet (EX1004, [0061], [0090]), Gagner does not describe using location information to prevent or enable wagering. Nor does Gagner describe placing content on the screen to prevent a user from wagering based on their location.

205. Liu supplies the jurisdictional-access-control functionality that a POSITA would have added to Gagner to comply with law. Liu recognized that mobile devices could access Internet applications and that mobile gaming was increasingly popular, but that mobile gambling raised a specific deployment problem because legality varied by jurisdiction. EX1005, [0002]–[0004]. Liu addresses that problem by using location information from location server 160 so that game server 150 can determine whether the mobile user should be allowed to participate in online gambling activities. EX1005, [0024].

206. Liu provides detailed implementation guidance. Liu teaches determining location using GPS, Assisted-GPS, cell-ID, and triangulation techniques such as TDOA and E-OTD, and teaches combining location techniques to refine the mobile terminal's estimated location. EX1005, [0020]–[0023]. Liu's game server then compares the resulting location information to jurisdictional boundaries, reference points, map/grid data, or geographic-limit responses to determine whether the requested gambling activity is permitted. EX1005, [0027]–[0035]. If the mobile terminal is outside an approved area, access is denied or

restricted, and Liu provides compliance information to the mobile terminal. EX1005, [0040], [0046]–[0051].

207. A POSITA would have understood the integration to be straightforward because both references use compatible client-server architectures. Liu’s game server communicates with a mobile terminal over a wireless network and the Internet, while Gagner’s wagering game servers communicate with wagering game devices over communications networks. EX1005, [0016]–[0018]; EX1004, [0061]–[0063]. A POSITA would have added Liu’s location request, location response, jurisdictional comparison, denial, and compliance-message logic to Gagner’s server-side wagering architecture, with Gagner’s mobile wagering game device acting as the mobile terminal. EX1005, [0024]–[0027], [0038]–[0040], [0046]–[0051].

208. A POSITA also would have been motivated by contemporaneous mobile-wagering regulatory requirements. With increased popularity in mobile gaming, a known regulatory problem at the time was that mobile devices accessing gambling games over the Internet may move into or out of permitted jurisdictions while connected to a game. EX1005, [0002]–[0004]. Nevada Assembly Bill 471 legalized “Mobile gaming” while directing regulation so mobile devices would legally operate only from approved areas of licensed gaming establishments. EX1024, 1.

209. “Mobile gaming” was defined as “the conduct of gambling games through communications devices operated solely in public areas of a licensed gaming establishment by the use of communications technology that allows a person to transmit information to a computer to assist in the placing of a bet or wager and corresponding information related to the display of the game, game outcomes or other similar information.” EX1024, 1.

210. The Nevada Gaming Commission was prohibited from adopting regulations unless it “determines that mobile gaming systems are secure and reliable, and provide reasonable assurance that players will be of lawful age and communicating only from areas of licensed gaming establishments that have been approved by the Commission for that purpose.” EX1024, 2.

211. The Nevada Gaming Control Board adopted Technical Standard 4 on March 23, 2006, and that standard restricted gaming operations of mobile communications devices to public areas. EX1025, 1; EX1026, 45. It imposed several important technical requirements:

Mobile gaming systems must employ a mechanism approved by the Chairman which is capable of verifying that the mobile communications device is being operated by an authorized person.

EX1025, § 4.010.1.

Communication between a mobile communications device and a mobile gaming system must be conducted using a method that

securely links the mobile communications device to the mobile gaming system and authenticates both the mobile communications device and mobile gaming system as authorized to communicate over that link.

EX1025, § 4.020.1.

Location Restrictions. Mobile gaming systems must be designed to restrict the gaming operation of the mobile communications device to public areas as defined by Regulation 5.220.

EX1025, § 4.030.

Mobile Communications device Volume. Mobile communications devices must be capable of adjusting and/or muting the volume on the device.

EX1025, § 4.040.

212. Nevada policy further required devices to be “capable of immediately detecting if a mobile device has entered a non-gaming area” and to suspend gameplay and notify the user that further transactions were suspended. EX1027, 4. Liu’s jurisdictional-access-control process provided a known technical mechanism for implementing these same kinds of location-based mobile-wagering restrictions in Gagner’s mobile wagering system. EX1005, [0024]–[0027], [0038]–[0040], [0046]–[0051].

213. A POSITA would have also been motivated to combine Mitchell’s teachings regarding pixel-based size-comparison and reformatting techniques with the Gagner-Liu system to provide a precise, efficient mechanism for determining

whether secondary content fits within an available display area, for overlaying content in a controlled manner, and, if necessary, for reformatting that content to fit. While Gagner teaches displaying secondary content (such as advertisements) around primary content and teaches that a client device renders content based on information from a server, including size, location, priority, and overlay information (EX1004, [0052]–[0053], [0060], [0088]), and Liu teaches mobile wagering devices with displays (EX1005, [0002], [0016]), neither reference expressly teaches how to achieve this sizing and overlaying of secondary content around primary content in the display such that a POSITA would have turned to Mitchell to supply implementation details, such as comparing pixel dimensions of an available and identified display area to pixel dimensions of content to determine fit, reformatting the content in response to that comparison, or the specific benefits of doing so.

214. Mitchell discloses these features. Mitchell recognized that, on displays with limited space, “it would be preferable to supply a Web page to a display of an Internet connected device that is appropriate for the currently available browser window area, so that the content can be viewed without scrolling.” EX1010, 1:56–60. To address this problem, Mitchell teaches measuring available display area in pixels (EX1010, 12:12–22) and comparing that area to the pixel size of content modules. EX1010, 13:22, 13:33–35. Mitchell’s system “determine[s] a remaining display area and compare[s] that remaining area with the size of the next priority

content module” iteratively until no additional content will fit. EX1010, Fig. 6, 13:33–35, 13:50–59. Critically, Mitchell teaches that this pixel-based comparison “eliminates the unnecessary downloading of additional content” when the display area is insufficient—saving bandwidth and improving efficiency. EX1010, 9:36–39, 12:27–35. Mitchell also teaches layering, in which content is positioned at “specific coordinates” and “the distance between the edges or borders of different pieces of content is known.” EX1010, 2:16–39, 12:60–13:17, Fig. 9, 16:34–36. The system can increase revenue by placing more ads without diluting the on-screen content of interest. EX1010, 8:30–39. These efficiency benefits—reducing bandwidth usage and improving display-area utilization—would have motivated a POSITA to combine Mitchell’s teachings regarding display-fit and reformatting techniques with Gagner’s teachings regarding secondary-content framework to arrive at the combination in the Gagner-Liu system.

215. A POSITA would have had a reasonable expectation of success in combining Gagner, Liu, and Mitchell given the references’ compatible client-server architectures and complementary teachings. First, Gagner and Liu both use compatible networked wagering architectures with server-side decision-making in communication with mobile or remote user devices over a network/Internet. EX1004, [0061]–[0063]; EX1005, [0016]–[0018]. Gagner already discloses mobile wagering devices with location functionality, including a GPS receiver in the

wagering game device's location unit, and the capability to communicate location information to a wagering game server. EX1004, [0090], [0097]. Gagner also already teaches that wagering game devices render content based on server-provided information including size and location data. EX1004, [0052]–[0053], [0060], [0071]. Second, Liu provides detailed disclosure of its game server that obtains mobile-terminal location information using known techniques, compares that location information to jurisdictional boundaries/reference points, denies or grants access to gambling pursuant to regulations, repeats location checks, and provides compliance information when access is denied. EX1005, [0020]–[0027], [0038]–[0051]. Third, Mitchell provides detailed client-side and server-side guidance on implementing pixel-based size comparisons, iterative display-fit determinations, and coordinate-based content positioning. EX1010, Figs. 5–6, 12:12–22, 13:18–59. Specifically, Mitchell teaches determining available display area, sending compatible display instructions, assigning priorities and pixel sizes to content modules, comparing remaining display area to content-module size, downloading/displaying content that fits, and modifying content to fit available space. EX1010, 10:4-42, 10:56-11:6, 12:12-22, 13:18-59, Figs. 5-7. A POSITA would have found it straightforward to implement Liu's access-control logic and Mitchell's display-fit or reformatting logic in Gagner's server-side wagering architecture and mobile wagering game device. The combination requires only

software-based modifications well within the capabilities of a POSITA. And the combined result (“Gagner-Liu-Mitchell system”) would have predictably produced Gagner’s mobile wagering system enhanced with Liu’s jurisdictional verification and access-control functionality and Mitchell’s pixel-based comparison and reformatting functionality, advantageously enabling wagering operators to provide Gagner’s secondary content and wagering opportunities while restricting wagering to approved locations, and displaying low-priority data in an identified area after comparing pixel dimensions of available display area to pixel dimensions of secondary content and, when determined that the content does not fit, reformatting it to fit.

2. Independent Claim 1

1[a]: A mobile phone comprising:

216. Gagner, Liu, and Mitchell all teach mobile phones. Gagner teaches wagering game devices, terminals, and machines for presenting wagering-game content and secondary content. *See, e.g.*, EX1004, Abstract, [0036]–[0044] (disclosing wagering game device 126), [0046]–[0060] (disclosing wagering game terminal 204), [0061]–[0066] (disclosing wagering game machines 306, 311, 312), [0067]–[0072] (disclosing wagering device 402), [0073]–[0081] (disclosing mobile wagering game device 502), [0094]–[0100] (disclosing wagering game device 806); *see also id.*, Figs. 1-5 and 8. Gagner expressly discloses that its wagering game

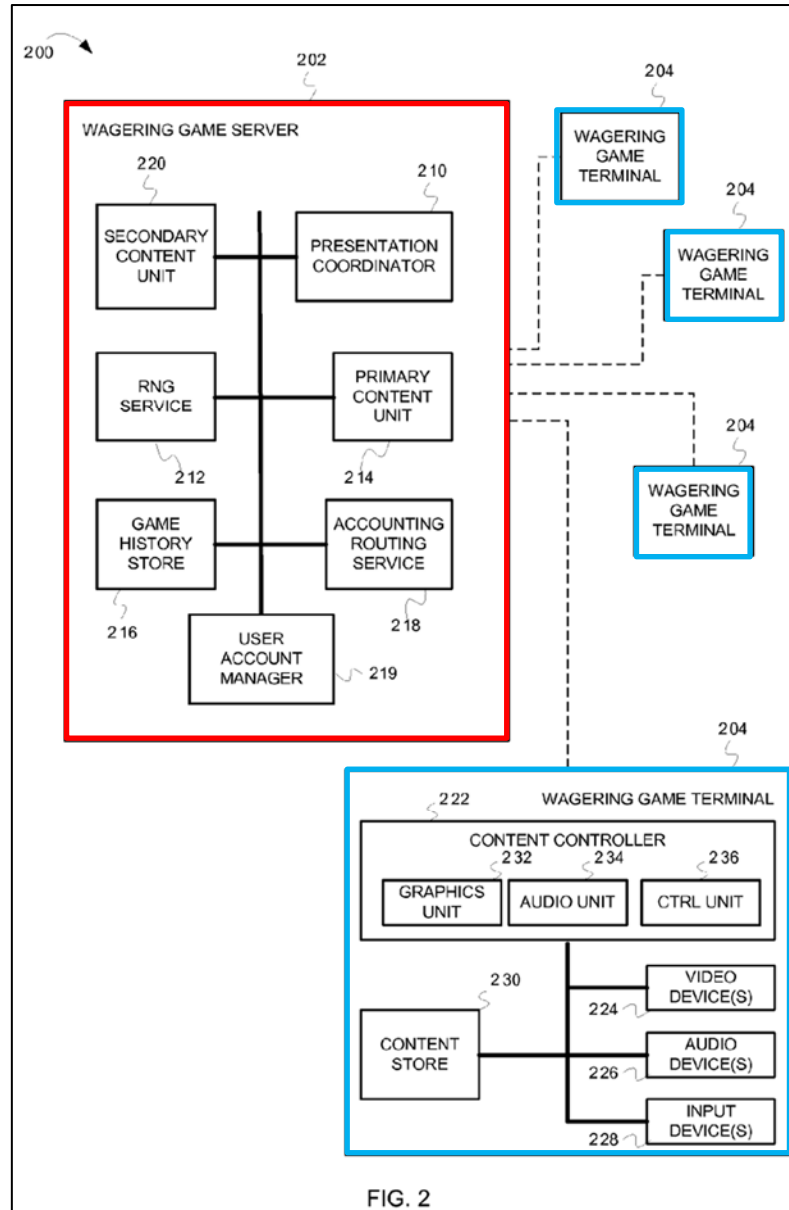
devices, terminals, and machines may be interchangeable. For example, Gagner teaches the following correlations:

- “In some embodiments, the terminal 204 can be included in wagering game machines or other devices, such as cell phones, notebook computers, etc.” EX1004, [0057].
- “In some embodiments, wagering game machines 306, 311, 312 and the wagering game server 318 work together such that the wagering game machines 306, 311, 312 can be operated as a thin, thick, or intermediate client. That is, the wagering game machines 306, 311, and 312 can operate as wagering game terminals (see discussion of Figure 2).” EX1004, [0063].
- “As noted above, the mobile device 502 can operate as a terminal, as described vis-a-vis Figure 2.” EX1004, [0073].
- “In some embodiments, the wagering game device 806 can operate as a terminal, as described above. Alternatively, it can operate as a stand-alone device capable of presenting secondary content, as described above.” EX1004, [0094].

217. Gagner further discloses that its wagering game machines “can take any suitable form,” including “handheld mobile units,” and may include non-dedicated devices “such as mobile phones, personal digital assistants, personal computers, etc.” EX1004, [0062]; *see also id.*, [0052] (“The terminal 204 can act as a smart

client device....”), [0057] (“the terminal 204 can be ... cell phones, notebook computers, etc.”), [0073] (“The docking station 530 includes a docking port 541 for docking with a mobile wagering game device (‘mobile device’) 502.”), [0089] (“the wagering game device may be docked in a docking station, connected to a secondary display screen, linked with a mobile wagering game device, attached to a personal digital assistant, connected to a cell phone, etc.”). Those devices operate as wagering game terminals in Gagner’s client-server architecture. EX1004, [0046], [0063].

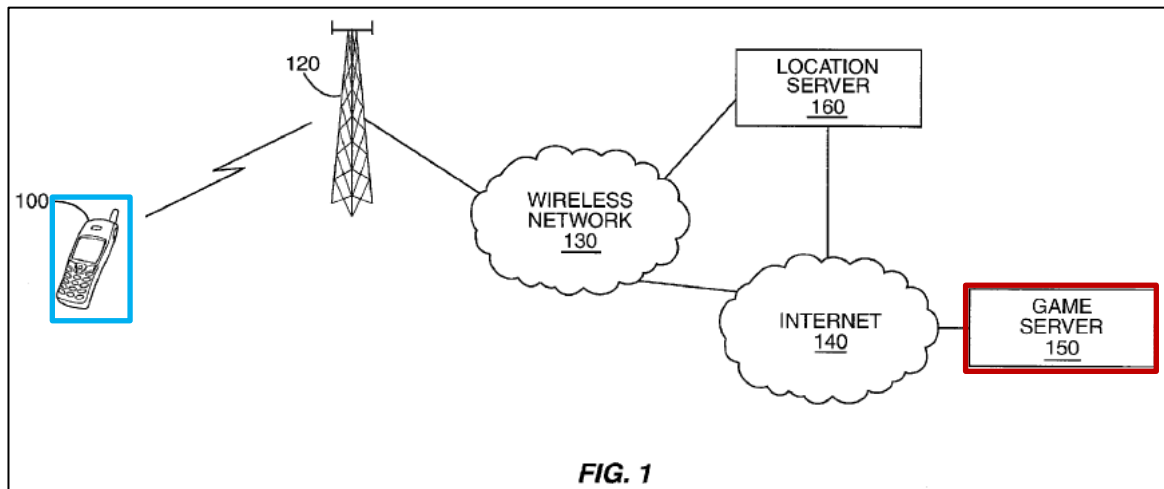
218. Gagner’s Figure 2 (reproduced below) illustrates this client-server architecture in which wagering game terminals (*e.g.*, mobile phones) (blue) communicate with the wagering game server (red). “[T]he server 202 can interact with any number of terminals[,]” including “numerous mobile terminals in one or more casinos.” EX1004, [0046]. Each “terminal 204 can act as a smart client device capable of transmitting player input to the server 202, processing control information, and rendering primary and secondary content.” EX1004, [0052].



EX1004, Fig. 2; *see also id.*, Figs. 1 and 3-5.

219. Liu independently confirms that the same type of mobile-phone device was used for mobile wagering. Liu discloses a mobile terminal for wireless access to online gambling activities, and teaches that the mobile terminal “may be a wireless phone, a Personal Digital Assistant (PDA), a so-called smart phone, a laptop

computer, or other similar device.” EX1005, [0016]. As shown in Liu’s Figure 1 (reproduced below), Liu’s game server (red) is configured to provide online gambling applications to a mobile terminal (blue). EX1005, [0018].



EX1005, Fig. 1, [0016]–[0024].

220. Mitchell also independently discloses primary and additional content (such as advertisements) on limited display areas of “PDAs or Internet enabled cell phones.” EX1010, 1:53-57, 4:25-28 (“This method is especially useful for pre-selecting, communicating and displaying appropriate portions from within a page to fit small fixed-displays used for browsing, such as on some PDAs and cellular phones.”). Mitchell provides solutions for displaying first content and secondary content on a client device in combination with high-level direction from a server. EX1010, 1:13-61, Figs. 2D, 5-6.

221. Thus, all references disclose mobile devices used for displaying content: Gagner discloses mobile phones and handheld wagering game units

operating as wagering game clients, Liu discloses wireless phones and smartphones accessing online gambling applications through a game server, and Mitchell discloses PDAs and cellular phones modifying the pixel size of content to be displayed on limited screen space based on high-level direction from a server. See, e.g., EX1004, [0062]–[0063]; EX1005, [0016], [0018]; EX1010, 1:13-61.

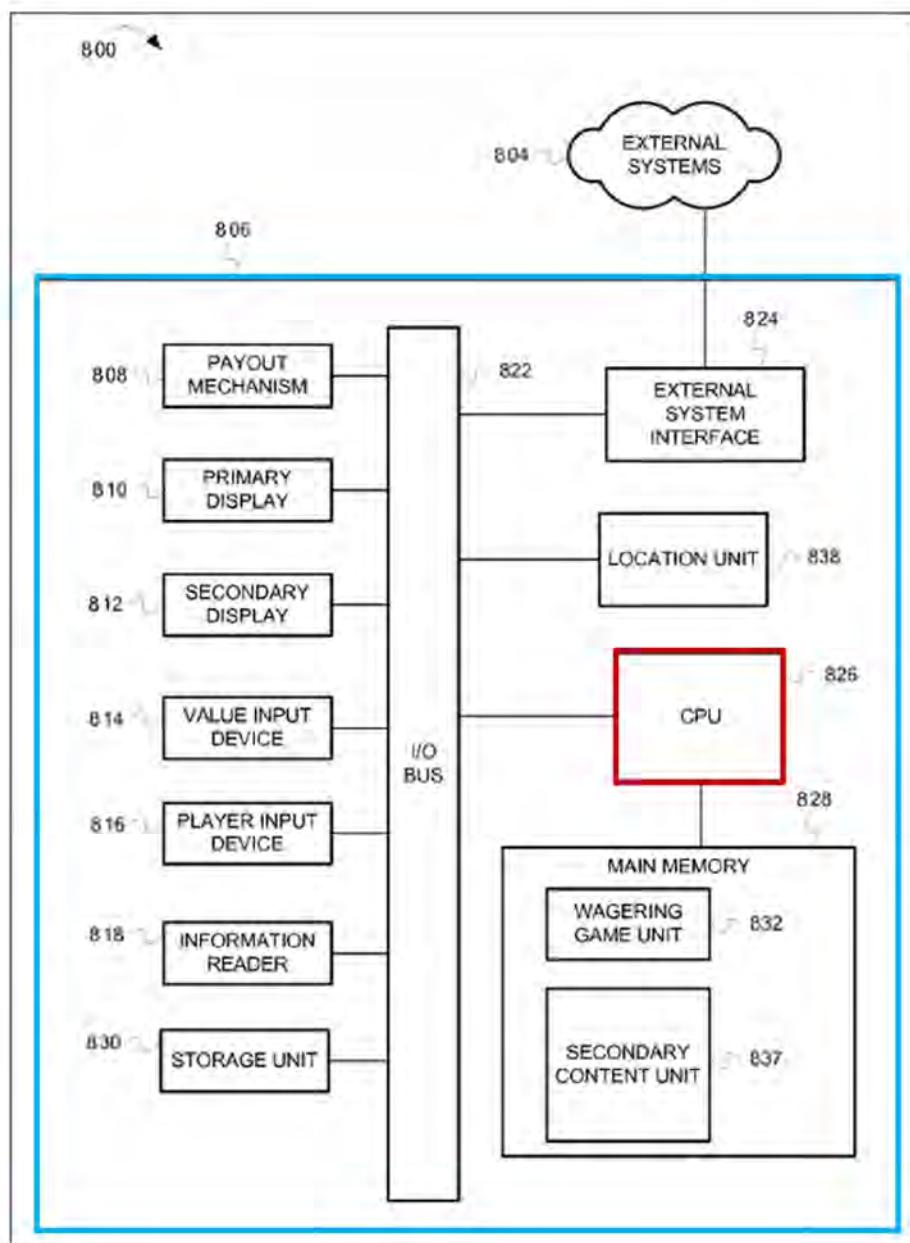
222. Accordingly, the Gagner-Liu-Mitchell system teaches the “mobile phone” recited in limitation 1[a].

1[b]: at least one computer processor configured to execute a mobile application that causes the at least one computer processor to:

223. The Gagner-Liu-Mitchell system teaches a mobile phone having a computer processor configured to execute a mobile application that causes the processor to perform the recited functions. As explained above, Gagner discloses mobile phones and handheld mobile units operating as wagering-game clients, Liu discloses wireless phones and smartphones that access online gambling applications, and Mitchell discloses cellular phones displaying content on limited screen space after pixel-size modification. EX1004, [0062]–[0063]; EX1005, [0016], [0018]; EX1010, 1:19-54.

224. As shown in Gagner’s Figure 8 (reproduced below), Gagner’s “wagering game device 806[] ... includes a central processing unit (CPU) 826 connected to main memory 828. The CPU 826 can include any suitable processor, such as Intel® Pentium processor, Intel® Core 2 Duo processor, AMD Opteron™

processor, or UltraSPARC processor.” EX1004, [0095]. The main memory includes a wagering game unit that can present wagering games such as video poker, video blackjack, video slots, video lottery, and reel slots. EX1004, [0095]. The same architecture includes primary and secondary displays, a player input device, an external system interface, and storage. EX1004, [0096].



EX1004, Fig. 8 (showing the wagering game device in blue and the CPU of the wagering game device in red).

225. Gagner also teaches that the processor executes software or mobile applications. The wagering game device can operate as a terminal or as a stand-alone device, can include a secondary content unit that processes communications, commands, or other information to determine, control, and/or present secondary content, and can include hardware, firmware, and machine-readable media with instructions for performing the disclosed operations. EX1004, [0094], [0099]–[0100]. Gagner further discloses that “the wagering game device [may be] connected to one or more other devices. For instance, the wagering game device may be ... linked with a mobile wagering game device, attached to a personal digital assistant, connected to a cell phone, etc. Because the wagering game device is connected to one or more other devices, the presentation of wagering games and other primary content may occur in the wagering game device or on any of the other devices.” EX1004, [0089]. Moreover, “[a] player [may] log[] in to a wagering game device or wagering game website” on the device or other connected devices to “play the wagering games” through the “web browser interface” or “other application.” EX1004, [0065]–[0066], [0085]. Such applications running on a mobile device would be considered “mobile applications.”

226. Liu likewise teaches executing mobile applications on the mobile terminal. Liu discloses that mobile terminal 100 may be a wireless phone, PDA, smartphone, laptop computer, or similar device with voice and data services, including Internet access. EX1005, [0016]–[0017]. Liu further teaches that games are among the applications available to the mobile terminal and that game server 150 is configured to provide online gambling applications to mobile terminals. EX1005, [0017]–[0018].

227. Mitchell also teaches a processor executing mobile applications on a cellular phone. Mitchell discloses “client device[s] for displaying a Web page, including hand held devices, pocket personal computing devices, digital cell phones adapted to connect to a network and other microprocessor based, or programmable consumer electronic devices, multiprocessor systems, network personal computers, minicomputers, mainframe computers, and the like.” EX1010, 5:41-50. These devices contain, among other things, “a processing unit 21, a system memory 22, and a system bus 23.” EX1010, 5:56-60. The processor executes “computer-executable instructions for performing” the disclosed methods, including displaying its browser program that Mitchell identifies as an “application program.” EX1010, 4:29-31, 6:26-30 (“A number of program modules may be stored on the hard disk, magnetic disk 29, optical disk 31, ROM 24 or RAM 25, including an operating

system 35, one or more application programs 36 (such as a browser program), other program modules 37, and program data 38.”).

228. A POSITA would have understood that the software used by Gagner’s mobile wagering-game client, Liu’s mobile terminal accessing wagering-game functionality, and Mitchell’s cellular phone displaying browser programs is a mobile application.

229. For example, Boudreau EX1017 is devoted to the history of downloadable software applications. It states:

The core of the paper is an empirical analysis of software applications built for mobile computers and personal digital assistants (PDAs) such as Palm, Microsoft Windows CE, Symbian, and Linux platforms. I study data from the period 1999–2004, because at the time, the bulk of all transactions for application software were carried on a single Web-based store, Handango.com.

EX1017, 1410.

The study period (1999–2004) begins after the jarring changes of the mid-1990s that were precipitated by the entry of the iconic Palm Pilot; the study ends prior to the period in the mid-2000s when the PDA industry converged with digital music players and handheld phones.

EX1017, 1415.

230. This establishes that mobile applications were already common by 2004.

The model [mobile computing platforms] has received renewed acclaim with the Apple iPhone. First released in early 2007, the Apple's App Store was launched roughly a year and a half later with about 500 applications.

EX1017, 1409.

231. EX1018 is an Apple press release from March 6, 2008:

Apple on Thursday unveiled the tools and technologies that will allow independent software developers to create and sell programs for the iPhone and iPod touch. In an event at the company's headquarters in Cupertino, California, Apple executives unveiled a revised set of iPhone developer tools, based on the company's existing tools for developing Mac software.

EX1018, 2.

232. The “programs for the iPhone and iPod touch” were mobile applications.

233. Liu itself discloses that the “Wireless Application Protocol” (“WAP”) is one way for a mobile device to communicate with a server, which requires an application on the mobile device to run:

In other embodiments, access to mobile terminal interface 810 is exclusive to a mobile gateway, such as a WAP gateway, maintained by a mobile operator. In either event, mobile terminal interface 810 may optionally comprise a security module 820, which provides for encryption and/or authentication of messages sent between mobile terminal 100 and game server 150.

EX1005, [0054].

234. WAP was a streamlined protocol tailored to the limited size and bandwidth of mobile phones.

235. Further, Black discloses:

Other access methods are also envisaged, for example use of WAP (Wireless Application Protocol) phones to access a betting service running on a WAP Server.

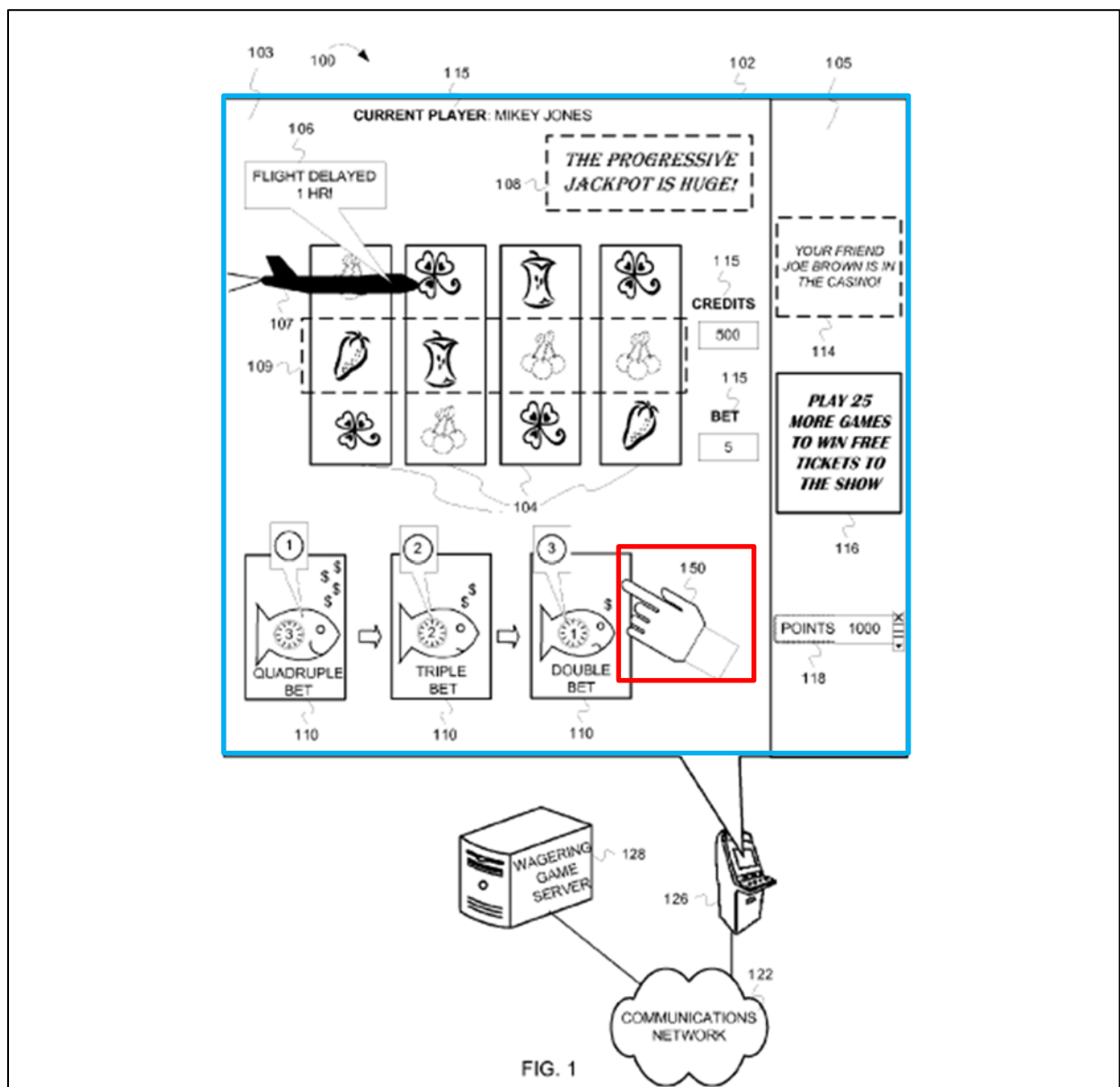
EX1019, [0024].

1[c]: display a user interface on a touch screen of the mobile phone;

236. The Gagner-Liu-Mitchell system teaches displaying a user interface on a touch screen of the mobile phone. As discussed for limitation 1[a], Gagner discloses that its wagering game devices may be handheld mobile units or non-dedicated devices such as mobile phones, and that those devices can operate as wagering game terminals. EX1004, [0062]–[0063]. Gagner further discloses that the “wagering game device 402 includes a player interface or display (‘display’) 409 to present primary content, such as a wagering game.” EX1004, [0068]. This “display” further includes “a primary display section configured to present any one or more of the wagering game and the secondary content, and a secondary display section configured to display the secondary content,” such as “advertisements” for additional “wagering games, sports bets, casino events, community services, hospitality services, etc. (‘wagering game related information’).” EX1004, [0018],

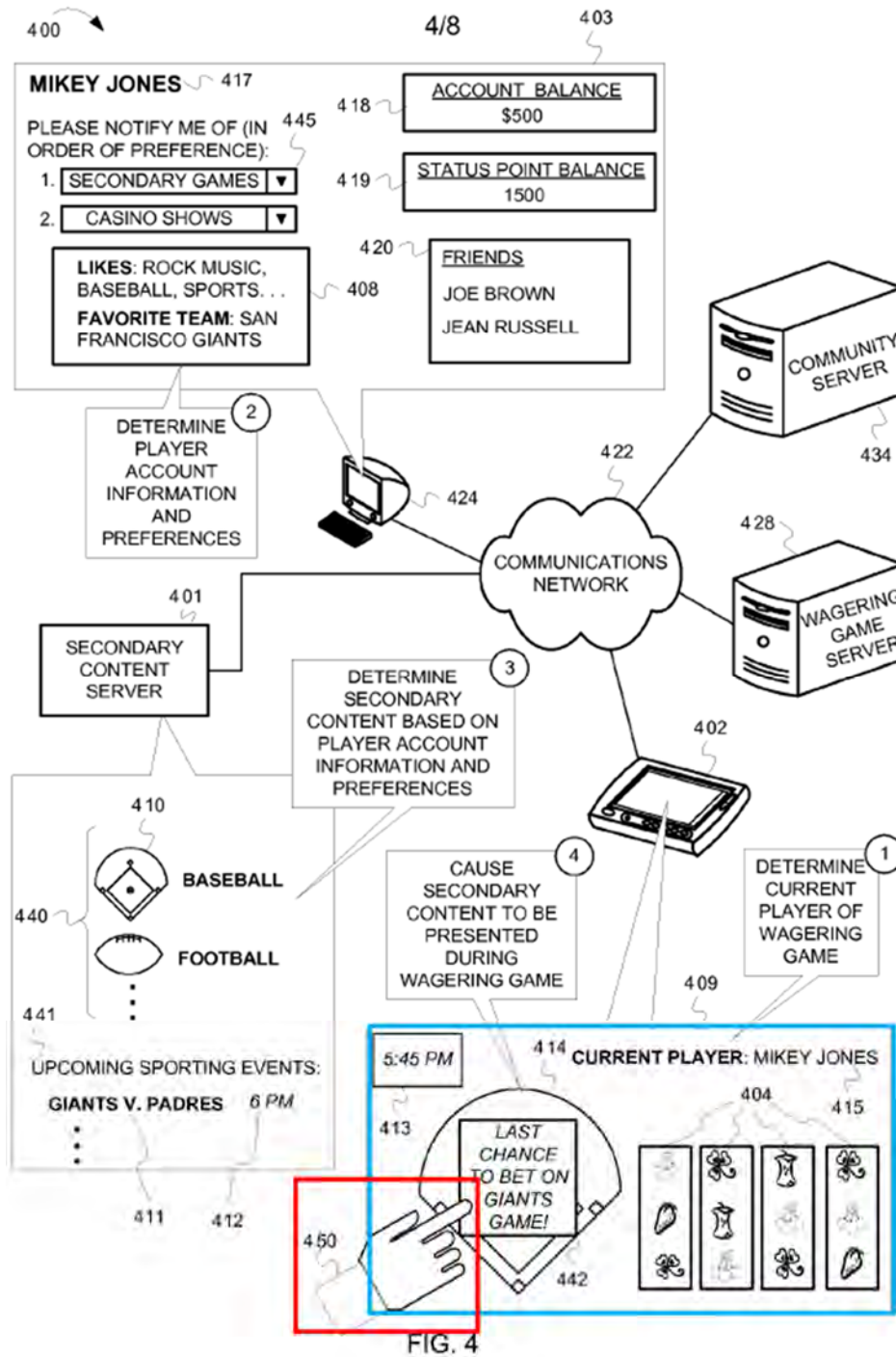
[0070], [0087], Fig. 1. Together, the primary and secondary content sections of the display constitute the user interface presented to the player.

237. Gagner's Figure 1 illustrates a display (indicated in blue below) presenting the wagering-game user interface, including primary wagering-game content, player/account information, and secondary content notifications. EX1004, [0037]–[0040].



EX1004, Fig. 1. Gagner teaches that the interactive wager-multiplier notification is “sensitive to touch or external input,” including selection “by pressing a finger 150,” (indicated in red above) and that the player can interact with the notification at any stage. EX1004, [0042].

238. Gagner’s Figure 4 likewise discloses a display (indicated in blue below) presenting secondary content during a wagering game. EX1004, [0071].



EX1004, Fig. 4. In this example, Gagner likewise teaches that the player may interact with a secondary content notification “by touching the secondary content

notification with a hand,” and teaches determining whether an available device has “touch screen capabilities” for interactive notifications. EX1004, [0071], [0091].

239. Liu and Mitchell reinforce the same teaching in the mobile phone context. Liu and Mitchell disclose that a mobile terminal may be a wireless phone, PDA, smartphone, laptop computer, or similar device, and that the mobile terminal communicates with a game server to access online applications. EX1005, [0016]–[0018]; EX1010, 5:41-50, 6:26-30. A POSITA would have understood that such a mobile phone or smartphone could display a wagering application’s user interface on its display, and Gagner expressly teaches touch interaction with that displayed interface. EX1004, [0042], [0071], [0091]; EX1005, [0016]–[0018]; EX1010, 5:41-50, 6:26-30.

240. Accordingly, the Gagner-Liu-Mitchell system teaches displaying a user interface on a touch screen of the mobile phone.

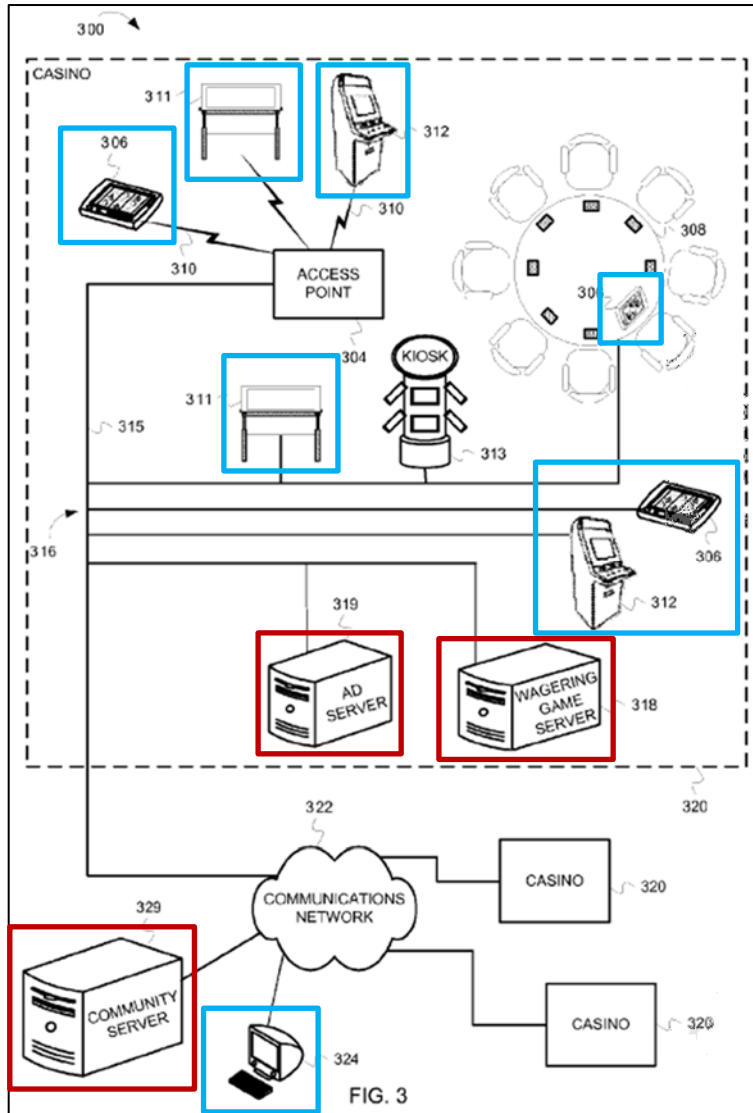
1[d]: send location data to one or more server computers, wherein the location data includes GPS data and Internet Protocol (IP) data;

241. A “server computer” is a constituent part of the ubiquitous client-server architecture, which was developed by the 1970s, and partitions computing work between a “server,” typically a high-performance computer capable of serving multiple other computers, and a “client,” typically a computer of lower power, such as a handheld device. The client and server collaborate by passing messages to one another over a network. The client accepts input from a user (such as a keyword

search engine query), makes a request to a server, and the server responds to the request (*e.g.*, by sending hyperlinks of relevant web pages, which the client can then retrieve from other servers).

242. The Gagner-Liu-Mitchell system teaches sending location data to one or more server computers, including location data with GPS data and Internet Protocol (IP) data. Gagner first teaches the claimed server computers. Its wagering game network includes one or more servers, such as wagering game server 318 and ad server 319, and may also include promotions servers, player information servers, management servers, progressive servers, player tracking servers, file servers, web servers, application servers, database servers, and casino and player account servers. EX1004, [0061].

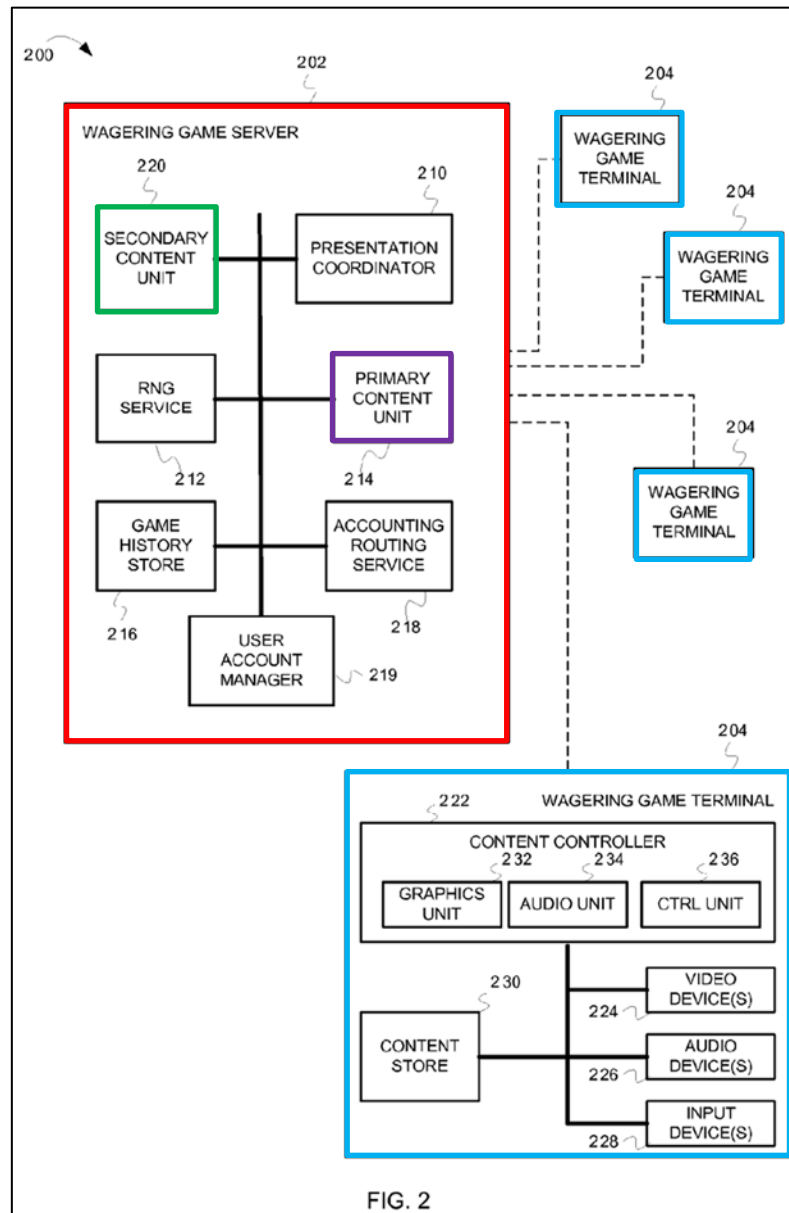
243. Gagner's Figure 3 shows wagering game machines (blue) communicating with servers (red) over a network that includes wired and wireless communication links. EX1004, [0061]. Gagner teaches that those communication links can use technologies including Bluetooth, 802.11, Ethernet, public switched telephone networks, and SONET, and that the servers can serve wagering games and distribute content to devices located in casinos or other locations on the communications network. EX1004, [0061].



EX1004, Fig. 3.

244. Specifically, Gagner’s Figure 2 further shows that its “wagering game server” (red) includes both a “primary content unit 214” (purple), which offers “a plurality of primary wagering game types (e.g., slots, poker, roulette, etc.) and themes (e.g., a movie theme, cartoon theme, etc.),” and a “secondary content unit 220” (green), which offers “secondary wagering games (a.k.a. bonus games), advertisements, alerts, messages, and other secondary content notifications.”

EX1004, [0048]. Gagner's wagering game terminals/devices/machines (blue) presents the wagering games and secondary content provided by the server. EX1004, [0061].



EX1004, Fig. 2.

245. Gagner's "secondary content" can be provided by the "secondary content servers," such as the "ad server." EX1004, [0057], [0065]. Specifically, Gagner discloses that "[a]ny of the wagering game network components (e.g., the wagering game machines, servers, etc.) can include hardware and machine-readable media including instructions for performing the operations described herein," such that the functions performed by secondary content servers can be performed by the gaming server. EX1004, [0066]. This "secondary content server evaluates criteria, circumstances, or factors, such as a player's location (e.g., in a casino, on a wide area network, on the Internet, etc.) or user related information, as described in Figure 4, to determine or generate the secondary content." EX1004, [0090]. For example, "[i]f the player is close to a specific event, the secondary content notification may be tailored to advertise that specific event." EX1004, [0082]. A POSITA would have understood that, for the secondary content server to evaluate the wagering game device's location in selecting content, location information for the device is provided to, or otherwise made available at, at least one server in the wagering game system. Thus, Gagner teaches that location information is used by server-side functionality.

246. Gagner further teaches the GPS and IP components of the location data. Gagner's wagering game device includes a "location unit 838 [that] includes a global positioning system (GPS) receiver that can determine the wagering game device's location using GPS satellites." EX1004, [0097]. Gagner further discloses that the

device's "location unit 838 can create player information that indicates the wagering game device's location/movements in a casino." *Id.* The secondary content server then uses this "player[] location (e.g., in a casino, on a wide area network, on the Internet, etc.)" to "determine or generate the secondary content." EX1004, [0090]. A POSITA would have understood from Gagner's disclosure that the device sends its "GPS data" to the secondary content server in order to receive tailored secondary content.

247. Alternatively, sending device-determined GPS location data to the server would have been obvious. A POSITA would have been motivated to do so to enable the server to select content based on the player's current location, as Gagner teaches. *See, e.g.,* EX1004, [0090]. A POSITA would have had a reasonable expectation of success because Gagner's secondary content server already "reads" information (*e.g.,* "session metadata" and player information) provided by the device. EX1004, [0068]. Thus, modifying the device-provided information to include location data would have been a routine software change.

248. Gagner also discloses providing games via a "wagering game website" accessed through a "browser" on the device, wherein the "ad server 319 and other secondary content servers (not shown) can also cause secondary content to be displayed within a web browser or other application that the computer 324 uses to play the wagering games." EX1004, [0065], [0085]. Gagner's device communicates

with external wagering game networks through an external system interface over wired and wireless networks, including Ethernet and 802.11, and that location-based secondary content may depend on whether the player is “on the Internet.” EX1004, [0090], [0096]. A POSITA would have understood that a device accessing a browser or application using HTTP to communicate with server computers over the Internet necessarily sends Internet Protocol (IP) data as part of every requested network communication, and Gagner’s GPS receiver supplies the GPS data. A POSITA would have also understood that Gagner’s browser/application HTTP communications with the server “on the Internet” contain IP data that includes a source IP address associated with the device’s Internet connection, which may be used to determine whether the player is on the casino network, as contemplated by Gagner. EX1004, [0090]. Patent Owner applied the same understanding in its district-court infringement chart, alleging that HTTP communications containing GPS data, including latitude, longitude, and altitude information, satisfy this limitation and that “Internet Protocol (IP) data [] is included in any HTTP communication.” EX1028, 6–7.¹⁴

¹⁴ As noted here and throughout, unless otherwise indicated, I understand that Petitioner denies that PO’s claim charts show infringement. However, I understand that the claims must be interpreted the same way for both infringement and invalidity. Thus, I have considered how PO has applied the claims in reviewing the prior art. Further, at this time, I have not been asked to form an opinion on infringement, nor have I formed one.

249. On this point, Patent Owner is correct that IP data is included in any HTTP communication. *See e.g.*, EX1013, 1. Indeed, IP data is included in every Internet communication. *Id.* “IP” stands for “Internet Protocol,” which is the protocol that must be used for information to travel over the Internet from one computer to another. *Id.* It is perfectly analogous to what one might call the “postal protocol”: the Post Office cannot deliver a letter unless it has a destination address, and the recipient cannot respond to the letter unless it has a return address. Likewise, if a mobile device expects a response from a server, it must provide the server with its own IP address; otherwise, the server would not know where to send the response. *See id.*

250. In the early 2000s, it was common for IP addresses to be “static”—in other words, they would change infrequently or not at all. EX1013, 1 (“Dynamic IP addresses contrast with *static IP addresses*, which are assigned manually and semi-permanently to a device, account or user.”) (emphasis in original). If a person lives in a house for 20 years, their address will not change during that time. Once I know the person’s name, I know physically where their house is (until they move). On the Internet, if I know the location of a person’s computer and the computer’s static IP address, I can usually tell at least the area in which the computer is located. This process is known as “IP location.”

251. At present, one can rarely rely on an IP address to be static. Most are now dynamically assigned as needed. For example, a cellphone receives a new IP address from a cell carrier every time it is turned on. It may be possible to localize the cellphone from knowledge of the physical location of the cell towers it communicates with. Several methods may be used to do this, including Time Difference of Arrival (TDOA). *See e.g.*, EX1005, [0021]. Gagner's disclosure confirms that its content delivery uses ordinary web protocols: its network includes "web servers" and "application servers," EX1004, [0061]; its ad server "cause[s] secondary content to be displayed within a web browser or other application" used "to play the wagering games," including a notification with "a link to the casino's box office website" and associated "session metadata," EX1004, [0065]; and its devices communicate over Ethernet and 802.11 links, EX1004, [0061], [0096]. A POSITA would have understood that browser-to-web-server exchanges of this kind were carried out using HTTP, and that an HTTP request header conveys the requesting device's IP address. *See, e.g.*, EX1010, 10:4-42; EX1011, [0092]. However, even where IP addresses are dynamically assigned, a casino can generally identify requests originating from devices connected to its own network because those requests will pass through network infrastructure and public IP addresses controlled by the casino. The casino therefore need not know that a particular IP address is permanently assigned to a particular device; it can determine that the

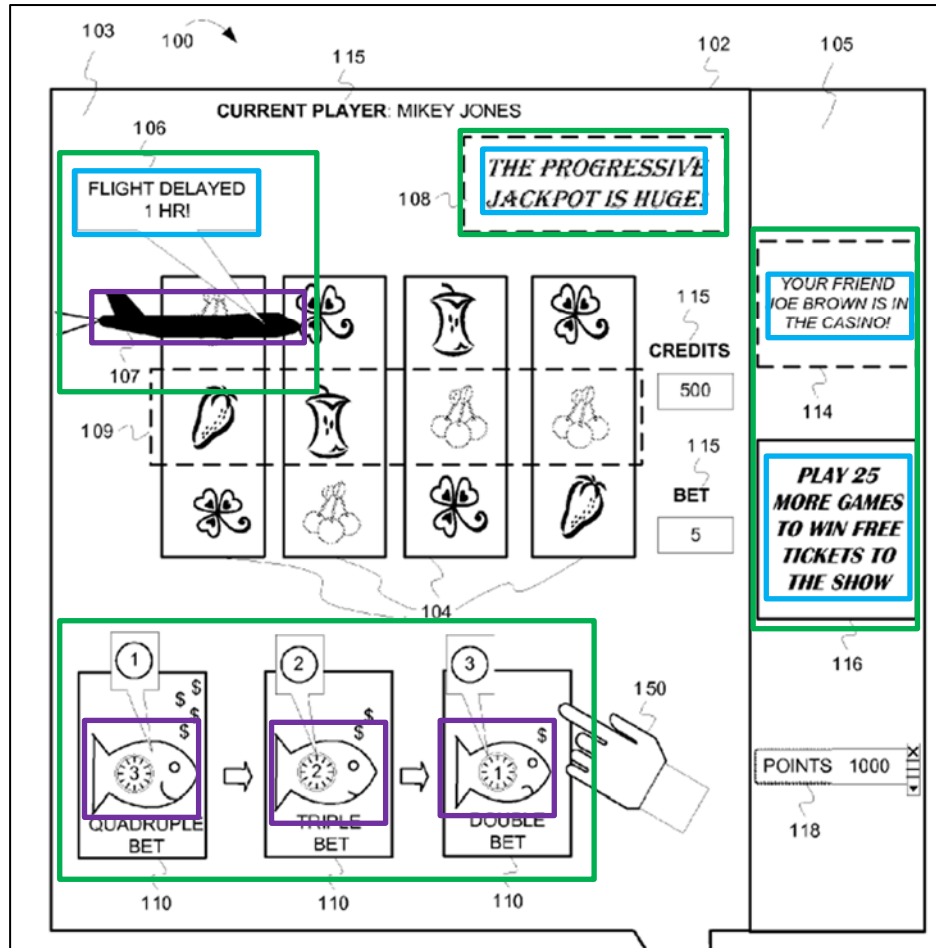
device is communicating through the casino's network at that time. At a minimum, that provides an indication that the device is located at the casino because it is connected to the casino's local network.

252. Liu independently confirms that using GPS and Internet-based data to send location information to server computers was well known in mobile wagering systems. Liu teaches a mobile terminal that may be a wireless phone or smartphone and that accesses Internet-connected game server 150 over wireless network 130 and the Internet. EX1005, [0016]–[0018]. Liu further teaches that location server 160 determines the geographic location of mobile terminals using the wireless network, including GPS, Assisted-GPS, cell-ID, TDOA, E-OTD, and other triangulation methods, and that the game server uses the resulting location information to decide whether the user may participate in online gambling activities. EX1005, [0020]–[0024]. Liu's mobile terminal interface may be accessed using an Internet address, and the game server's location-server interface may be an Internet interface. EX1005, [0054]–[0057]. In the Gagner-Liu-Mitchell system, the mobile phone sends GPS-based location data and IP data to the server computers that determine whether wagering should be permitted and that provide content to the mobile phone.

***1[e]: receive low priority data from the one or more server computers,
wherein the low priority data includes an image, text, or video data,
and***

253. Gagner teaches receiving low-priority data from the same one or more server computers as discussed for limitation 1[d]. As explained above, Gagner's server-side components include the wagering game server, secondary content server, ad server, and other server components connected to the wagering game device over the communications network. EX1004, [0061], [0067]–[0068]. Those same server-side components use device-location information to determine secondary content; for example, the secondary content server evaluates factors including “a player's location (e.g., in a casino, on a wide area network, on the Internet, etc.)” to determine or generate secondary content. EX1004, [0090].

254. Gagner's secondary content includes information “ancillary to the primary content[,]” such as “pictures, graphics, sounds, etc.” or “advertisements, reminders, additional wagering-game information, etc.” EX1004, [0038]. Figure 1 illustrates secondary content (green) that includes video/image/graphic data (purple) and text data (blue), including an airplane graphic (107), an interactive fish/wager-multiplier image (110), text notifications (114, 116, 118), and other displayed notifications. EX1004, [0040]–[0043].



EX1004, Fig. 1.

255. Gagner expressly assigns and ranks priority for content presentation requests based on “importance, or urgency, of the secondary content.” EX1004, [0039]. In particular, Gagner teaches that its “secondary content server generates or determines control and priority information regarding the ... secondary content.” EX1004, [0088]. Terminals then use that priority information to allocate display space and “resolve conflicts when they receive multiple content presentation requests from multiple system components (e.g., primary game units, secondary

game units, advertising servers, etc.).” EX1004, [0059]–[0060]. For example, “[i]f the secondary content is less important than the primary content, then the wagering game system 101 may superimpose the secondary content over primary content in a minimally intrusive manner (e.g., near the bottom of the primary content, partially transparent in relation to the primary content, etc.).” EX1004, [0049]. Those priority teachings further confirm that Gagner’s secondary content, including advertisements and promotions, is lower-priority data when it is ranked below or presented without interfering with higher-priority wagering-game content.

256. Gagner’s secondary content also falls within the claimed low-priority data per the intrinsic record. During prosecution, Applicant provided “a promotion or advertisement” as an example of “low priority data,” and Gagner teaches that secondary content includes advertisements and promotions. EX1002, 275–76; EX1004, [0007], [0016], [0038], [0082]. Patent Owner’s district-court infringement chart applies the same understanding, alleging that servers sending “low priority data (e.g. advertisements, etc.)” satisfies this limitation. EX1028, 7.

257. Gagner then teaches those same server-side components sending or causing the device to receive the low-priority data. In the Figure 4 baseball example, the secondary content server sends the secondary content notification or control information to assemble the notification to the wagering game device; the wagering game server can generate control information that causes the device to assemble the

baseball diamond icon and play-schedule information into the notification; and the device uses content, control information, and priority information to generate and present the notification. EX1004, [0071]. This mapping does not depend on treating Gagner's local content store, by itself, as the data received from the server; even when the device already stores an icon or other object locally, the device still receives server-generated notification, message, and/or control information used to present the low-priority content.

258. Gagner's disclosure therefore satisfies the limitation in at least two ways: the server can send the secondary content notification to the wagering game device, and the server can send information that causes the device to assemble and present that notification. EX1004, [0071]. The resulting low-priority data includes at least text data in the server-generated message and, where the server sends the notification itself, the image or graphic content of the notification as well. EX1004, [0040]–[0043], [0071]. Accordingly, Gagner teaches receiving low-priority data from one or more server computers, wherein the low-priority data includes an image, text, or video data. Thus, the Gagner-Liu-Mitchell system satisfies this limitation.

1[f]: wherein the low priority data is based at least on a type of the mobile phone or the location data;

259. Gagner teaches this limitation because the same server-side component that provides the low-priority data—the secondary content server—selects that data based on location information. The secondary content server determines secondary

content by evaluating factors including “a player’s location (e.g., in a casino, on a wide area network, on the Internet, etc.),” and Gagner also discloses that secondary content may appear based on a player’s location within a casino and be tailored to advertise a nearby event. EX1004, [0082], [0090]. For example, “[i]f the player is close to a specific event, the secondary content notification may be tailored to advertise that specific event.” EX1004, [0082].

260. Gagner also teaches that the server can base the low-priority data on device type or capabilities. In the example where “the wagering game device is connected to one or more other devices[,]” such as “linked with a mobile wagering game device, attached to a personal digital assistant, [or] connected to a cell phone” such that “presentation of wagering games and other primary content may occur in the wagering game device or on any of the other devices[,]” the secondary content server may cause “secondary content to be presented on one or more of the secondary devices.” EX1004, [0089], [0091]. Specifically, Gagner teaches that the “content server analyzes the available secondary devices to determine whether the secondary devices are suited to present the secondary content.” EX1004, [0091]. For example, when “the secondary content is an interactive notification that can be touched or interacted with in some way[,]” “the secondary content server determines whether an attached secondary device has touch screen capabilities or other ways of interacting with the interactive notification.” *Id.* As another example, “[i]f the

secondary content is audio, or has an audio component, the secondary server could look for a secondary device that has speakers.” *Id.* “In some situations, if the best suited device is not available, the secondary content server may reevaluate the secondary content and choose different secondary content. For example, if the secondary content includes audio, but a device with speakers is not available, the secondary content server may choose different secondary content without an audio component.” EX1004, [0092].

1[g]: identify an area of the user interface to display the low priority data based on information from the one or more server computers that indicates a location to display the low priority data on the user interface such that the low priority data does not interfere with high priority data displayed on the user interface;

261. Gagner teaches identifying an area of the user interface to display the low-priority data based on information from the server. As explained for limitation 1[e], the same server-side components—including the secondary content server and wagering game server—send the secondary content notification and related control information to the wagering game device. Gagner’s control information can specify content for presentation on the terminal, including “locations in the player interface, timing, volume, and other parameters,” and can include instructions to present specific secondary content. EX1004, [0058].

262. Gagner’s example operations confirm that certain display-location information comes from the server side. The secondary content server causes

secondary content to be presented by sending the secondary content notification, or control information to assemble it, to the wagering game device. EX1004, [0088]. The secondary content server also “generates or determines control and priority information regarding the size, position, duration, etc. of the secondary content notification,” and the wagering game device then uses the content, control information, and priority information to generate and present the notification in the display. EX1004, [0088].

263. Gagner also teaches that the identified area is selected so the low-priority data does not interfere with high-priority wagering-game content. The wagering game device uses the server-provided “control information to present the secondary content notification as close as possible in location to wagering game content, but not interfering with the presentation of outcome significant wagering game content. In other words, the wagering game device presents the secondary content notification without interfering with the presentation of elements of the wagering game content that display the outcome of the wagering game.” EX1004, [0088]. When the device resolves the exact on-screen area, it does so based on the server-provided content, control, and priority information indicating the notification’s location, size, and presentation parameters. EX1004, [0058], [0088].

264. Patent Owner’s district-court infringement chart applies the same understanding of this limitation, and its “designated interface zones” theory is

analogous to Gagner's designated secondary-content area. Gagner's Figure 1 identifies a secondary content section 105 where the system presents secondary content notifications, including friend-presence, casino-event advertising, and point-status notifications, that "is separated from the primary content section 103." EX1004, [0040], [0043]. Patent Owner similarly alleges that "the Accused Products make a request to one or more servers for promotions for designated zones on the interface" and that the "server responds with a JSON configuration that explains each promotion's details. Such as the identification of the promotion and links to images to use at their specified zone." EX1028, 11–12.

265. Ensuring that portions of video displays did not obscure one another by overlapping was universally known prior to the '284 Patent. The problem arose with the introduction of raster displays, which permitted content to be displayed at arbitrary locations. Prior to that, many displays were only capable of showing 24 lines of fixed-width characters at 80 characters per line.

266. This problem became acute when multiple application programs could use the display screen simultaneously, as in Microsoft's Windows operating system. Some mechanism was required to prevent two applications from using the same portion of the screen at the same time:

The question of tiling versus overlapping windows has become something of a theological dispute among user-interface designers. The Microsoft case is that tiling is the metaphor of the "neat"

desktop. They claim that a tiled-window manager builds a certain amount of intelligence into the window-display equation. Windows guesses about where to put and how to size a window when it is selected, and it also allows the user to override in case he or she favors another layout.

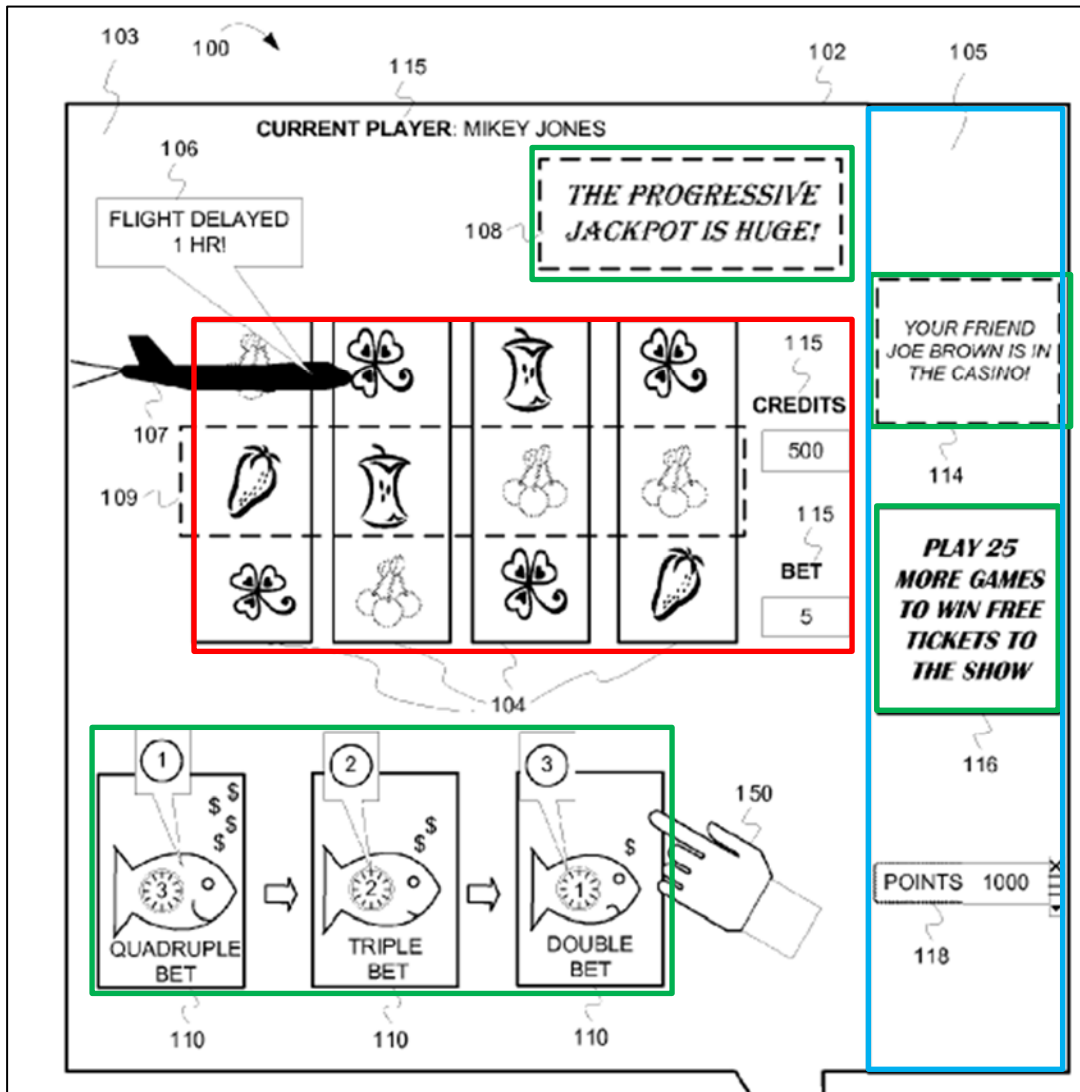
EX1022, 84.

267. In 1981, Xerox released the Xerox Star computer, which “was the first commercial system to ... constrain application windows to not overlap.” EX1021, 12. *See also, e.g.,* Myers, “A Brief History of Human-Computer Interaction Technology” (EX1023), at 46-48.

268. During prosecution, Patent Owner argued primarily that language similar to this limitation was the driving factor for patentability. EX1002, Amendment dated December 4, 2024, 13-17. On the contrary, not only does Gagner disclose the limitation, but the idea of non-interfering placement in graphic user interface design was a decades-old concept and the inspiration for one of the most widely recognized names in all of software design: Microsoft Windows.

269. Gagner’s priority information further directs the control information and wagering game device in arranging multiple pieces of content. EX1004, [0059]–[0060]. Terminals use priority to determine display areas for selected content, overlay ordering for content occupying the same space, and size. EX1004, [0060]. Examples of low-priority data that do not interfere with higher-priority gaming data

include the secondary-content notifications surrounding the slot reels in Figure 1, such as the “quadruple,” “triple,” and “double” bet notifications, “the progressive jackpot is huge!” notification, and the notifications in the secondary content section, each shown in green below. EX1004, [0040]–[0043].



EX1004, Fig. 1. The green areas correspond to content with a lower priority and thus do not interfere with the higher priority content in the red area. EX1004, [0040].

Moreover, lower priority secondary content (green) may be displayed in a dedicated

secondary content section (blue) such that they do not interfere with the higher priority gaming content (red). *Id.* Priority may change with time, and the ads can be placed over games during idle (non-play) and placed in a non-interfering position during play. EX1004, [0059]–[0060].

1[h]: compare a size of the identified area to a size of the low priority data;

270. The Gagner-Liu-Mitchell system teaches, or at least renders obvious, comparing the size of the identified area to the size of the low-priority data. Gagner discloses that “[t]he secondary content server generates or determines control and priority information regarding the size, position, duration, etc. of the secondary content notification.” EX1004, [0071]. The terminal then “utilizes content, control information and priority information to generate the secondary content notification and to present the secondary content notification in close proximity to the wagering game.” *Id.* As discussed above for limitation 1[g], Gagner’s server-provided control information can specify content parameters, including “locations in the player interface,” and Gagner’s priority information is used to determine display areas, overlay ordering, and size. EX1004, [0058], [0060]. Gagner’s terminal is a smart client with a presentation controller, graphics unit, audio unit, and content store that processes control information and renders content. EX1004, [0052]–[0053]. Thus, the terminal determines both (1) the size of the display area (based on priority/control information) and (2) the size of the secondary content to be displayed (from

control/priority information regarding “size, position, duration”). To render secondary content in the correct location while avoiding “outcome significant wagering game content,” the terminal would compare the size of the available display area to the size of the secondary content. EX1004, [0071].

271. Moreover, claim 8 of Gagner recites:

The method of claim 1, wherein causing the device to process the control information comprises causing the device to present the secondary content as close as possible to the wagering game content without interfering with the presentation of game play elements that affect or display an outcome of the wagering game.

272. Performing the function recited in claim 8—presenting secondary content “as close as possible” to wagering game content “without interfering” with game play elements—requires the terminal to compare the dimensions of the identified display area against the dimensions of the secondary content to position it without interference. However, Gagner does not expressly disclose “comparing” the size of the secondary content to the size of the identified display area.

273. Mitchell further discloses performing a pixel-based size comparison between an identified display area and low-priority secondary content in a mobile browser environment. For example, an aspect of the invention in Mitchell “is directed to a method for selecting portions of content document based on a known available display area, before conveying the selected portions to a browser program.

This method is especially useful for pre-selecting, communicating and displaying appropriate portions from within a page to fit small fixed-displays used for browsing, such as on some PDAs and cellular phones.” EX1010, 4:22-28, *see also id.*, 13:18-59. Mitchell is directed to optimizing display of both “primary content” (*e.g.*, main page content) and “additional content” (*e.g.*, advertisements) on a single screen without scrolling. EX1010, 3:19-65. Mitchell provides the client with “content modules” for display, along with associated “priorities and sizes,” wherein the content size is “preferably defined in pixels.” EX1010, 13:22, 13:27-28. After displaying the highest priority (primary) content, Mitchell discloses “determin[ing] a remaining display area”—*e.g.*, the screen area available for displaying secondary content—and “compar[ing] that remaining area with the size of the next priority content module.” EX1010, 13:32-35, Fig. 6.

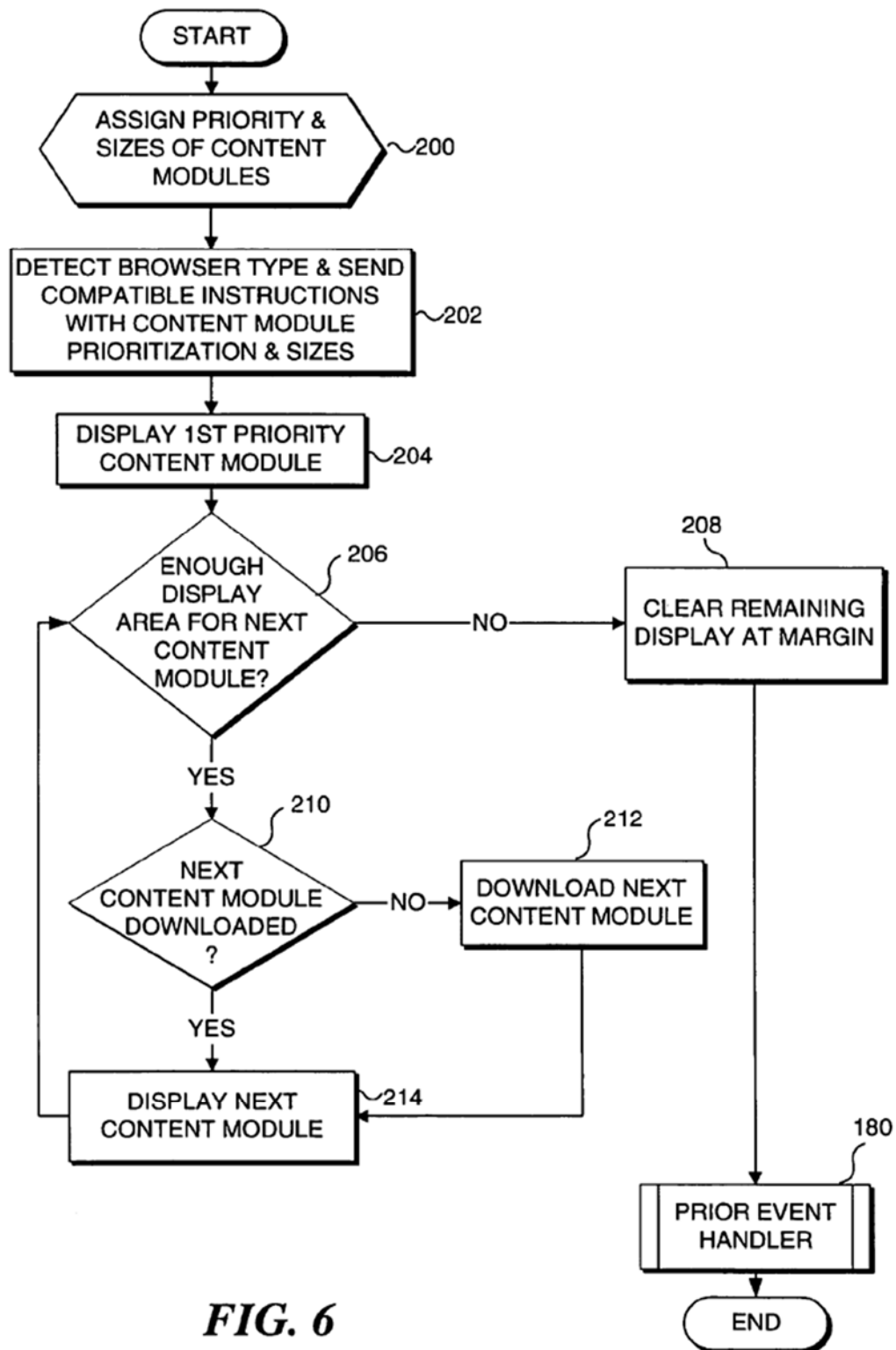


FIG. 6

EX1010, Fig. 6.

274. A POSITA would have been motivated to combine Mitchell's pixel-based comparison with Gagner's wagering system to determine whether Gagner's low-priority secondary content fits within the server-suggested, non-interfering display area, and to modify Gagner's secondary content to "fit [] the remaining display area." EX1010, 14:15-18; §IX.B.1. A POSITA would have had a reasonable expectation of success because Mitchell discloses well-known browser coding techniques, such as using JavaScript to parse "cascading style sheets" and well-known "attributes of a markup language document," which would have involved routine software modification of Gagner's browser-based wagering application. EX1010, 13:65-14:5.

1[i]-[j]: in response to the comparison, reformat the low priority data to fit the identified area, wherein the reformatting comprises at least one of: converting a format of the low priority data, resizing the low priority data, compressing the low priority data, decompressing the low priority data, or converting a color of the low priority data;

275. The Gagner-Liu-Mitchell system teaches, or at least renders obvious, reformatting the low-priority data to fit the identified area in response to the comparison discussed for limitation 1[h]. Gagner's server-side control and priority information identifies presentation parameters for the secondary content notification, including location, size, position, duration, and other content parameters. EX1004, [0058], [0060], [0088]. The wagering game device then uses that content, control information, and priority information to present the notification

within the identified area without interfering with outcome-significant wagering-game content or gameplay elements requiring player interaction. EX1004, [0088].

276. Gagner suggests resizing the low-priority data. Gagner's control and priority information is used to determine display areas, overlay ordering, and size, and the secondary content server "generates or determines control and priority information regarding the 'size, position, duration, etc.' of the secondary content notification." EX1004, [0060], [0088]. Gagner further teaches that the terminal may present content in different sizes depending on priority: "[i]f the secondary content is less important than the primary content, then the wagering game system 101 may superimpose the secondary content over primary content in a minimally intrusive manner (e.g., near the bottom of the primary content, partially transparent in relation to the primary content, etc.)" whereas "if the secondary content is very important or urgent, then the wagering game system 101 may minimize the primary content display and expand the display size of the secondary content to become very noticeable." EX1004, [0039]. The wagering game device then uses the control and priority information to "generate and present the secondary content notification in close proximity to wagering-game content without interfering with outcome-significant game content." EX1004, [0088]. Thus, when the low-priority data must fit within the identified non-interfering area, Gagner suggests resizing the low-priority data to fit that area.

277. Gagner also teaches converting the format of low-priority data. Gagner expressly discloses modifying secondary content based on device capabilities and available presentation resources. For example, Gagner teaches: “if secondary content includes audio but a device with speakers is unavailable, the secondary content server may choose different secondary content without an audio component or modify the notification to use text instead of audio.” EX1004, [0092]. Changing an audio notification to a text notification is a conversion of the format of the low-priority data within the plain meaning of the claim. Gagner further teaches that the secondary content server determines whether devices are “suited to present the secondary content,” which includes evaluating whether devices have the necessary “audio or visual capabilities.” EX1004, [0092]. When a device lacks certain capabilities, Gagner’s system adapts the content format accordingly—for example, converting audio content to visual text content. This cross-media format conversion demonstrates Gagner’s teaching of converting a format of the low-priority data.

278. The compression and decompression of graphics was well-known in the art by the time of the alleged invention. The need for compression and decompression of graphics arose because of bandwidth and storage limitations. Audio, video, and graphics compression and decompression has long been performed by “codecs,” which stands for “compressor/decompressor.” This is true as well today. Common codecs for graphics data are PNG (“Portable Network

Graphics”) and JPG (“Joint Photographic Experts Group”). PNG dates to 1994 and JPG to 1992. Indeed, media compression and format conversion systems were well-established, with systems like MMS processors performing tasks including “Image transcode[s] [that] [o]ptimally convert content for a target phone. Automatically performs resizing, color palette reduction, compression, rotation, watermark detection and more.” These systems performed “different transcoding operations based on automatic detection of the content type” and supported audio transcoding, video transcoding, and cross-media conversion. EX1051, [0372]–[0374].

279. Gagner discloses the compression/decompression alternatives. Gagner’s wagering game device (terminal) includes “graphics and audio units” with “audio codecs and video codecs,” and those units present content in response to control information. EX1004, [0052]–[0053]. As explained above, codecs perform compression and decompression. A POSITA would have understood that Gagner’s terminal uses these codecs to perform compression and decompression for audio, video, and graphics data used by the terminal to present any content, including secondary content. Displaying compressed image formats such as PNG or JPEG necessarily involves decompressing those images for presentation. Because Gagner’s terminal includes codecs for processing multimedia content, it inherently performs compression/decompression operations when presenting secondary content notifications that include graphical, audio, or video data.

280. In addition, Patent Owner's infringement chart treats resizing low-priority promotional content based on the interface area as satisfying the reformatting limitation. EX1028, 13–14. Specifically, Patent Owner alleges that the accused products “create an identified size of the low priority data” through “a specific class in the bytecode” that “controls the size of the promotion carousel based upon the size of the interface.” EX1028, 13. Patent Owner also alleges that the accused products satisfy the reformatting limitation through compression and decompression, noting that “[t]he Accused Products also compress and decompress the data. Specifically, the Accused Products make use of PNG formatted images. PNG is a lossless compressed format. This allows images to be stored and transferred over the internet in a smaller compressed format, when there [sic] the image is decompressed when displayed and shown on the interface.” EX1028, 13–14. A POSITA would have implemented Gagner's server-provided display-area and content-size instructions using the same predictable techniques that Patent Owner relies upon for its infringement theory.

281. Accordingly, Gagner at least suggests resizing and converting the format of low-priority data, and also supports compression/decompression, each of which independently satisfies limitation 1[j]. In particular: (1) Gagner's control and priority information specifies size parameters that the terminal uses to present content without interference, teaching or rendering obvious resizing; (2) Gagner

expressly teaches converting audio content to text content when device capabilities require it, satisfying converting a format of the low-priority data; and (3) Gagner's terminal includes codecs that perform compression/decompression for multimedia content.

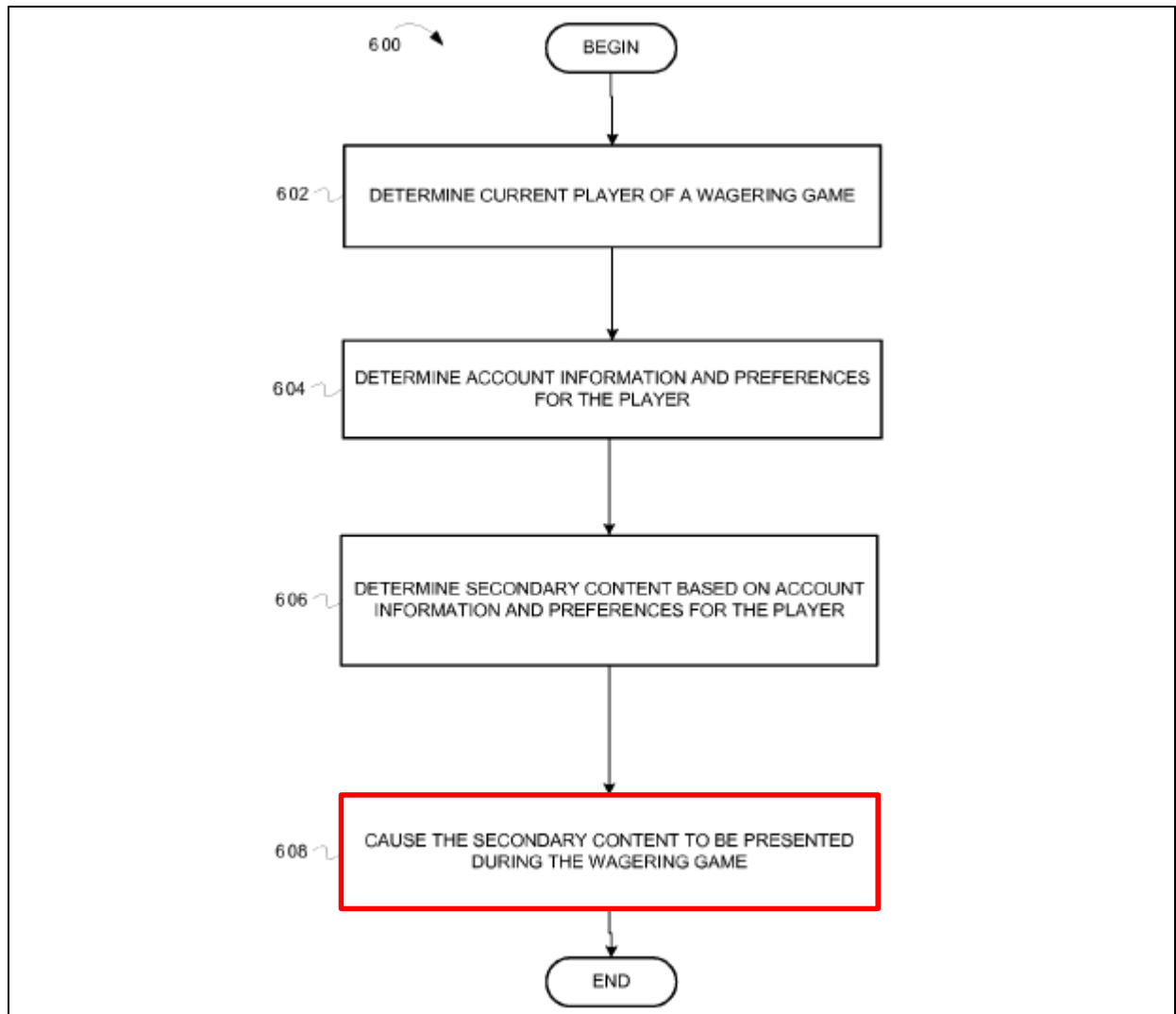
282. Moreover, Mitchell independently teaches that, when there is not enough display area for low-priority content after the comparison discussed for limitation 1[h], the module may be "modified in an attempt to fit the module to the remaining display area." EX1010, 14:43-56, Fig. 7. Mitchell's reformatting modifications include "changing one or more dimensions of the content module, scaling the content module, changing text font size, ... [and] converting content to audio or other manipulation of the content module." EX1010, 14:43-54. Changing dimensions and/or scaling content, as disclosed by Mitchell, results in "resizing" the content, and Mitchell expressly discloses "converting" content format.

283. A POSITA would have applied Mitchell's reformatting processes to Gagner's low-priority secondary content. Mitchell explains that its content modification teaching "can be incorporated into any of [its] embodiments to fit the content into the display area or otherwise provide the content ... subject to the display area restraints." EX1010, 14:59-63. Thus, a POSITA would have applied Mitchell's reformatting processes to Gagner's low-priority secondary content so that, after Mitchell's comparison shows the content does not fit the identified area,

the combined system could reformat the low-priority data to fit that area. *See also* Limitation 1[h]; §IX.B.1.

1[k]: display the low priority data at the identified area of the user interface;

284. Gagner teaches displaying the low-priority data at the identified area of the user interface. As discussed for limitation 1[g], Gagner's server-side components provide content, control information, and priority information specifying where and how secondary content should be presented. "The wagering game devices utilizes control information to present the secondary content notification as close as possible in location to wagering game content, but not interfering with the presentation of outcome significant wagering game content. In other words, the wagering game device presents the secondary content notification without interfering with the presentation of elements of the wagering game content that display the outcome of the wagering game. The wagering game device also presents the secondary content notification without interfering with the presentation of game play elements of the wagering game that require interaction by the player to determine the outcome of the wagering game." EX1004, [0088].



EX1004, Fig. 6. Gagner's flow 600 confirms that, after determining secondary content based on account information and preferences, the secondary content server causes that secondary content to be presented during the wagering game. EX1004, [0085]–[0088].

1[l]: send, to the one or more server computers, a signal that a user interacted with the low priority data displayed at the identified area of the user interface;

285. Gagner teaches sending a signal to the one or more server computers when the user interacts with the displayed low-priority data. Gagner's terminal is a smart client device capable of transmitting player input to the server, and the primary and secondary content units receive player input from the terminal. EX1004, [0049], [0052]. Gagner also teaches interactive secondary content notifications, including a notification that is "sensitive to touch or external input" and a baseball wagering notification that the player may interact with by touching, clicking, or pressing a button. EX1004, [0042], [0071].

286. In Gagner's baseball example, the secondary content server "generates an interactive, secondary content notification 414 to notify the player about an opportunity to bet on [a] sporting event." EX1004, [0070]–[0071]. "The player can interact with the secondary content notification 414, such as by touching the secondary content notification with a hand 450, by clicking on the notification with a mouse pointer, by pressing a button attached to the wagering game device 402, etc." *Id.*, [0071]. When the user interacts with that displayed notification, a POSITA would have understood that the wagering game device sends a corresponding player-input signal to the server-side wagering system to initiate or process the selected wagering opportunity. EX1004, [0049] ("The primary and secondary content units

214 & 220 can host wagering games and receive player input from the terminal 204.”), [0052] (“The terminal 204 can act as a smart client device capable of transmitting player input to the server 202....”), [0071].

287. Patent Owner’s infringement chart applies the limitation similarly, alleging that when a user presses an “Opt In” button for a promotion, the accused application sends communications to a server describing the promotion, the promotion ID, and what was selected on the user interface. EX1028, 16–17.

288. Liu reinforces the server-side interaction to a user input on analogous web-based mobile wagering systems. Liu teaches that “game server 150 receives a request for access to an online gambling activity from, e.g., mobile terminal 100. This request may be an initial attempt to access a web site associated with a variety of gambling activities hosted by the game server 150, or may be a request more specifically addressed to a particular gambling activity. For example, a mobile user may have already explored a gambling web site, registered for use, and selected a particular gambling activity. The ‘access request’ of block 210 may then be a subsequent request to actually place a wager.” EX1005, [0025]–[0027], Fig. 2. That “access request” “triggers the game server to request the location of mobile terminal 100 from location server 160,” which is verified before gambling activity is initiated. *Id.* Liu repeats that verification “at intervals to determine whether mobile terminal 100 remains within an approved area.” EX1005, [0057]. A POSITA would have

been motivated to combine Liu's client request for server-provided wagering games in response to user interaction with low-priority wagering opportunities with Gagner's system so the gaming server first ensures "the requested activity is permitted in [the user's] jurisdiction" before sending secondary content based on the user's location, thus accounting for location changes throughout the game. EX1005, [0027]; §IX.B.1.

289. Thus, the Gagner-Liu-Mitchell system teaches sending, to the one or more server computers, a signal that the user interacted with the low-priority data displayed at the identified area of the user interface.

1[m]: after receiving the signal, display a player prevention alert and prevent the user of the mobile phone from placing a wager via the mobile application based on a determination that the mobile phone is not in a gaming area;

290. The Gagner-Liu-Mitchell system teaches displaying a player prevention alert and preventing the user from placing a wager after receiving the interaction signal. As discussed for limitation 1[l], the server(s) of the combined system receives a signal (*e.g.*, a request to access gaming content) in response to user-interaction with low-priority content (*e.g.*, an ad for a new wagering opportunity). Liu teaches the claimed location-based gatekeeping: when the game server receives an access request from a mobile terminal, the server requests and evaluates the terminal's location before selectively initiating the requested gambling activity. EX1005, [0024]–[0027]. Specifically, Liu's server(s) "determine[]" the

location of [the] mobile terminal,” and “selectively initiate[] the requested gambling activity” based on the determined location. EX1005, [0026]–[0027]. “Once the game server has determined the jurisdiction from which the mobile terminal [] has connected, the game server [] determines whether the requested activity is permitted.” EX1005, [0027].

291. If the location information is not acceptable—*e.g.*, the mobile terminal is not in an approved area—Liu denies or restricts access to the gambling activity. EX1005, [0038]–[0040]. Liu also teaches that the game server may send a message explaining the denial or restriction, including compliance information explaining the reason for denial and/or how to gain access to the restricted activity. EX1005, [0038], [0045]–[0051]. Specifically, Liu states:

... In response, game server 150 receives updated geographic location information, which is validated as before. If the updated location indicates that mobile terminal 100 is still within an approved area, then access to the gambling activity remains permitted and the user can continue with his gaming. This process is repeated periodically, to ensure that the mobile terminal 100 remains within approved areas.

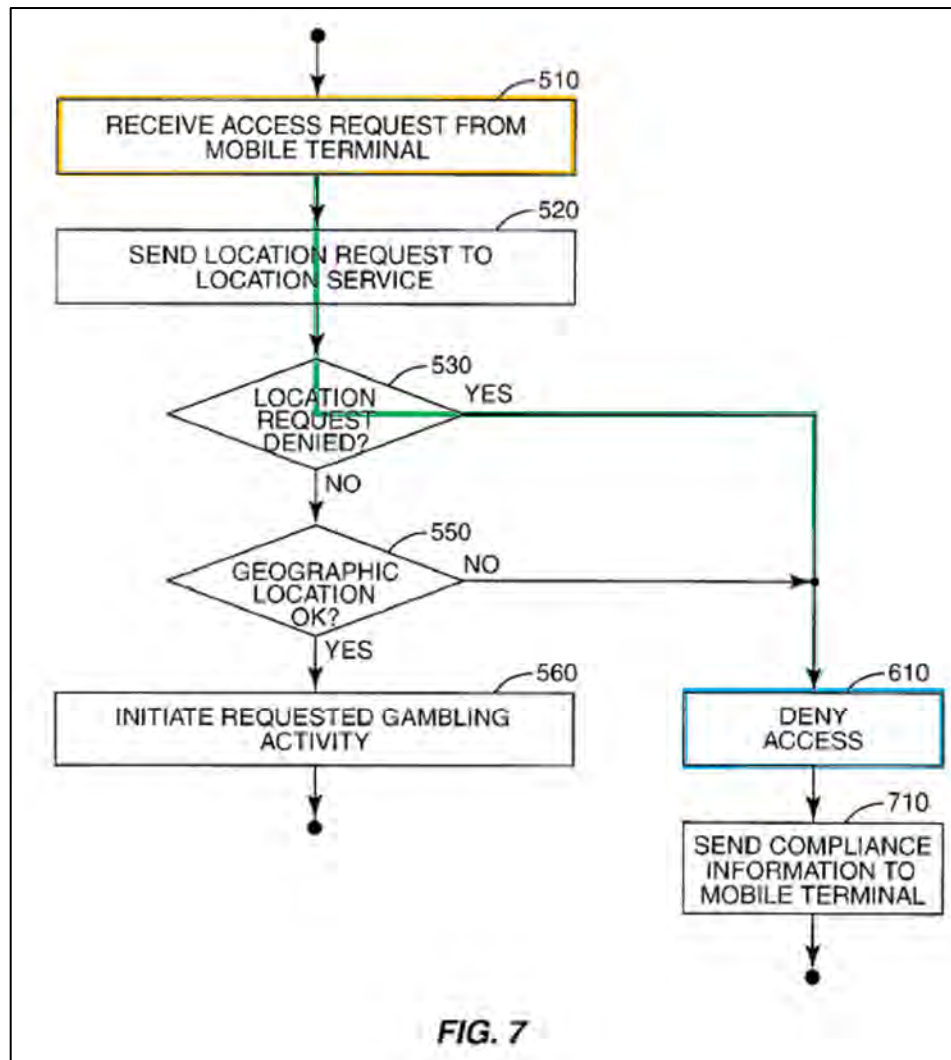
If, on the other hand, the updated geographic location indicates that mobile terminal 100 has strayed from the approved area, then the gambling activity is terminated, as shown at block 660. Game server

150 may, of course, send an appropriate message to mobile terminal 100 explaining the termination.

In the event that access to a gambling activity is denied, whether in response to an initial access request, or because the mobile user has strayed from an approved area, game server 150 may be configured to provide compliance information to mobile terminal 100. In other words, rather than simply denying access to the gambling activity without explanation, game server may instruct the user of mobile terminal 100 as to the reasons for denial, and/or how to gain access to the restricted activity.

EX1005, [0044]–[0046], Fig. 5. That denial/compliance message is the claimed player prevention alert because it informs the user that wagering is not permitted and prevents the user from placing the wager through the mobile application.

292. Liu's Figure 7 illustrates the same sequence: after an access request, the server checks location, denies access when appropriate, and sends compliance information to the mobile terminal. EX1005, [0038]–[0040], [0046]–[0051].



EX1005, Fig. 7.

293. The denial is based on determining that the device is not in a permitted gaming area. Liu teaches comparing geographic location information to jurisdictional boundaries or other geographic limits to determine whether the requested gambling activity is permitted; if the mobile terminal is in a jurisdiction where gambling is not allowed, access is not permitted. EX1005, [0027]–[0035], [0038]–[0040].

294. Liu further teaches multiple location-determination techniques, including GPS, Assisted-GPS, cell-ID, TDOA, E-OTD, street-address information, map-page/grid information, and geographic-limit responses, any of which may be used to determine whether the mobile terminal is located in an approved gaming area. EX1005, [0020]–[0023], [0034]–[0036]. Location by IP address was discussed above in Limitation 1[d].

295. Gagner also teaches GPS location for wagering: “[i]n some embodiments, the location unit 838 includes a global positioning system (GPS) receiver that can determine the wagering game device’s location using GPS satellites.” EX1004, [0097]. In the combined system, Gagner’s wagering device first receives the user input signal selecting the secondary wagering opportunity and sends a signal to the server-side wagering system to initiate or process the selected wagering opportunity, as discussed above for Limitation 1[l], and, after the signal is received, displays Liu’s prevention alerts accordingly. EX1004, [0071].

296. A POSITA would have been motivated to combine Liu’s server-based geolocation authentication and notification processes with the combined system to ensure wagering is limited to approved areas and to increase engagement by instructing users “how to gain access to [] restricted activity.” EX1005, [0046]; §IX.B.1. A POSITA would have had a reasonable expectation of success because Gagner discloses interfaces for displaying “very important, high priority

notification[s],” including “alerts” and “messages,” which a POSITA could configure to display Liu’s messages with routine coding. EX1004, [0081], [0039], [0048].

1[n]: receive input from the user, the input indicating an interaction with the touch screen of the mobile phone or a button of the mobile phone;

297. As discussed above for Limitation 1[l], Gagner teaches interactive secondary content notifications, including a notification that is “sensitive to touch or external input” (EX1004, [0042]), and specifically discloses an example where the player may interact with a baseball wagering notification by “touching the secondary content notification with a hand 450, by clicking on the notification with a mouse pointer, by pressing a button attached to the wagering game device 402, etc.” (EX1004, [0070]–[0071]). A POSITA would have understood that Gagner’s wagering device receives the user input indicating a selection or interaction with the touch screen phone display.

298. Liu also independently teaches receiving user input in response to the player prevention alert. When access is denied, Liu’s compliance information can include directions to an approved area, instructions for authorizing location requests, suggestions for correcting location-determination failures, and hyperlinks, selectable menu items, or other indicators associated with permitted alternative activities. EX1005, [0046]–[0051]. A POSITA would have understood that selecting those

hyperlinks, selectable menu items, or other indicators involves user input through the mobile terminal's touch screen or button interface. Patent Owner's infringement chart likewise treats pressing an "X," "Let Me Look Around," "Recheck Location," or similar control on a location alert as satisfying the input/removal limitations. EX1028, 20–22.

299. Thus, the Gagner-Liu-Mitchell system teaches receiving input from the user indicating an interaction with the touch screen or a button of the mobile phone.

1[o]: based on the input, remove the player prevention alert;

300. The Gagner-Liu-Mitchell system also teaches removing the player prevention alert based on that input. Gagner discloses that its "notifications can appear in an area continuously, such as secondary content notification 118, which remains in the secondary content section 105 until closed or minimized by the player." EX1004, [0043]. The input methods addressed in Limitation 1[n]—*e.g.*, "pressing a button" via "touching" or "clicking on the notification with a mouse pointer"—allow the player to "interact with the secondary content notification," including to close it. EX1004, [0043], [0071].

301. Liu also independently discloses that its "compliance information may thus comprise a hyperlink, selectable menu items, or other indicator[s]" that instructs the user to take action to "gain access to the restricted activity" or select "other

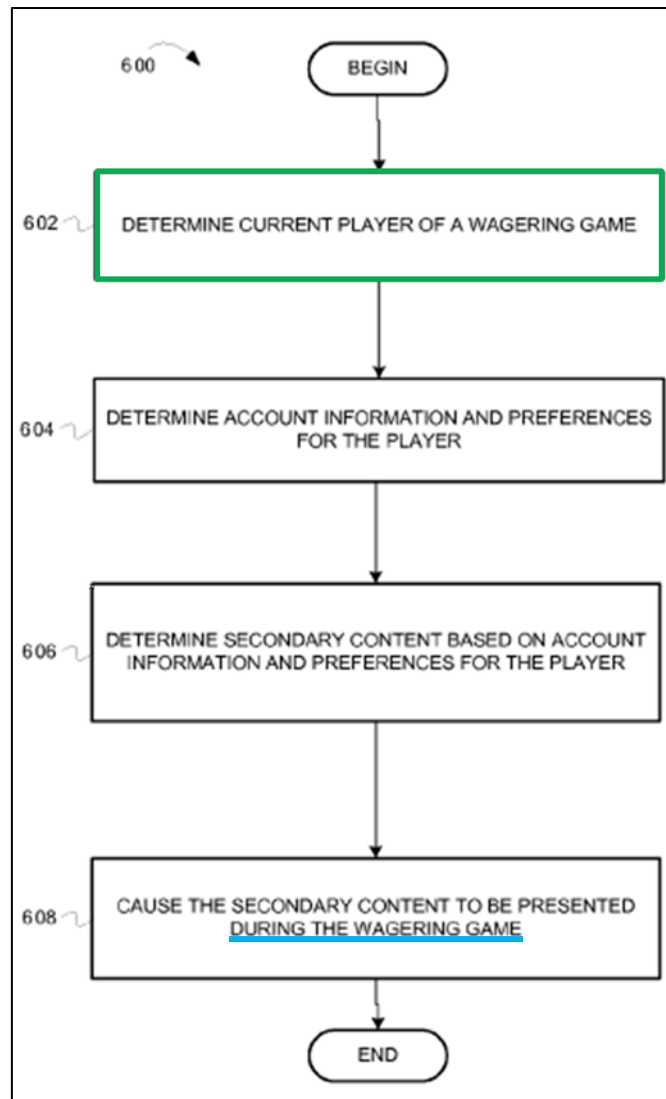
indicator associated with one or more of these alternative activities.” EX1005, [0046]–[0051].

302. A POSITA would have understood that, when the user selects a compliance option, closes the alert, requests a recheck, or selects an alternative permitted activity, the alert is removed based on the received input. Patent Owner’s infringement chart applies the same theory, alleging removal of the alert by pressing the “X” or “Let Me Look Around” button. EX1028, 20–22.

1[p]-1[q]: determine that the user is enabled to place the wager via the mobile application; and based on a determination that the user is enabled to place the wager via the mobile application, allow the user to place the wager via the mobile application.

303. The Gagner-Liu-Mitchell system teaches determining that the user is enabled to place the wager via the mobile application.

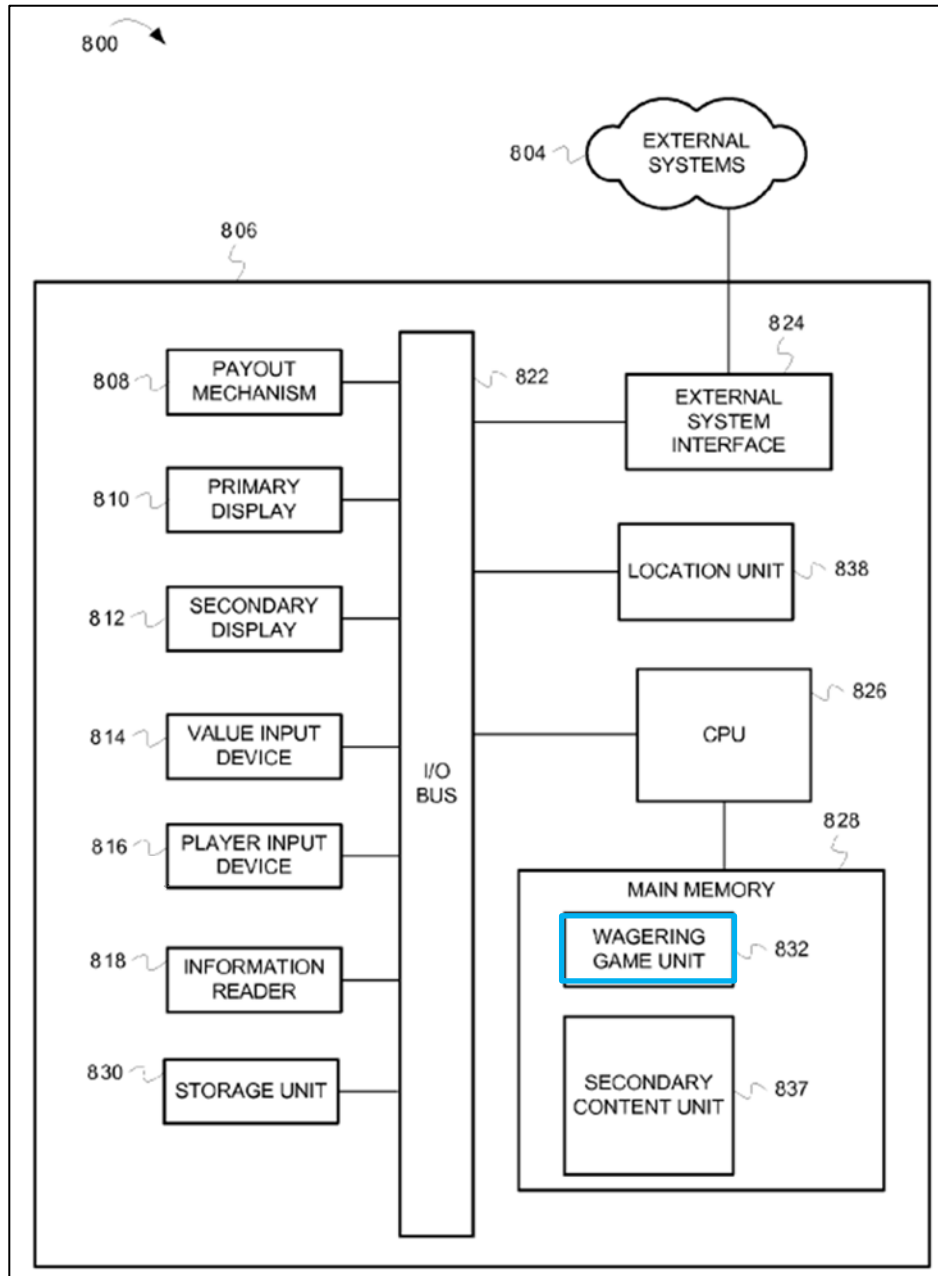
304. Gagner teaches mobile wagering and user authentication: “[a] player logs in to a wagering game device or wagering game website using credentials that can be authenticated by a wagering game server[,]” and “the secondary content server can determine the current player by reading data stored in the user’s account.” EX1004, [0085]; *see also id.*, [0068].



EX1004, Fig. 6. Gagner’s flow begins by determining the current player of a wagering game and determining that player’s account information and preferences, which the secondary content server uses to determine secondary content for that player. EX1004, [0085]–[0087].

305. Moreover, Gagner’s device includes a “wagering game unit” that “present[s] wagering games” and “determine[s] game outcomes,” and Gagner

discloses that user “account transactions and account rules may be managed ... locally (e.g., by the wagering game machines 306, 311, 312).” EX1004, [0064].



EX1004, Fig. 8.

306. Liu supplies the location-based authorization determination: “[a]uthorization module 850 is used to determine whether the user of mobile

terminal 100 should be granted access to gambling applications 805... using a username and password, for example[,]” and after receiving geographic location information, “compares the received geographic location information to jurisdiction information and/or rules contained in the jurisdiction/rules database 860” to “determine whether access to the requested gambling activity should be granted.” EX1005, [0056]–[0057]. Liu further teaches that the user may browse available gambling activities before placing a wager, but the request to place a wager triggers authorization. EX1005, [0025]–[0027].

307. The Gagner-Liu-Mitchell system further teaches allowing the user to place the wager based on that enablement determination. Liu teaches that, “[i]f the location information indicates that mobile terminal 100 is located in an approved area, then mobile terminal 100 is allowed to access gambling applications 805 via mobile terminal interface 810. As described above, the authorization process may be repeated at intervals to determine whether mobile terminal 100 remains within an approved area.” EX1005, [0056]–[0057]; *see also id.*, [0038]–[0040], [0043]–[0045]. Liu also teaches that the authorization module allows the mobile terminal to access gambling applications via the mobile terminal interface when the location information indicates that the terminal is located in an approved area. EX1005, [0057].

308. Gagner supplies the wagering activity that the user is allowed to conduct. Gagner teaches presenting secondary content during wagering games and provides an example in which a player's interest in baseball leads to an interactive secondary content notification about an opportunity to bet on a sporting event. EX1004, [0070]–[0071], [0088]. In the combined system, the browser-based mobile application executing via Gagner's wagering game unit applies Liu's authentication rules locally and/or receives and acts on the server's authorization response to determine that the user is enabled to place a wager. EX1004, [0070]–[0071], [0100] (“any component of the wagering game device [] can include ... instructions for performing the operations described herein”). And after the system determines that the user is enabled—*e.g.*, logged in and located in an approved gaming area—the Gagner-Liu-Mitchell system allows the user to “initiate the requested gambling activity” and place the wager via the mobile application. EX1005, [0025], [0040], [0043], [0057]; §IX.B.1.

309. Thus, the Gagner-Liu-Mitchell system renders this claim obvious.

3. Claim 4

4[a]: The mobile phone of claim 1, wherein the low priority data includes a display time and wherein the at least one computer processor is further configured to:

310. Gagner teaches that low-priority data includes a display time. As discussed for limitations 1[e]–1[k], Gagner's secondary content includes low-

priority notifications, advertisements, and messages presented at identified areas of the display. Gagner teaches that the secondary content server can generate or determine control and priority information for a secondary content notification, including the notification's "size, position, duration, etc.," and the wagering game device then uses that information to generate and present the notification in the display. EX1004, [0071], [0088].

311. Gagner also teaches timing-based presentation of secondary content. The wagering game system can wait until opportune times to present secondary content, including in between game play, and the secondary content server can determine or generate secondary content according to a predetermined schedule, such as between games. EX1004, [0039], [0078]. Gagner's duration information and display schedule are each "display times" because they provide timing information for display of secondary content.

4[b]-4[c]: determine the low priority data has been displayed at the identified area of the touch screen for the display time; and in response to a determination that the low priority data has been displayed at the identified area of the touch screen for the display time, display second low priority data at the identified area.

312. The Gagner-Liu-Mitchell system teaches or renders obvious determining that the low-priority data has been displayed at the identified area for the display time. Gagner's device receives or uses server-provided control and priority information specifying the notification's duration, position, and presentation

parameters, and uses that information to present the notification in the display. EX1004, [0071], [0088]. A POSITA would have understood that presenting a notification for a specified duration would involve tracking or determining when that duration has elapsed at the identified display area. Gagner confirms that secondary content notifications can be transient for a predetermined period of time and can disappear, turn off, reduce volume, or otherwise stop being presented after a period of time. EX1004, [0043], [0088].

313. The Gagner-Liu-Mitchell system further teaches displaying second low-priority data at the identified area in response to determining that the first low-priority data has been displayed for its display time. Gagner teaches multiple secondary content notifications, priority-based sequencing, and display-area selection for secondary content. EX1004, [0040]–[0043], [0059]–[0060]. Gagner also teaches that when one notification has completed its display—*e.g.*, by disappearing after a predetermined period or being turned off after a period of time—the system may present other secondary content in the same or another identified area based on control and priority information. EX1004, [0043], [0088]. Gagner selectively displays different content at “opportune times” such as “in-between game play.” EX1004, [0039].

314. Gagner’s wager-multiplier example illustrates this sequence. The secondary content notification begins with a “quadruple” offer, then changes to a

“triple” offer, and then to a “double” offer as time progresses, while the display characteristics change. EX1004, [0042]. Each successive notification or changed presentation is second low-priority data displayed after the earlier low-priority data has been displayed for its corresponding time.

315. Gagner’s player-controlled settings for secondary content notifications also demonstrates this. For example, Gagner discloses that the user can configure settings to list certain types of notifications and “determine priority information for presenting the secondary content,” including specifying that secondary content notifications be displayed “in order of preference.” EX1004, [0072], Fig. 4.

316. Accordingly, Gagner teaches or renders obvious displaying second low-priority data at the identified area in response to determining that the first low-priority data has been displayed at that area for the display time.

4. Claim 11

11[a]-11[b]: The mobile phone of claim 1, wherein the at least one computer processor is further configured to: determine the low priority data received from the one or more server computers is approved for display, wherein to determine the low priority data received from the one or more server computers is approved for display, the at least one computer processor is configured to:

317. The Gagner-Liu-Mitchell system teaches the claimed processor configuration for the reasons discussed for limitation 1[b]. See Limitation 1[b].

318. The Gagner-Liu-Mitchell system further teaches determining that the low-priority data received from server computers is approved for display. As

discussed for limitations 1[e]–1[k], Gagner’s server-side components send secondary content notifications or control information to the wagering game device, and the device uses content, control information, and priority information to generate and present the secondary content notification as close as possible to wagering-game content while avoiding outcome-significant symbols and gameplay elements requiring player interaction. EX1004, [0071], [0088]. Gagner further teaches that the secondary content server analyzes whether available devices are suited and available to present secondary content, including whether they have available screen space, processing power, memory, and audio or visual capabilities. EX1004, [0091]–[0092].

319. Mitchell teaches an embodiment directed to layering or framing additional content with primary content if there is sufficient display area available. EX1010, 2:16-39, 12:12-22, 12:60-13:17. “Layering was designed to allow portions of content to overlap each other or appear in a sequence to provide an animation effect.” EX1010, 2:22-24. Mitchell teaches determining whether sufficient display area is available to display additional content with primary content and, when sufficient area exists, sending browser executable instructions to the client device to display layers of content on the available screen space. EX1010, 12:60-13:17. Conversely, “[i]f the remaining display area is insufficient to accommodate the next priority content module (i.e., the content module with the next lower priority), then

this embodiment clears the remaining display area[.]” EX1010, 13:35-40. In the combined system, low-priority secondary content satisfying Mitchell’s display-area, layer-positioning, and border-spacing checks is approved for display on Gagner’s wagering game device. *See also* §IX.B.1.

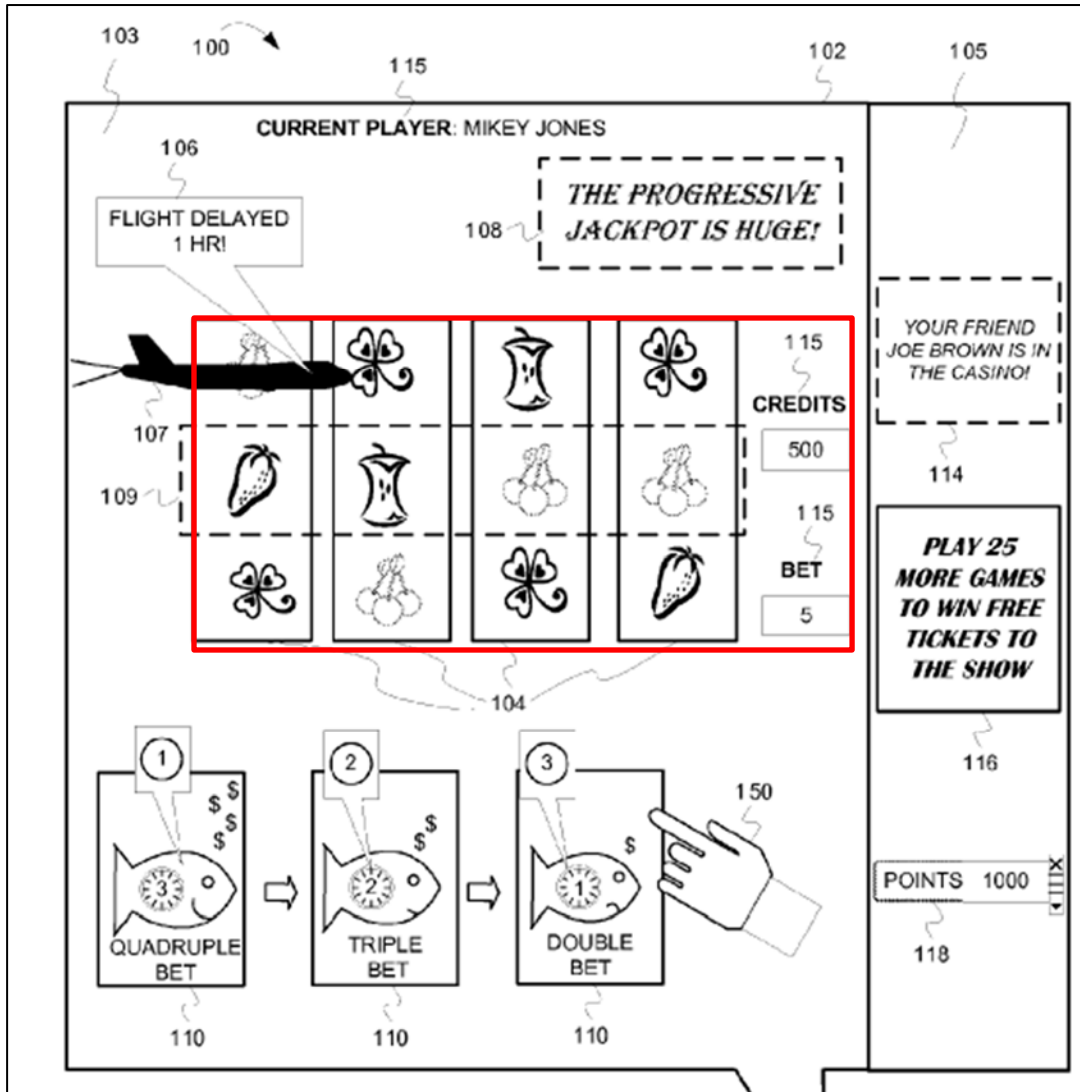
320. Gagner would benefit from implementing Mitchell’s layering embodiment to display content in certain situations. *See e.g.*, EX1004, Fig. 1, [0039]–[0041], [0059]. Indeed, Gagner already teaches that “[t]erminals can use priority to determine: display areas for selected content, overlay ordering for different content occupying the same space, size, etc.” EX1004, [0060]. Implementing Mitchell’s disclosed methods for overlaying content would fill any gap in Gagner. Mitchell teaches such software was widely known and the precise code would have been within the knowledge of a POSITA given the functional description provided by Gagner and the further details provided by Mitchell.

11[c]: identify a first border of an image of the mobile application;

321. The Gagner-Liu-Mitchell system teaches this limitation. First, Gagner expressly teaches wagering devices presenting secondary content on or near the borders of primary content without covering the outcome-significant portions of the game, thus necessarily identifying the borders of images in the primary and secondary content to avoid interference. EX1004, [0037]–[0040], [0088]. Gagner’s Figure 1 also illustrates secondary content being positioned relative to the primary

content section, including notifications moving across or appearing adjacent to the primary content, which also necessarily requires identifying the borders of images of the mobile application. EX1004, [0040]–[0043].

322. Moreover, Mitchell further teaches placing/layering added or secondary content 72 relative to primary content, such as Gagner’s primary gaming content. EX1004, [0037]–[0043], Fig. 1; EX1010, Figs. 2A-2D, 8:40-9:13. Mitchell teaches that different content layers can be used to layer different pieces of information. EX1010, 2:16-39, 12:60-13:17. Mitchell also teaches that “a priority content module is communicated to the browser program with associated browser location coordinates[,]” meaning that the content is located at specific coordinates and the distance between the edges or borders of different pieces of content is known. EX1010, Fig. 9, 16:34-36. Mitchell further teaches parsing content modules for positions, widths, heights, and other display “location coordinates” of a “primary content module.” EX1010, Fig. 7, Fig. 9, 13:60-14:5, 16:28-36. In the combined system, Mitchell teaches parsing Gagner’s primary gaming content for this information, thus identifying a “border” (*e.g.*, location coordinates, height and width) (indicated in red below) of Gagner’s primary content.



EX1004, Fig. 1.

323. A POSITA would have found it obvious to add Mitchell's parsing and layering techniques to display content on Gagner's wagering device to enhance the "overlay ordering for different content occupying the same space" that is already contemplated by Gagner. EX1004, [0060]. Such "overlay ordering" would need to identify borders of content and determine the distance between the borders. Thus, Mitchell's teachings would provide a predictable implementation of Gagner's

teaching to overlap certain items of content in certain instances (*e.g.*, high priority advertisements within games or game alerts). *See e.g.*, EX1004, Fig. 1, [0039]–[0041], [0059]–[0060].

11[d]: identify a second border of an image in the low priority data;

324. The Gagner-Liu-Mitchell system teaches this limitation. First, Gagner teaches identifying a second border of an image in the low-priority data. As explained above for Limitation 11[c], Gagner’s secondary content notifications include images or graphics, including the airplane graphic, the progressive-jackpot notification, and the interactive fish/wager-multiplier notification. EX1004, [0040]–[0043]. A POSITA would have understood that placing those images on or near the primary content requires identifying the boundaries of the secondary-content image so it can be positioned without obstructing outcome-significant game content.

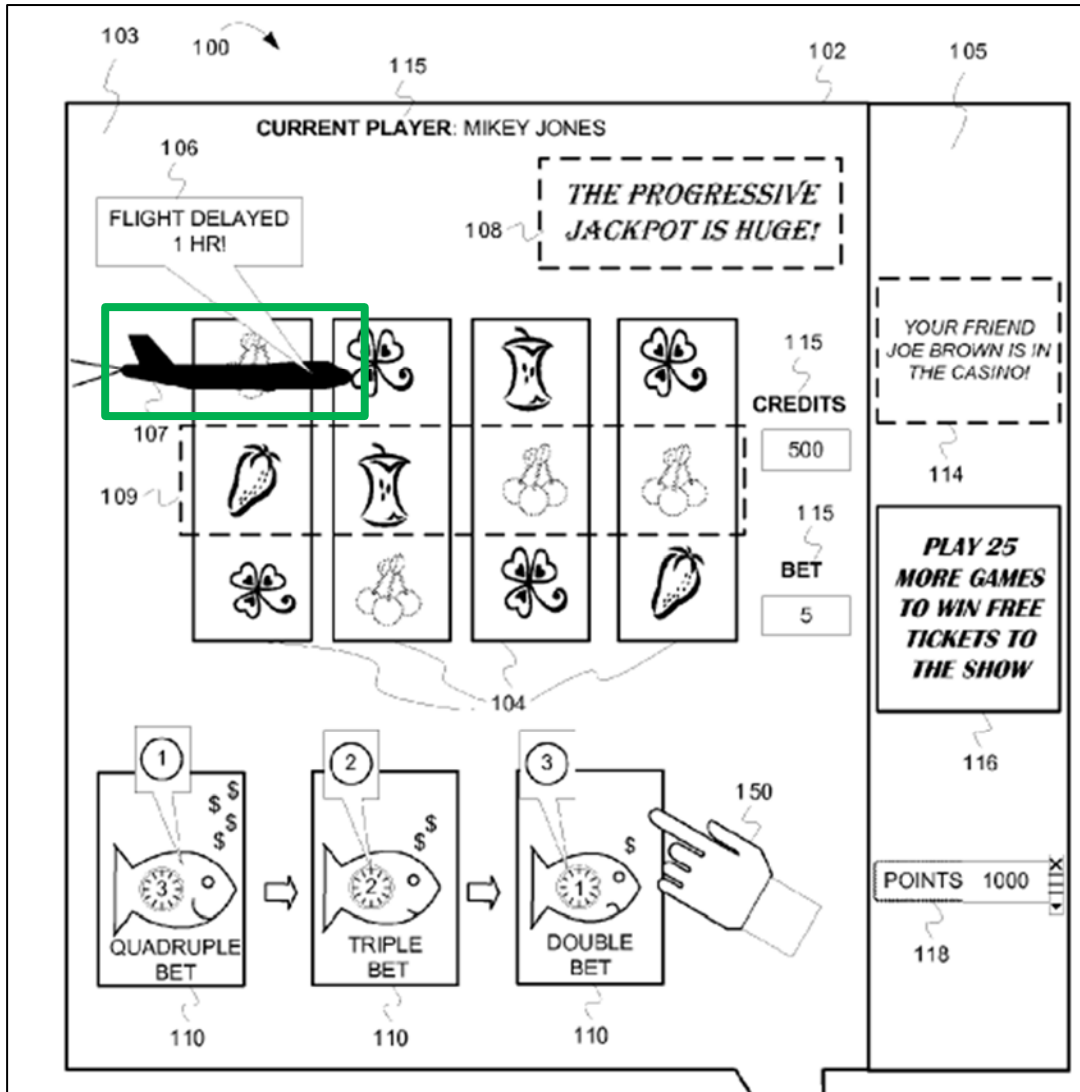
In some embodiments, the wagering game device partially overlaps the secondary content notification onto the primary content, such as on the borders of the primary content, but without covering up the parts of the primary content that need to be seen to continue playing a wagering game.

EX1004, [0088].

325. Clearly, to ensure that a second border does not overlap a first border, both borders must be identified.

326. Patent Owner's infringement chart applies this same concept, alleging that padding and border properties of low-priority images identify the second border of the image in the low-priority data. EX1028, 38–39.

327. Moreover, as also explained above for Limitation 11[c], Mitchell identifies the “sizes of each content module”—“preferably defined in pixels”—of selected “primary content 70 and additional content 72” and “parses the content modules for their dimensions and/or designated positions in a display or browser window,” including positions, widths, heights, and other layout information. EX1010, 8:40-53, 13:18-25, 13:60-14:5, Fig. 6, Fig. 7. In the combined system, those sizes, positions, widths, and heights identify the border (indicated in green below) of Gagner's low-priority secondary-content image.



EX1004, Fig. 1.

11[e]: overlay the image in the low priority data on top of the image of the mobile application; and

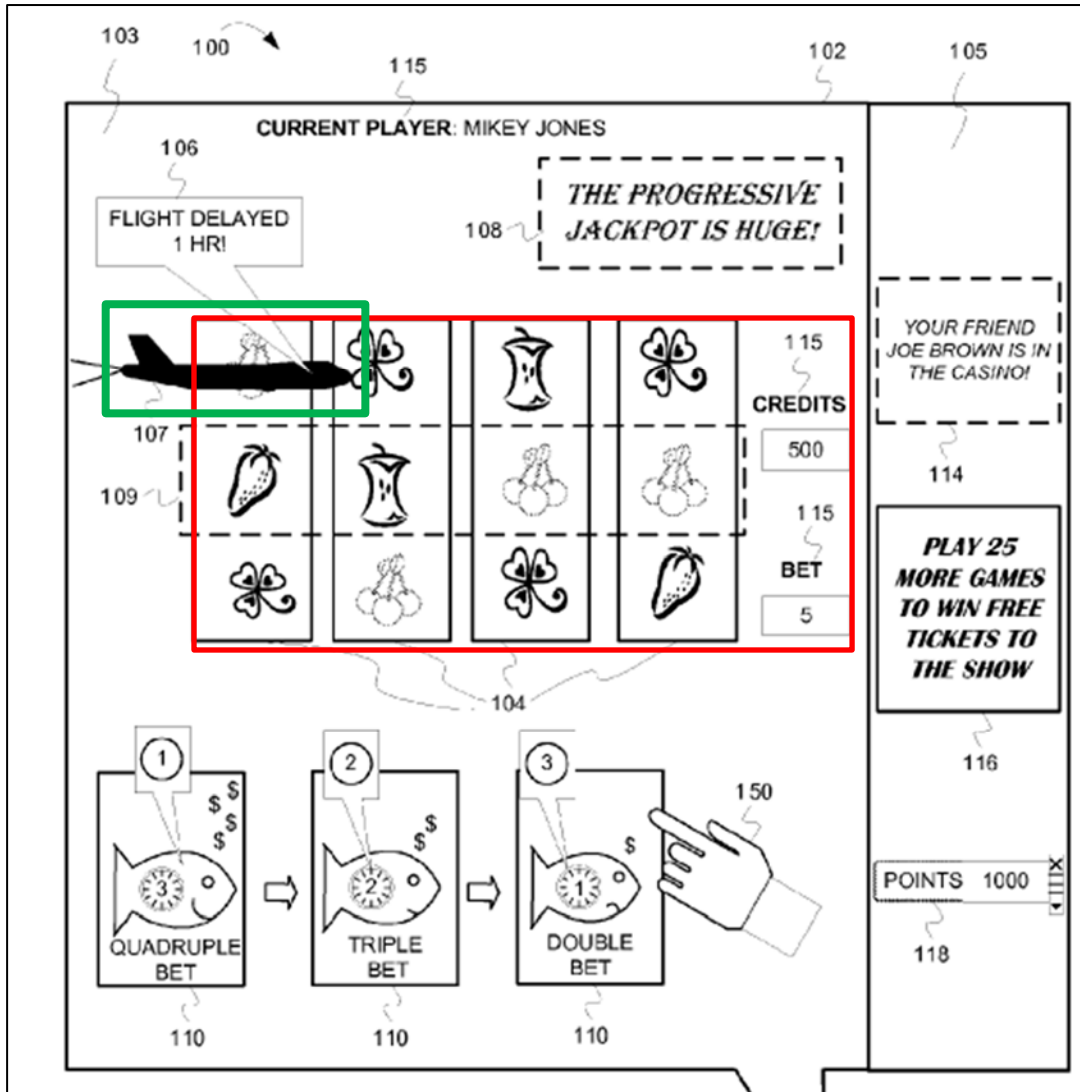
328. The Gagner-Liu-Mitchell system teaches this limitation. First, Gagner teaches “overlay ordering for different content occupying the same space.” EX1004, [0060]. Gagner discloses that low-priority secondary content may be superimposed over primary content in a “minimally intrusive manner (e.g., near the bottom of the

primary content, partially transparent in relation to the primary content, etc.)”

EX1004, [0039]. Gagner further teaches that secondary content notifications may “move across the primary content display section” and be “superimposed over a portion of the [slot] reels” while avoiding outcome-significant symbols. EX1004, [0040].

329. Gagner’s later operations similarly teach “the wagering game device partially overlaps the secondary content notification onto the primary content, such as on the borders of the primary content, but without covering the parts of the primary content need to be seen to continue playing the wagering game.” EX1004, [0088].

330. For example, Gagner’s Figure 1 shows a secondary content notification 106, which is an image of an airplane (green), superimposed over—or overlaid on top of—primary content, *e.g.*, slot reels 104 (red). EX1004, [0040].



EX1004, Fig. 1.

331. Moreover, Mitchell also teaches using layers when displaying content, including that layering allows portions of content to overlap or appear in sequence and that browser-compatible instructions can display a layer that includes additional content. EX1010, 2:16-39, 12:60-13:17. A POSITA would have used Mitchell's layering technique to implement Gagner's overlay orders for low-priority secondary content in the combined system. EX1004, [0060]; §IX.B.1.

11[f]: while the images are overlain, determine the first border and the second border are separated by a predetermined number of pixels.

332. The Gagner-Liu-Mitchell system teaches or renders obvious determining that, while the images are overlain, the first and second borders are separated by a predetermined number of pixels. First, as explained for Limitation 11[e], Gagner’s device presents secondary content close to wagering-game content while avoiding outcome-significant symbols and gameplay elements, including by partially overlapping the secondary notification onto the borders of the primary content without covering what must be seen to continue play. EX1004, [0088]. A POSITA would have understood that a graphics-rendering device implementing this overlay would determine the spacing between the relevant image borders to avoid interference of important gaming content. EX1004, [0052]–[0053], [0060].

333. Patent Owner’s infringement chart reflects the same application of the limitation, alleging that images are controlled in containers with borders, padding, and margins, and that the accused products determine pixels or other distance values separating images from containers or other elements. EX1028, 40–42.

334. Gagner further teaches that secondary content is presented according to “predetermined rules or logic” that controls, among other things, the “positioning of the primary and secondary content” on the display, including “how intrusive the secondary content appears in relation to primary content” and a “display size of the secondary content.” EX1004, [0039]; *see also id.*, [0058] (“The control information

can also specify locations in the player interface, timing, volume, and other parameters.”), [0060] (“Terminals can use priority to determine: display areas for selected content, overlay ordering for different content occupying the same space, size, etc.”), [0071], [0088].

335. Mitchell teaches detecting display-area dimensions in pixels, assigning content-module sizes preferably in pixels, and displaying content modules using positions, widths, heights, and display-location coordinates. EX1010, 12:12-22, 13:20-27, 13:60-14:5, 16:29-36, Figs. 6-7, 9. A POSITA would have understood that, when Mitchell’s layering technique is used to implement Gagner’s predetermined size and position parameters, the borders of the low-priority secondary-content image and the borders of the primary wagering-content image are defined by their pixel coordinates and pixel dimensions. In the combined system, the device can therefore determine the number of pixels separating the borders of the respective content modules. Because the “position” and “size” of content when “overlay ordering [] different content [to] occupy the same [display] space” is governed by Gagner’s predetermined rules and logic, a POSITA would have understood and found it obvious that the resulting border separation has a predefined number of pixels as well.

5. Claim 13

13: *The mobile phone of claim 1, wherein to compare the size of the identified area to the size of the low priority data, the at least one*

computer processor is further configured to compare an amount of pixels of the identified area to an amount of pixels of the low priority data.

336. As explained above for Claim 11, Gagner teaches comparing the size of the identified area to the size of the low-priority data and a computer processor includes instructions to perform this function. *See also* Limitation 1[h].

337. Mitchell teaches systems and methods for displaying primary and secondary content on a display, such as on a mobile device or other computer. EX1010, Abstract, Figs. 1-2A-E, 5:41-50; EX1020 (early smart phones included browsers like Internet Explorer). The secondary content, such as advertisements, is displayed in unused space around the primary content in the display. EX1010, 8:40-53.

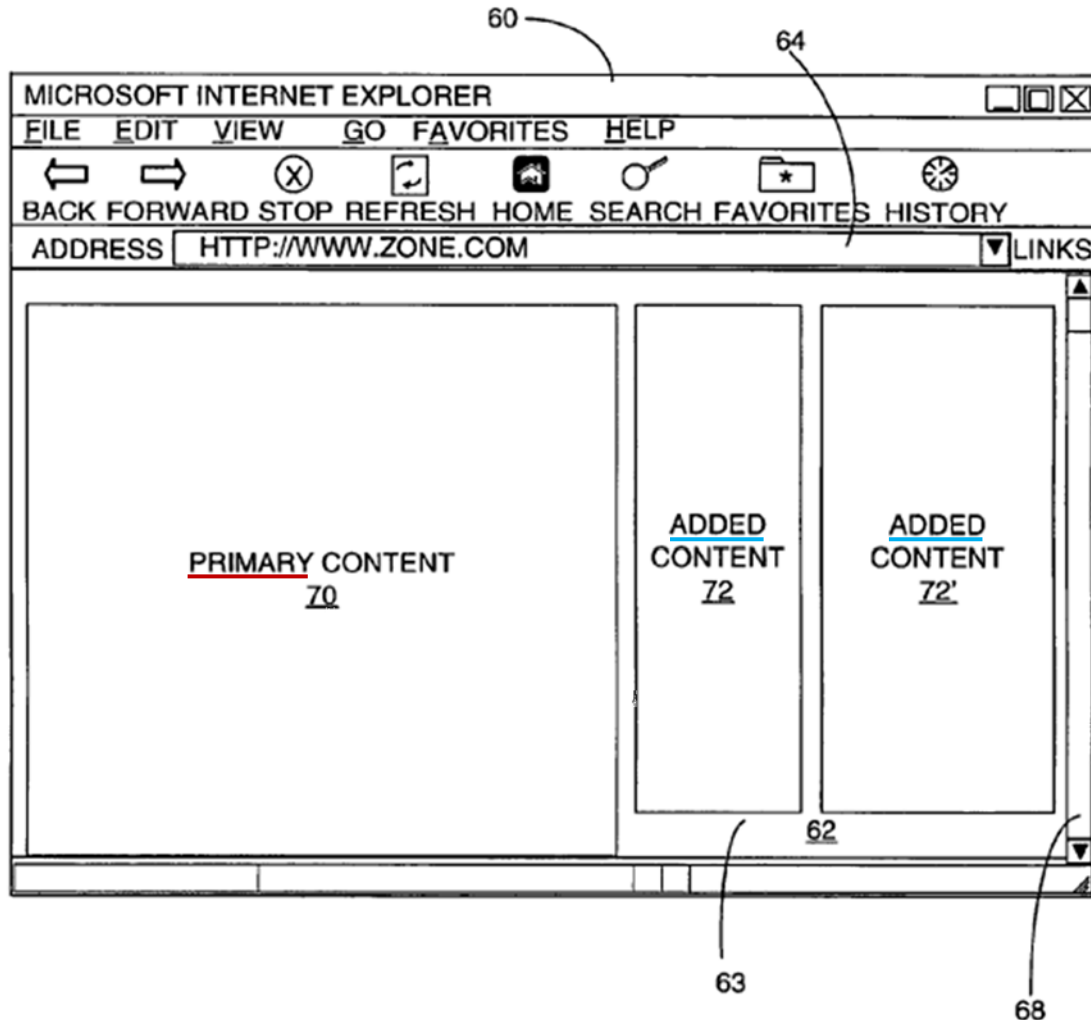


FIG. 2D

EX1010, Fig. 2D.

338. The client device receives tailored instructions from the server, and the steps for displaying content are distributed between the server and the client device.

EX1010, Figs. 3, 6, 7, 9, 5:32-35, 10:17-21, 10:43-55, 12:12-22, 12:43-59.

339. The client device includes a browser program, such as Internet Explorer, and software to interact with the server and handle the downloaded content. EX1010, Fig. 1, 6:26-30, 7:19-47, 10:33-37. Event handlers in the browser

on the client device initiate the processes on the client side. EX1010, 10:17-21, 11:7-23.

340. Mitchell provides explicit guidance on measuring display area in pixels. “Browser-compatible instructions call on Document Object Model components of the browser program to detect the dimensions. For example, JavaScript instructions compatible with Microsoft’s Internet Explorer browser call a ‘clientWidth’ property of the Document object to determine the width in pixels of content display area 62 in the browser window.” EX1010, 12:16–22. The Document Object Model (DOM) was a well-known W3C standard by 2009, providing a platform-neutral interface for programs and scripts to dynamically access and update document content, structure, and style. The “clientWidth” property specifically returns the viewable width of the content area in pixels, excluding borders, margins, and scroll bars. A POSITA would have understood that Internet Explorer’s implementation of this DOM property returned the pixel dimensions of the usable display area, making it a natural mechanism for implementing Mitchell’s size-comparison functionality.

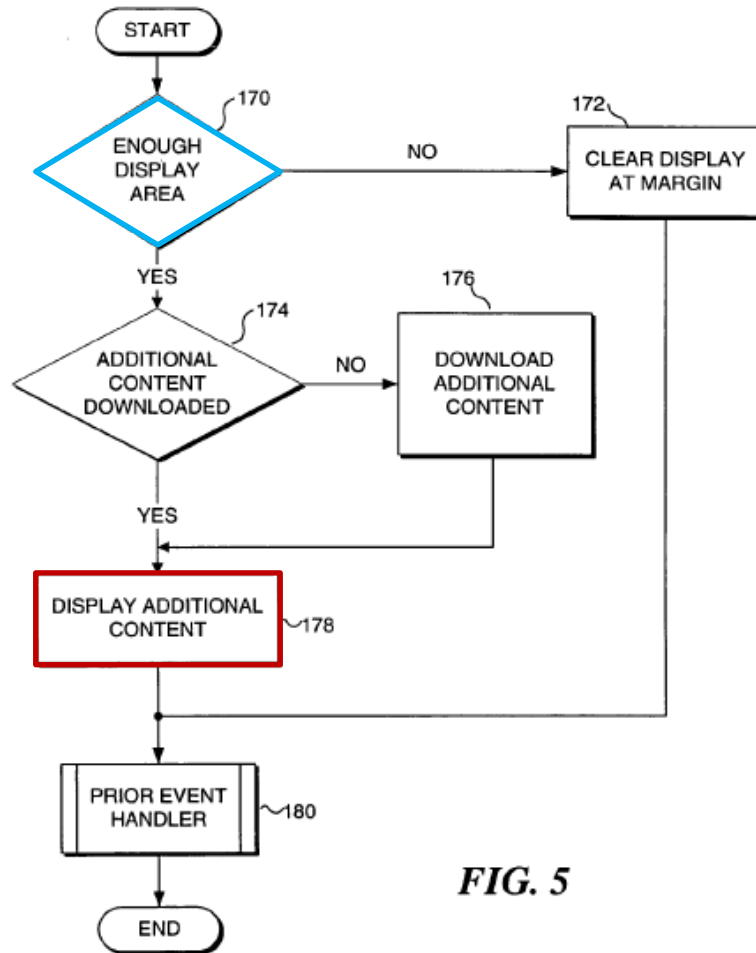
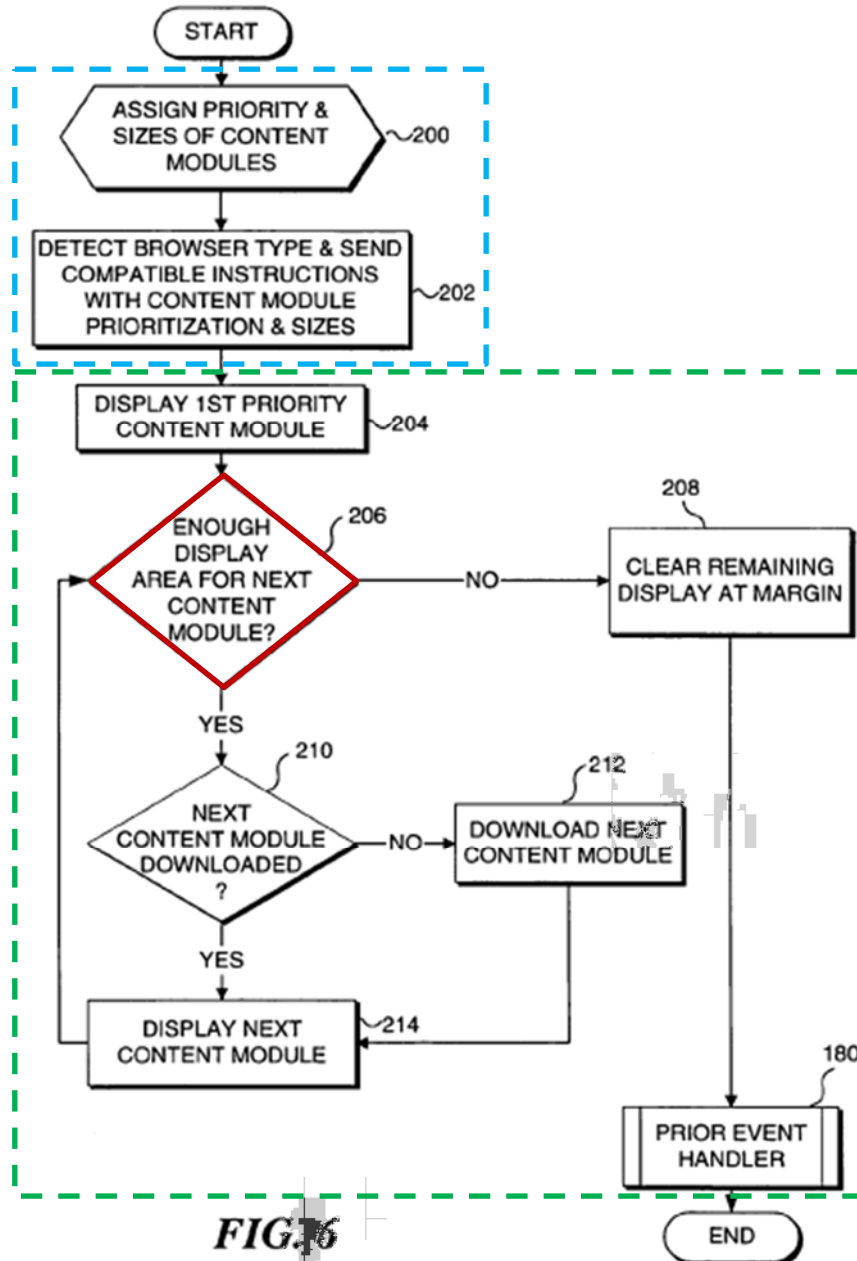


FIG. 5

EX1010, Fig. 5.

341. The device compares the size of the content (measured in pixels) to the size of the available space (measured in pixels).



EX1010, Fig. 6. Steps 200 and 202 are the server-side functionalities (blue box), and Steps 180 and 204-214 (green box) are on the client device and executed by the browser.

342. The size of each piece of content is in pixels. EX1010, 13:22. At Step 206, the browser “determine[s] a remaining display area and compare[s] that

remaining area with the size of the next priority content module.” EX1010, 13:32-35. The system iteratively checks and re-checks until the display cannot fit the next piece of content. EX1010, Fig. 6, 13:18-59.

343. Thus, the Gagner-Liu-Mitchell system renders the claim obvious.

6. Claim 14

14: *The mobile phone of claim 1, wherein the location data further includes cellular phone data.*

344. Gagner discloses that its wagering terminal/device “can be included in ... cell phones,” and therefore the information provided by Gagner’s “location unit” is “cellular phone data” because it originates from a cellular phone. EX1004, [0057].

345. Liu further teaches that the location data includes cellular phone data. Liu explains that location information may identify the cell currently serving the mobile terminal, and that cell-ID technology may be used when the terminal’s GPS receiver is unable to receive satellite signals. EX1005, [0020], [0022]. Liu also teaches related cellular-network location techniques, including TDOA and “Enhanced-Observed Time Difference (E-OTD) technology, which utilizes measurements taken at the mobile terminal 100 of signals sent from several base stations.” EX1005, [0021]. This cellular-network information, such as E-OTD information that is reported by the mobile device to the server, constitutes “cellular phone data” included in the location data because it is measured by the phone based on cellular signal characteristics. Patent Owner’s infringement chart applies the

same understanding by mapping cellular location fields such as mobile country code, mobile network code, and location area code to “cellular phone data.” EX1028, 46–47; *see also* Limitation 1[d].

346. By 2009, it was well known that mobile devices could employ multiple positioning techniques to provide reliable location information across different operating environments. For example, GPS determines location from satellite signals, whereas E-OTD determines location using timing measurements of cellular signals received from multiple base stations. A POSITA would have understood that a mobile device could utilize both GPS technology and E-OTD technology to supplement satellite-based positioning with cellular- or network-based positioning. Indeed, Qualcomm Incorporated published an article titled “Geolocation technologies and applications for third generation wireless” in 2002, which taught the advantages of mobile devices supporting both E-OTD and GPS location services:

A more sophisticated hybrid solution is A-GPS combined with E-OTD or OTDOA. This approach requires only spot deployments of E-OTD or OTDOA. A-GPS could be used throughout the majority of the network to provide the basis for most location information. The Hybrid approach generally improves yield and allows the location technology performance to gracefully degrade in a way that supports most location services in most locations.

EX1067, 12. Therefore, a POSITA would have found it obvious to combine Liu’s teachings regarding E-OTD technology with Gagner’s teachings regarding GPS

location to improve the availability and reliability of Gagner's location determinations, including in situations where it is "impossible" for the GPS receiver in the mobile terminal to access GPS satellites "from a parking garage or other location with an obstructed view of the sky." EX1005, [0049].

7. **Claim 15**

15: The mobile phone of claim 1, wherein the received low priority data is further based on at least one of a current balance of money associated with the mobile gaming application, a last outcome of a game in the mobile gaming application played by the user, total winnings of the user, transaction data of the user, an average deposit amount of the user, a bet made by the user, an average bet amount of the user, a bet limit of the user, a loss limit of the user, or a deposit limit of the user.

347. Gagner teaches that the received low-priority data is based on at least several of the listed player/account and wagering parameters. Gagner's secondary content server determines account information and preferences for the player—including "account owner personal information 417, an account balance 418, a point status 419, or a list of friends 420," or other "preferred interests or hobbies, preferred settings for the account, methods of preferred contact, etc."—and then determines secondary content based on that user-related information. EX1004, [0069]–[0070], [0086]–[0087]. "The secondary content notification 110 gradually changes characteristics in relation to a game related condition or factor, such as time, spin outcomes, bonuses, etc." EX1004, [0042]. Gagner also teaches that the wagering game server contains or can access wagering-game-related information such as

secondary wagering games, sports bets, casino events, and other information of interest, and that the secondary content server compares user-related information to that wagering-game-related information to determine the notification to present. EX1004, [0070], [0087]–[0088]. Thus, Gagner teaches low-priority data based on at least current balance/account information, user activity or preferences, wagering-game information, and game-related events, any one of which satisfies Claim 15.

8. Claim 16

16: *The mobile phone of claim 1, wherein to display the low priority data, the at least one computer processor is further configured to: display an indication that a priority of the low priority data is greater than a priority of second low priority data.*

348. Gagner teaches displaying an indication that the priority of one item of low-priority data is greater than the priority of second low-priority data. Gagner's terminals assign priority to primary and secondary content presentation requests and use priority to determine display areas, overlay ordering, size, and whether content appears more prominently. EX1004, [0059]–[0060]. Gagner explains that higher priority can cause content to appear in a larger display area or to be superimposed over other content, while lower-priority content may be displayed less intrusively. EX1004, [0059]–[0060].

349. Figure 1 provides examples. Gagner presents some notifications directly within the primary content section depending on the importance of the notification or how closely related it is to the primary content, while other

notifications are placed in the secondary content section. EX1004, [0040], [0043]. For example, the progressive-jackpot notification is displayed within the primary content section but not over the slot reels, indicating that it is more important than notifications placed only in the secondary content section but less important than content superimposed over the reels. EX1004, [0041]. Thus, Gagner's wagering devices indicate that one low-priority secondary notification has greater priority than another low-priority secondary notification by displaying higher-priority notifications "in a larger display area [or] superimposed over other content," while displaying lower-priority notifications "in a minimally intrusive manner (e.g., near the bottom of the primary content ...)," or in a "designated secondary content display section" like a "sidebar." EX1004, [0039], [0043], [0059]–[0060]; *see also* Limitations 1[g] and 1[o]. In some embodiments, the device may also play "an audio sound" to "indicate that an important advertisement ... is about to appear in either the primary display 544 or the secondary display 543." EX1004, [0079]. These "audio notifications" are also an indication that a displayed low-priority data has greater priority than other displayed data.

350. Gagner also teaches user-configured order-of-preference settings for secondary content notifications. The user account lists notification preferences "in order of preference," and the secondary content server can use those settings to

determine secondary content and priority information for presenting that content.

EX1004, [0072], Fig. 4.

9. Claim 17

17 *The mobile phone of claim 1, wherein to display the low priority data, the at least one computer processor is further configured to compare at least one of a current time or a current date to at least one of a start time or a start date included in the low priority data.*

351. Gagner teaches comparing a current time or date to a start time or date included in the low-priority data. Gagner’s “secondary content server generates or determines control and priority information regarding the [] duration [] of the secondary content notification,” and transmits it to the gaming device. EX1004, [0088], [0071]. The wagering game device then “utilizes content, control information and priority information to generate the secondary content notification and to present the secondary content notification.” *Id.*; *see also* Claim 4. A POSITA would have understood that displaying a secondary content notification for a predetermined “duration,” as taught by Gagner, would involve the mobile phone’s processor comparing the current time against a start time for the notification included in the control information, so that the device could determine when the “duration” had lapsed and cease displaying the notification.

352. In Gagner’s baseball example, the secondary content server checks the current time, compares it to the scheduled play time for the player’s favorite team, and generates an interactive notification about an opportunity to bet before play

begins. EX1004, [0070]–[0071]. Gagner also discloses a “secondary content module” on the wagering device that “can determine, control and/or present secondary content during a wagering game” and execute the secondary content server’s “operations,” including performing time comparison for Gagner’s baseball example. EX1004, [0099]–[0100]. In this implementation, the device processor compares the current time to the scheduled play time of the secondary content to determine whether to display it.

10. Claim 18

18: *The mobile phone of claim 1, wherein the player prevention alert comprises a warning that a location of the mobile phone cannot be determined.*

353. Liu teaches that the player prevention alert can comprise a warning that the location of the mobile phone cannot be determined. Liu explains that access may be denied when the location request fails or the user has not authorized location requests, and that the game server may send compliance information explaining the reason for the denial. EX1005, [0037]–[0038], [0046]–[0049]. Liu further gives a specific example in which a GPS-based location determination may be impossible when the mobile terminal is in a parking garage or another location with an obstructed view of the sky; information explaining that failure may be used to generate compliance information to help the user obtain location:

Information returned to game server 150 explaining the failure may be used to generate compliance information to assist the user of mobile terminal 100 in seeking out more favorable conditions.

EX1005, [0049]; see also Limitation 1[m].

C. Ground 2 (Gagner + Liu + Mitchell + Northway)

1. Motivation to Combine

354. A POSITA would have been motivated to combine Northway's teachings with the Gagner-Liu-Mitchell system. Northway is analogous art to Gagner, Liu, and Mitchell because it is directed to providing location-based messages and advertisements to users of mobile devices based on geographic location. EX1006, Abstract, [0001], [0016]. For the same reasons, Northway is analogous art to the '284 Patent. Northway, like Liu, uses mobile-device location information, including GPS, A-GPS, triangulation, and signal-strength information, to determine where a mobile device is located. EX1006, [0018], [0037]–[0038]; EX1005, [0020]–[0023]. Northway, like Gagner, uses that location information to deliver advertisements or other messages to a mobile device. EX1006, [0007]–[0009], [0044]–[0046]; EX1004, [0082], [0090]. The '284 Patent's technical field likewise includes location-based content delivery and wagering control for mobile devices, including displaying promotions when a player moves to the edge of a gaming area. EX1001, Abstract, 23:37–38, 79:48-53.

355. A POSITA would have been motivated to combine Northway's teachings regarding geo-boundary techniques with the Gagner-Liu-Mitchell system to address the specific scenario in which the mobile device is at, entering, or leaving the edge of an approved gaming area. Liu teaches determining whether a mobile terminal is located within a jurisdiction or geographic area where gambling is permitted, but does not focus on using boundary-edge status to trigger low-priority content. EX1005, [0027]–[0035], [0040]. Gagner teaches presenting secondary content based on location, but does not expressly teach detecting that the mobile device is at a boundary edge. EX1004, [0082], [0090]. Northway supplies that boundary-edge detection and content-triggering logic. EX1006, [0007]–[0009], [0044]–[0048].

356. Northway discloses a way to define and detect the edge of Liu's approved gaming area. Northway defines zones using multiple geo-boundaries, detects when a mobile user crosses a boundary of those zones, and sends a message or advertisement when the mobile user crosses the boundary. EX1006, [0007]–[0009], [0044]–[0046]. Northway's Figure 4 illustrates multiple zones bounded by geo-boundaries, and Northway explains that such boundaries can be associated with entrances, exits, landmarks, or other references that indicate whether a mobile device is moving toward or away from a targeted location. EX1006, [0048]–[0053]. A

POSITA would have applied the same geo-boundary concept to the edge of Liu's permitted wagering area.

357. A POSITA also would have been motivated to use Northway's approach because it improves the effectiveness of location-triggered content over single-radius proximity systems. Northway explains that single-proximity systems had shortcomings, including inability to determine whether a user entered or exited an advertised location and risk of repeatedly sending the same advertisement when a user skips in and out of a single proximity area. EX1006, [0005]–[0006]. Northway's multiple-boundary system more precisely tracks movement into and out of zones, can provide follow-up promotions when a user does not cross an expected boundary within a period of time or enters another zone, and can avoid repeatedly sending the same advertisement within a time period. EX1006, [0017]–[0018], [0023]–[0030], [0041]–[0042]. These benefits would have motivated a POSITA to make the combination and predictably improved Gagner's location-based secondary-content delivery at the edge of the approved gaming areas taught by Liu.

358. A POSITA would have had a reasonable expectation of success in combining Northway with Gagner, Liu, and Mitchell. All these references use compatible client-server architectures to deliver content over wireless networks. EX1004, [0061]–[0063]; EX1005, [0016]–[0018]; EX1010, 5:30-55; EX1006, [0019]–[0020]; §IX.B.1. Moreover, Gagner presents secondary content on wagering

game devices based on location, Liu authorizes or restricts mobile wagering based on location, and Northway delivers messages or advertisements to mobile devices based on geo-boundary information. EX1004, [0061]–[0063], [0082], [0090]; EX1005, [0016]–[0018], [0024]–[0027]; EX1006, [0018]–[0021], [0037]–[0046]. The proposed combination would have merely involved applying Northway’s known geo-boundary detection and advertisement-triggering logic to the boundary of Liu’s approved gaming area, and then using Gagner’s existing secondary-content framework to present the resulting low-priority content, reformatting using Mitchell’s techniques to fit the display when necessary. The result would have been predictable: a mobile wagering system that detects when the mobile device is at the edge of an approved gaming area and presents location-based secondary content—such as advertisements or notifications—in a non-interfering manner based on that edge status.

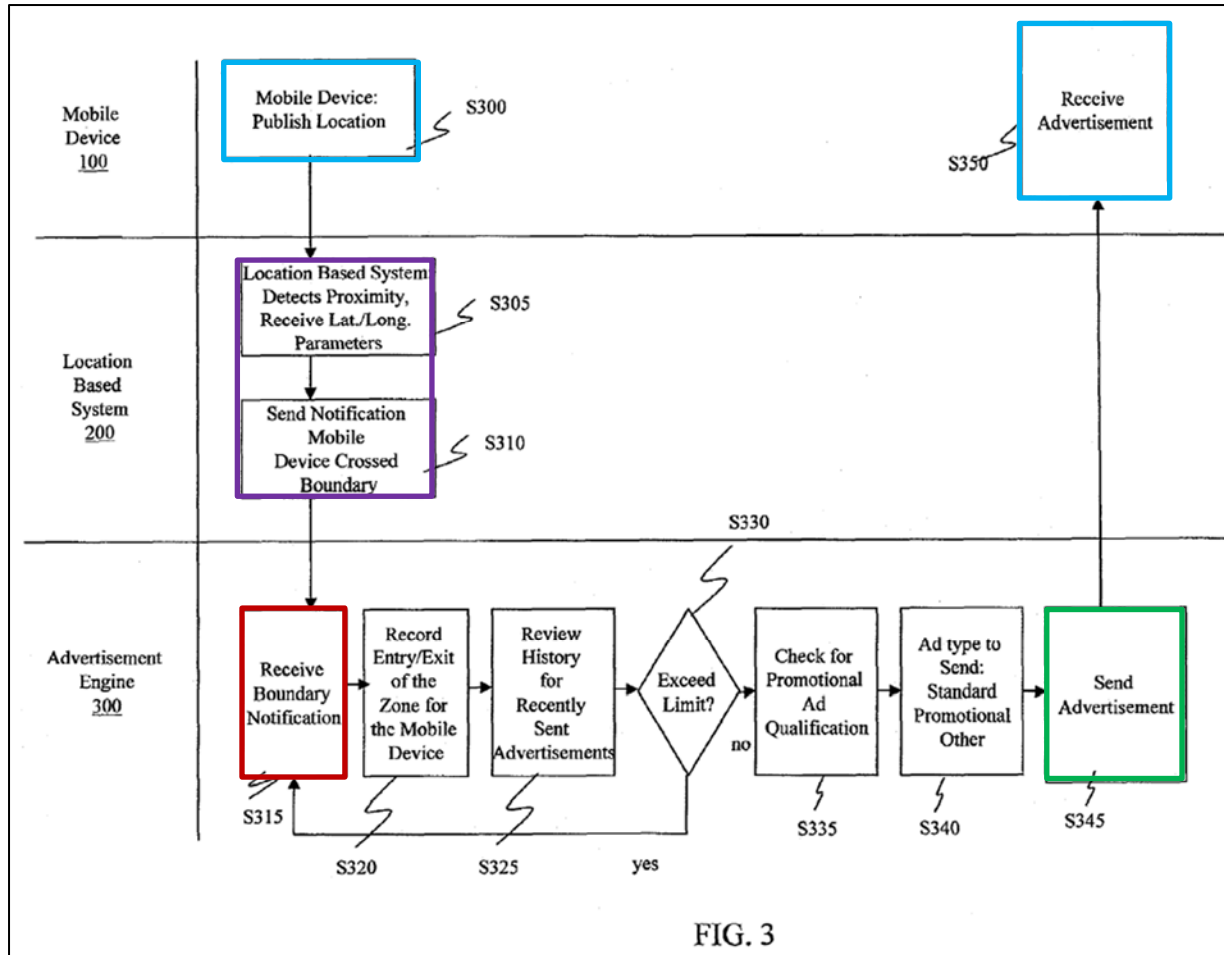
2. Claim 2

- 2: ***The mobile phone of claim 1, wherein the location data indicates the mobile phone is at an edge of an area where gambling is allowed, and wherein the low priority data is based on the mobile phone being at the edge of the area where gambling is allowed.***

359. As demonstrated in Ground 1, Gagner teaches that secondary content—the claimed low-priority data—can be selected based on a player’s location, including location within a casino. EX1004, [0082], [0090]. Liu teaches determining whether a mobile terminal is in an approved gambling area by comparing geographic

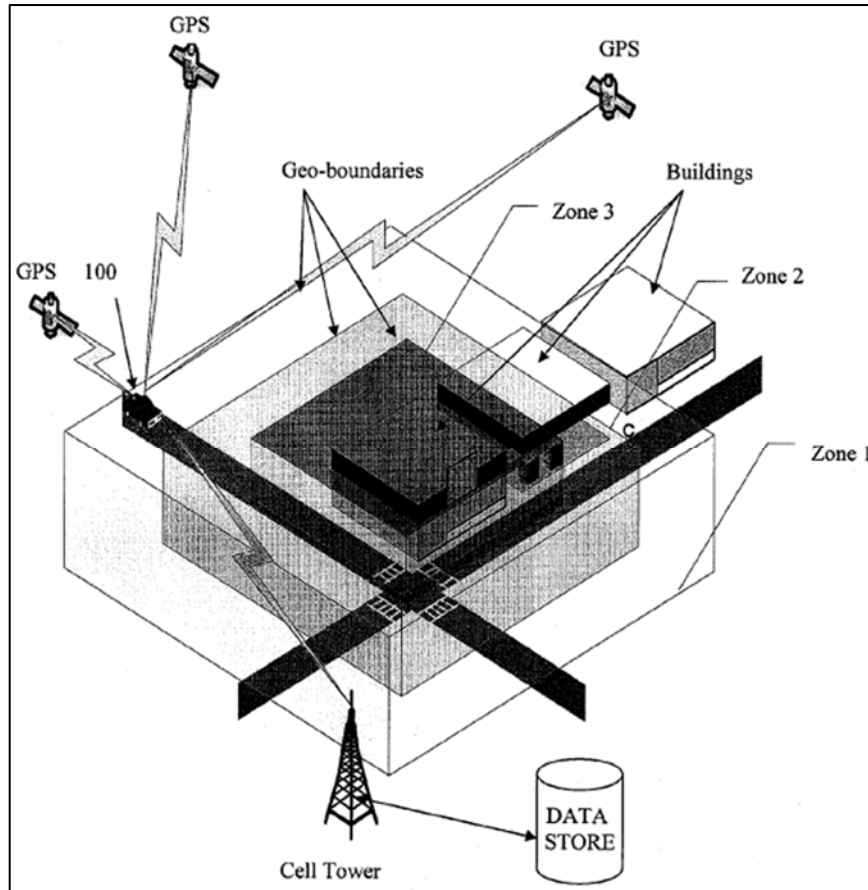
location information to jurisdictional boundaries or other geographic limits. EX1005, [0027]–[0035], [0040]; *see also* Limitations 1[f] and 1[m]. Northway teaches the missing edge-specific location determination. Northway defines jurisdictions as “zones” using multiple geo-boundaries, detects when a mobile user crosses a boundary of those zones, and sends a message or advertisement when the mobile user crosses that boundary. EX1006, [0007]–[0009]. Northway’s system obtains or receives mobile-device location information using GPS, A-GPS, triangulation, signal-strength, or a local agent, and then bounds that location information using geo-boundaries. EX1006, [0018], [0037]–[0038].

360. Northway’s Figure 3 illustrates the boundary-triggered advertising process: the mobile device 100 publishes its location and sends its location to the location-based system 200, which detects the mobile device’s location and zone boundary, compares the location to predefined zone boundaries, and sends a boundary notification to the advertisement engine 300, which receives the boundary notification and sends the advertisement to the mobile device. EX1006, [0044]–[0046].



EX1006, Fig. 3.

361. Northway's Figure 4 illustrates its geo-boundary concept in the context of a building with three location-based "zones," which can be used to "detect when a user has entered or exited a store, building or other environment" (EX1006, [0022]):



EX1006, Fig. 4; [0048]–[0053].

362. A POSITA would have been motivated to combine Northway’s geo-boundary detection with Liu’s approved gaming area in the Gagner-Liu-Mitchell system. In this combination, the edge of an area where gambling is allowed is implemented as a geo-boundary defined “zone” of the approved wagering jurisdiction, and the mobile phone’s location data indicates that the device is at that edge when the device reaches or crosses the boundary. EX1005, [0027]–[0035]; EX1006, [0007]–[0009], [0044]–[0048]; §IX.C.1.

363. Northway also teaches that the low-priority data is based on the device being at that edge. When the boundary condition is detected, Northway sends a message or advertisement to the mobile device, and its advertisement engine may select different advertising based on whether the device has entered another zone, failed to exit a prior zone, or crossed a zone boundary. EX1006, [0008], [0023]–[0030], [0041]–[0046], [0048]–[0054]. When combined with Gagner’s location-based secondary content and Liu’s approved-area boundary, the low-priority data is therefore based on the phone being at the edge of the area where gambling is allowed.

364. This is consistent with the ’284 Patent’s own description of “Edge of gaming zone,” which states that, as a player moves to the edge of a gaming area, promotions may be shown to incentivize the player to stay within the gaming area, move away from the edge, or continue gaming. EX1001, 79:48–53.

D. Ground 3 (Gagner + Liu + Mitchell + Haney)

1. Motivation to Combine

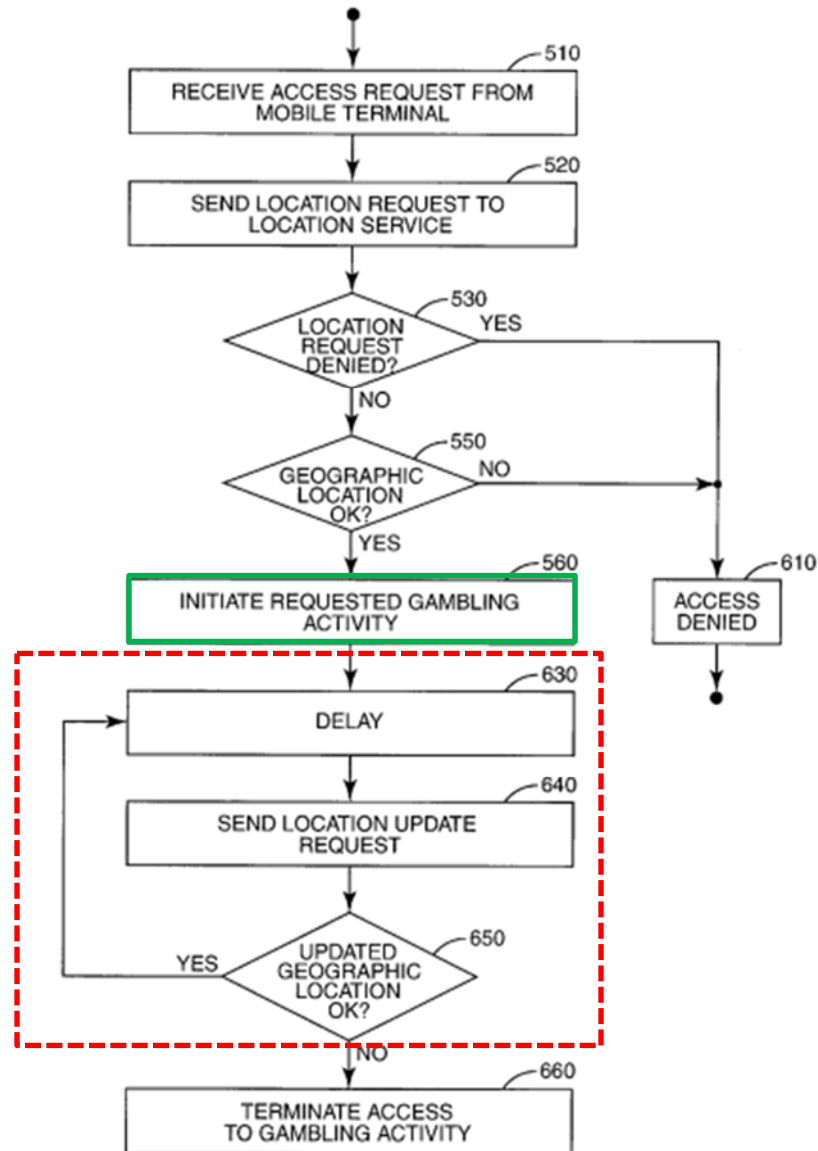
365. A POSITA would have been motivated to combine Haney’s teachings with the Gagner-Liu-Mitchell system. Haney is analogous art to Gagner, Liu, and Mitchell because it is directed to GPS-equipped mobile phones running a client application that obtains the phone’s own position data and exchanges that data with a server over the cellular network and the Internet. EX1012, Abstract, [0007]–

[0011], [0179]–[0185]. For the same reasons, Haney is also analogous art to the '284 Patent. Gagner, Liu, and Mitchell likewise use client-server architectures in which mobile devices communicate with servers over wireless networks. EX1004, [0061]–[0063]; EX1005, [0016]–[0018]; EX1010, 5:30-55; §IX.B.1. Moreover, Gagner and Liu further disclose mobile devices with GPS capability that display wagering content based on their own location data that is communicated to the servers over wireless networks. EX1004, [0082], [0090]; EX1005, [0020]–[0023]. The '284 Patent's technical field also involves mobile devices using "positioning technologies to determine their own location," including "GPS receivers" configured to transmit GPS signals to a central server. EX1001, Abstract, 13:33-34, 14:1-5, 27:28–33 ("In various embodiments, the mobile gaming device may contain a positioning system, such as a global positioning system (GPS). The mobile gaming device may determine based on its position whether it is currently proximate to a device (e.g., a slot machine).").

366. A POSITA would have been motivated to combine Haney's teachings regarding device-side position reporting with the Gagner-Liu-Mitchell system so that the servers authorizing wagering receive current location data throughout a gaming session. Gagner's device determines its own location and movements using GPS or RFID, and Liu conditions continued wagering on whether the device remains within an approved area. EX1004, [0097]; EX1005, [0041], [0044]; Fig. 6.

367. In particular, Liu provides:

In a variation of the above method, the game server 150 periodically requests an updated location for mobile terminal 100, in order to determine whether the user remains within an approved area. This variation is illustrated in FIG. 6.



EX1005, [0041], Fig. 6.

368. Liu teaches an exemplary **repeated checking process** *after* **initiating the requested gambling activity**. EX1005, [0041], Fig. 6; *see also, id.*, [0042]-[0045].

369. Liu provides explicit disclosure regarding the communication between the gaming server and the location server. Liu, however, does not explicitly detail how “game server 150 receives updated geographic location information, which is validated as before” in step 640. Liu details the server-to-server communication for repeated location updates. Liu also teaches more than one option for receiving and verifying the location from Liu’s device. To the extent that the teachings in Liu do not provide for “repeatedly send[ing] location data [from the mobile phone] to the one or more server computers.” Haney explicitly fills the gap.

370. Furthermore, Gagner and Mitchell also do not expressly teach that the mobile device itself repeatedly sends its own location data to the server as claimed. Haney supplies the claimed step, teaching devices that “periodically send their GPS position data” at configurable intervals or whenever position changes by a programmable amount. EX1012, [0066], [0133]. Such an addition would have been obvious because of the legal requirement that the user be in a region in which wagering is permitted. As users can be on the move, either on foot or in a car, it would be necessary to maintain up-to-date information on the locations of the user’s device. Contemporaneous mobile-gaming requirements reinforce this motivation, requiring authorization information “transmitted by the mobile communications

device to the mobile gaming system” on “a regular basis” and systems capable of “immediately detecting if a mobile device has entered a non-gaming area.” EX1025, 1; EX1027, 4.

371. A POSITA would have had a reasonable expectation of success in combining Haney with Gagner, Liu, and Mitchell. All these references use compatible client-server architectures to deliver content over wireless networks. EX1004, [0061]–[0063]; EX1005, [0016]–[0018]; EX1010, 5:30-55; EX1012, [0007]–[0011]; §IX.B.1. Moreover, Gagner’s device already includes a GPS-based location unit and an external system interface with 802.11, Bluetooth, and Ethernet transceivers for exchanging information with servers. EX1004, [0096]–[0097]. And Liu already teaches authorizing or restricting mobile wagering based on GPS location data. EX1005, [0016]–[0018], [0020]–[0021]. The proposed combination would have merely involved incorporating Haney’s disclosure of periodically sending a device’s own GPS position data to the server into Gagner’s wagering game devices that already have GPS-location capabilities, such that Liu’s authentication servers receive current location data throughout a gaming session and can ensure continued compliance with jurisdictional gambling rules/laws. The combination of Haney’s teachings into Gagner’s devices would have been straightforward because Haney confirms its approach “do[es] not require development of new cell phone or PDA technology nor do they require development of new cellular communication

infrastructure,” relying instead on existing platforms and routine software, such as that already existing in Gagner’s devices. EX1012, [0010]. The result would have been predictable: a mobile wagering system in which the mobile phone repeatedly sends its GPS location data to the servers that authorize wagering.

2. Claim 3

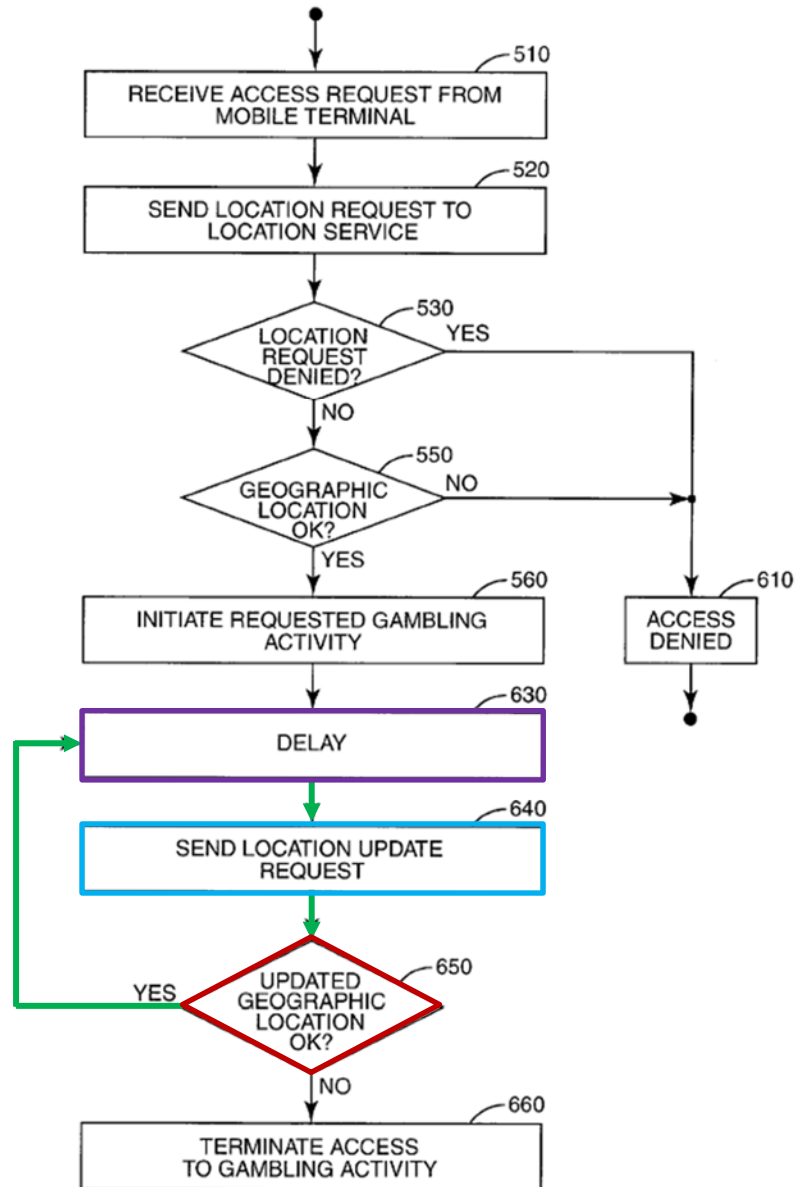
3[a]-3[b]: The mobile phone of claim 1, wherein, to prevent the user from placing the wager via the mobile application, the at least one computer processor is further configured to: repeatedly send location data to the one or more server computers;

372. The Gagner-Liu-Mitchell system teaches a mobile phone with at least one computer processor for the reasons discussed for Limitations 1[a]-1[b] in Ground 1. The Gagner-Liu-Mitchell system further teaches that the mobile phone may prevent the user from placing the wager via the mobile application for the reasons discussed for Limitations 1[m]–1[q] of Ground 1. In particular, Liu prevents wagering unless the mobile terminal passes server-side location authorization, and Gagner supplies the mobile wagering device and wagering opportunity. EX1005, [0024]–[0027], [0038]–[0040]; EX1004, [0070]–[0071].

373. The Gagner-Liu-Mitchell system discloses capabilities that require a constantly updated device location.

374. For example, Gagner discloses dynamically customizing the display of secondary content based on the “wagering game device’s location/movements.” EX1004, [0097].

375. Liu also teaches repeatedly providing location data to server computers to confirm continuing authorization. After access is granted, Liu's game server "periodically requests an updated location for mobile terminal 100" to determine whether the user remains within an approved area. EX1005, [0041]. After a delay, the game server sends a location update request, receives updated geographic location information, validates that location, and repeats the process periodically to ensure that the mobile terminal remains within approved areas. EX1005, [0041]–[0045], Fig. 6.



EX1005, Fig. 6. Figure 6 illustrates the repeated location-update loop. If the updated location indicates that the mobile terminal has strayed from the approved area, the gambling activity is terminated. EX1005, [0045]. Patent Owner's district-court infringement chart applies the same concept by alleging repeated express location checks and background geofencing/location checks. EX1028, 26–30.

376. To the extent that Liu's disclosure of sending GPS coordinates to the location server and the details of the repeated location server to gaming server updates do not satisfy the limitation, Haney fills the gap.

377. Haney discloses these features by disclosing user tracking systems, wherein mobile phones are configured to "retrieve GPS position data directly or indirectly from a GPS receiver in the phone" and "wirelessly send the GPS position data to the [] server either periodically or on demand from the server[.]" EX1012, [0180]. A POSITA would have been motivated to use Haney's teachings to repeatedly/periodically send GPS data to a gaming server to satisfy Liu's requirement to periodically determine whether the user remains in approved wagering areas. *See also* §IX.D.1.

3[c]: detect a disruption in a connection to the one or more server computers; and

378. Liu teaches detecting a disruption in the connection used for location verification. Liu explains that a location request may be rejected because the location server restricts access, because the user has not authorized release of location information, or because the location request "fail[s] for technical reasons" such as poor signal conditions or an obstructed GPS receiver. EX1005, [0037], [0048]–[0049]. "For example, location information for mobile terminal 100 may be unavailable because of poor signal conditions" between the GPS receiver in the mobile terminal and GPS satellites, such as when "the mobile terminal 100 is

attempting access from a parking garage or other location with an obstructed view of the sky.” EX1005, [0049]. Rejected or failed location requests are “disruptions” in a connection to the server computers used to verify the mobile terminal’s location because mobile terminals use wireless signals to communicate with the server(s), and communications are disrupted when those connections “fail.” Liu confirms this understanding by terminating the gambling activity when the server cannot confirm that the terminal remains within an approved area. EX1005, [0041], [0044]-[0045].

379. However, Liu does not explicitly disclose that the mobile phone itself detects such disruptions. Haney discloses these features. Haney discloses GPS-equipped mobile devices operating within a wireless network environment and communicating location or position data to central servers and other network nodes via wireless networks or the Internet. EX1012, Abstract, [0007]-[0014], [0179]-[0185]; *see also id.*, [0014] (“Location information will be shared only so long as the phone is on and in an area where the device can receive a GPS signal and send the phone’s coordinates out on the cellular network[.]”). Haney specifically teaches that a mobile device monitors wireless network communications and detects when that connection is disrupted or out-of-coverage conditions occur. EX1012, [0074]. For instance, Haney provides an embodiment “when a wireless device requests an update from another wireless device, and the other wireless device is out of cellular coverage, a timeout occurs. When a timeout occurs without receiving a position

update, the wireless device expecting the update changes its display to yellow or some other color for the wireless device which is out of coverage.” *Id.* Thus, Haney’s device detects when its requested position update is not received after a timeout. A POSITA would have understood that failing to receive an expected position update indicates a broken or disrupted connection in the wireless network communication.

380. Moreover, Haney discloses a server-mediated architecture: Haney’s devices transmit communications—including location data—between each other and a central server through cellular networks and/or the Internet:

FIG. 2A is a block diagram of the Buddy Watch system. A Buddy Watch or Rubicon server communicates with wireless devices 2 through 6 via the internet 9 and wireless carrier systems 7 and 8. In the claims, the Buddy Tracker software is called the GPS position data sharing software application and it is resident on each of wireless devices 2 through 6. Generally, communication between the handsets and the Rubicon (Buddy Watch) server occurs as follows. Each handset communicates data packets through its local cellular carrier network via TCP/IP compliant data packets encapsulated in cell system packets. The carrier network tower receives the packets and strips off the cellular encapsulation and forwards the TCP/IP packet to an appropriate gateways connected to the internet 9. Routers in the internet route the packet to its destination, generally the Buddy Watch server 1. The receiving server validates the content of the IP packet to authenticate the sender as a register Rubicon user and to verify that the sending phone EIN matches the phone EIN

stored in the server. Once authenticated, the packet content is processed by the server. A response to the request in the packet is prepared using information from a database maintained by the Rubicon server and any associated map needed for the response is requested from a map server. The complete response is compiled, including any data needed to render a map on the recipient wireless device display and packetized into a TCP/IP packet and sent back to the originator of the request via internet routers and carrier gateways that couple the wireless carrier systems to the internet. The gateway of the carrier identifies the correct tower for the cell in which the recipient's phone is currently resident and the packet is encapsulated in a cell system packet and forwarded to the appropriate tower where it is transmitted wirelessly to the cell phone or other wireless device of the recipient. The wireless device then recovers the data in the TC/IP packet and the port address in the TCP/IP packet header causes the packet to be routed to the Buddy Watch software where it is processed.

EX1012, [0059]. Thus, a POSITA would have recognized that the client-side timeout detection taught in Haney applies directly to connection disruptions between the mobile device and a central server. A POSITA would have therefore found it obvious to combine Haney's client-side connection monitoring with Liu's wagering device so that the wagering device itself in the combined system detects when its connection to Liu's servers is broken or disrupted (*e.g.*, as indicated by failed or rejected location requests). A POSITA would have been motivated to make this

combination so that the wagering device may terminate or prevent any unauthorized wagering activities itself without relying on server communication that may no longer be received due to a disrupted connection. *See also* §IX.D.1.

3[d]-3[f]: in response to the disruption: prevent the user from placing the wager via the mobile application; and display second low priority data on the touch screen of the mobile phone.

381. Liu teaches the claimed response to the disruption. When the location request “fails,” such as due to “poor signal conditions,” when the location information is not acceptable, or when an updated location indicates that the terminal has strayed from the approved area, Liu denies, restricts, or terminates access to the gambling activity. EX1005, [0046], [0049]. However, “rather than simply denying access to the gambling activity without explanation,” Liu discloses that the “game server may instruct the user of [the] mobile terminal 100 as to the reasons for denial” in a message or compliance information. EX1005, [0038]–[0040], [0045]–[0051]; *see also* Limitation 1[m].

382. Liu also teaches preventing the user from placing the wager via the mobile application in response to the disruption. As explained above, if the location request is denied or the location information is not acceptable, access to the gambling activity is denied or restricted. EX1005, [0038]–[0040]. If a later update shows that the mobile terminal has strayed from the approved area, the gambling activity is

terminated. EX1005, [0045]. These responses prevent the user from placing or continuing the wager via the mobile wagering application.

383. Liu and Gagner both teach displaying second low-priority data on the touch screen in response to the disruption. For example, Liu teaches that, when access is denied, the game server may send compliance information explaining the denial and/or how to gain access to the restricted activity. EX1005, [0046]. That compliance information can include directions to an approved area, instructions for authorizing location requests, suggestions for correcting technical failures, and hyperlinks, selectable menu items, or other indicators for alternative permitted activities. EX1005, [0047]–[0050]. This information is displayed via a “message” or “web page pushed to the mobile terminal.” EX1005, [0047]. Similarly, Gagner teaches that secondary content includes messages, notifications, advertisements, and other ancillary information presented on the wagering game device display. EX1004, [0038], [0040]–[0043].

384. Patent Owner’s infringement chart applies the limitation similarly, alleging that when there is a disruption in the connection to one or more Internet servers, the accused products display additional low-priority data such as “Internet connection issues,” “No internet connection,” “Try again,” and related troubleshooting content. EX1028, 32–33. In the Gagner-Liu-Mitchell system, Liu denies access to wagering activity after detecting a connection disruption, while

Gagner's device displays Liu's denial message as secondary content and prevents wagering.

385. Accordingly, the Gagner-Liu-Mitchell-Haney system renders Claim 3 obvious.

E. Ground 4 (Gagner + Liu + Mitchell + Aleksic)

1. Motivation to Combine

386. A POSITA would have been motivated to combine Aleksic's teachings with the Gagner-Liu-Mitchell system. Aleksic is analogous art to the '284 Patent because it addresses power management for battery-powered portable devices, including wireless devices such as cell phones, that execute software applications and display multimedia content. EX1007, Abstract, [0001]–[0004], [0026]–[0030]. Gagner, Liu, and Mitchell likewise use mobile or portable devices that execute software, communicate over networks, and display wagering-related content. EX1004, [0062]–[0063], [0094]–[0100]; EX1005, [0016]–[0018]; EX1010, 5:30–55; §IX.B.1. The '284 Patent likewise concerns mobile devices that display content while managing device operation and battery-related behavior. EX1001, 19:32–48, 48:18–49:7.

387. A POSITA would have been motivated to combine Aleksic's teachings regarding power-management techniques with the Gagner-Liu-Mitchell system because Gagner's mobile wagering devices present primary and secondary content,

including multimedia secondary content, and mobile wagering devices must preserve battery life to continue operating. EX1004, [0038], [0052]–[0053], [0063]. Aleksic recognized that portable devices have limited battery capacity, that different applications and features consume different amounts of power, and that power management may be needed to preserve higher-priority functions while reducing or disabling lower-priority functions. EX1007, [0002]–[0004], [0022]–[0025].

388. Aleksic provides the specific teachings needed for the challenged battery-related claims. Its controller dynamically controls device features based on remaining battery capacity, power-consumption rate, and user-prioritized functionality, providing power for higher-priority features at the expense of lower-priority features. EX1007, Abstract, [0022]. Aleksic teaches monitoring battery capacity, determining power consumption, predicting application runtime, and adjusting application quality of service or shutting down applications to meet runtime or reserve-power goals. EX1007, [0025], [0032]–[0039], [0041]–[0049]. Aleksic also expressly identifies known low-battery actions such as dimming displays and reducing power consumption. EX1007, [0002]. A POSITA would have found it obvious to apply Aleksic's power-management techniques to Gagner's mobile wagering device so that lower-priority secondary content would not unnecessarily consume battery needed for wagering and other higher-priority functions.

389. A POSITA would have had a reasonable expectation of success in combining Aleksic's teachings with the Gagner-Liu-Mitchell system because the combination would have required only conventional software and device-configuration changes to mobile devices already capable of executing applications and displaying multimedia content. EX1004, [0052]–[0053], [0063], [0094]–[0100]; EX1005, [0016]–[0018]; EX1010, 5:30-55, 13:65-14:5; EX1007, [0029]–[0031], [0035]–[0039]; §IX.B.1. Gagner already leaves room for selecting device functionality such as power management, and Aleksic provides implementation details for battery monitoring, quality-of-service settings, power profiles, threshold-based operation, and application-priority control. EX1004, [0063]; EX1007, [0035]–[0042], [0048]–[0050].

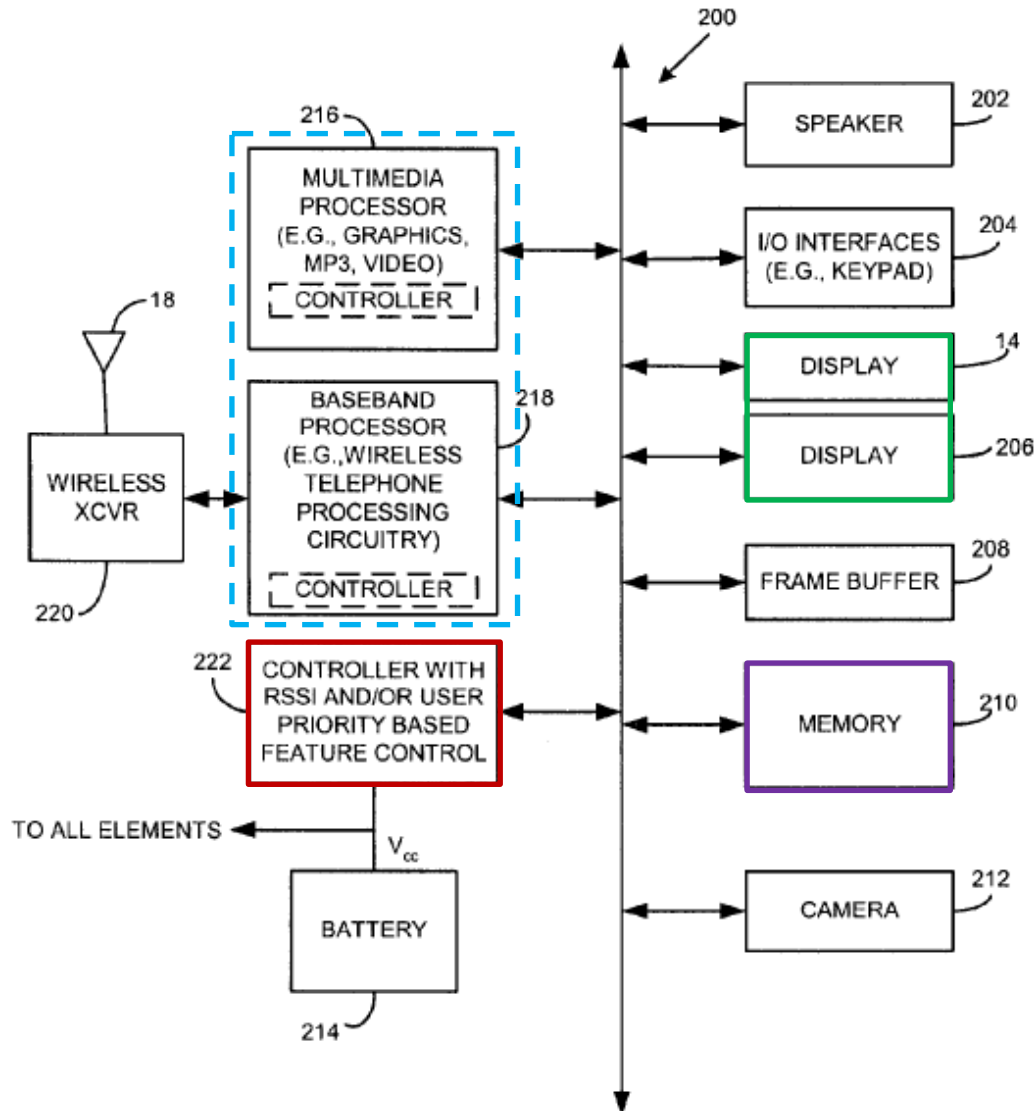
390. The result would have been predictable: the mobile wagering device in the Gagner-Liu-Mitchell system is enhanced with Aleksic's ability to monitor battery level, determine whether displaying or downloading additional low-priority content would consume avoidable battery power, and adjust display, audio, video, download, or application-operation settings to conserve battery while preserving higher-priority functions. EX1007, [0025], [0033]–[0039], [0041]–[0049]. This would allow a mobile wagering platform to continue providing Gagner's wagering and secondary-content functionality while preserving battery capacity for continued operation.

2. **Claim 5**

5[a]-5[b]: The mobile phone of claim 1, wherein the at least one computer processor is further configured to: receive second low priority data;

391. The Gagner-Liu-Mitchell system teaches a mobile phone with at least one computer processor for the reasons discussed for Limitations 1[a]-1[b] of Ground 1.

392. Aleksic also teaches portable devices, including cell phones, with processors, controllers, memory, displays, speakers, multimedia processors, frame buffers, and batteries, all controlled through software or controller logic. EX1007, [0002], [0029]–[0031], Figs. 1-2.



EX1007, Fig. 2.

393. The Gagner-Liu-Mitchell system also teaches receiving second low-priority data. As demonstrated in Ground 1, Gagner teaches receiving and displaying multiple items of secondary content, including advertisements, alerts, messages, and other secondary content notifications from server-side components. EX1004, [0038], [0048]–[0049], [0057], [0071]. These “secondary content” items are displayed at various times, positions, and sizes, and are displayed for various

durations based on control and priority data with “rules” or “logic” controlling how the content is presented. *See, e.g.*, Limitations 4[b]-4[c] and Claim 16. As discussed for Limitations 3[f] and 4[c] in Ground 1, Gagner and Liu also teach displaying additional secondary or compliance information after the duration for displaying earlier low-priority data has elapsed.

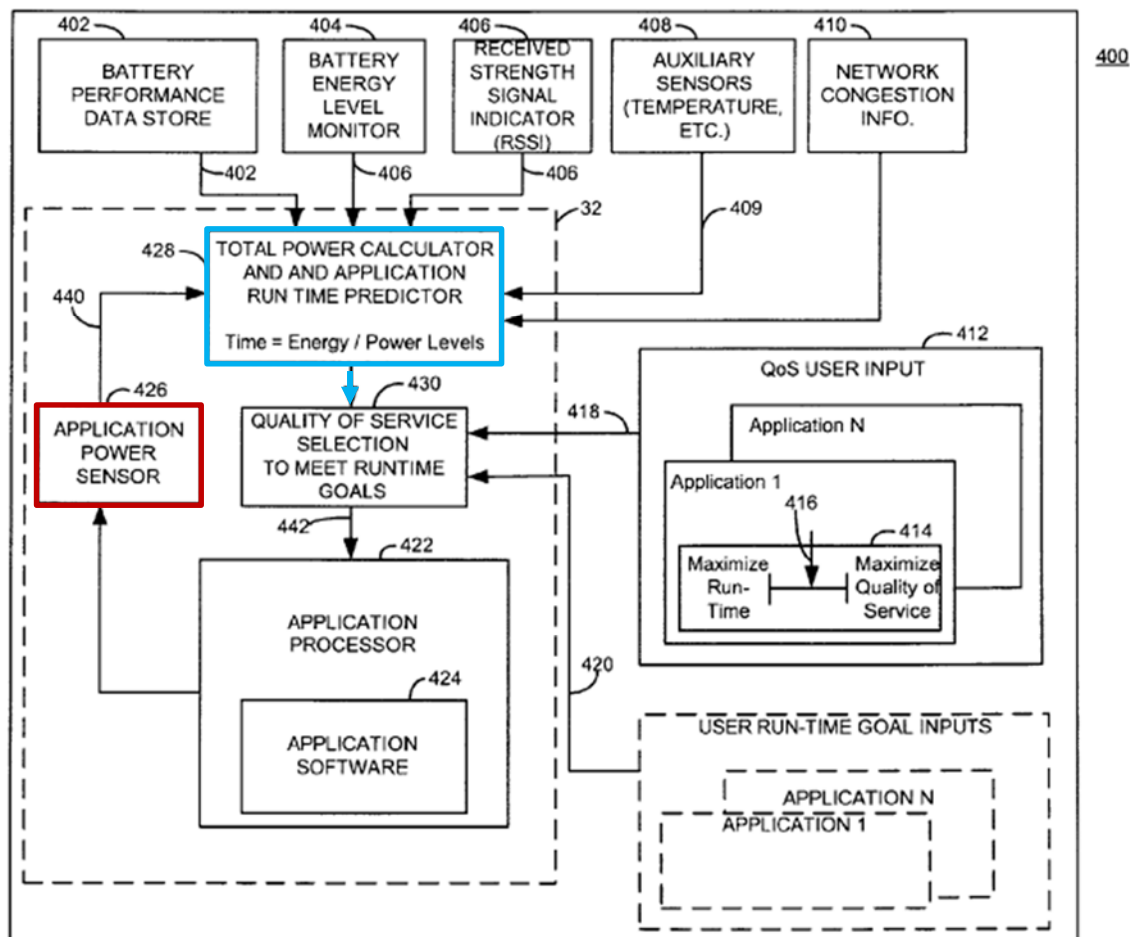
394. Aleksic independently confirms that the combined mobile device is capable of receiving and presenting multimedia content while managing power: its portable device includes display and multimedia processing components, including graphics/video circuitry, a display controller, and a frame buffer. EX1007, Fig. 2, [0029]–[0030].

5[c]-5[d]: determine that displaying the second low priority data will reduce battery consumption at the mobile phone; and display the second low priority data based on a determination that the second low priority data will reduce battery consumption at the mobile phone.

395. Aleksic combined with the Gagner-Liu-Mitchell system teaches determining that displaying the second low-priority data will reduce battery consumption at the mobile phone. While Gagner teaches wagering devices including local “power management” functionality (EX1004, [0064]), Gagner does not expressly determine that displaying certain secondary content will reduce battery consumption. Aleksic teaches a “runtime predictor module” that “predicts [] the runtime length of the application ... and selects a suitable quality of service” based

on remaining battery, power consumption, and other metrics. EX1007, [0037], [0042]–[0043].

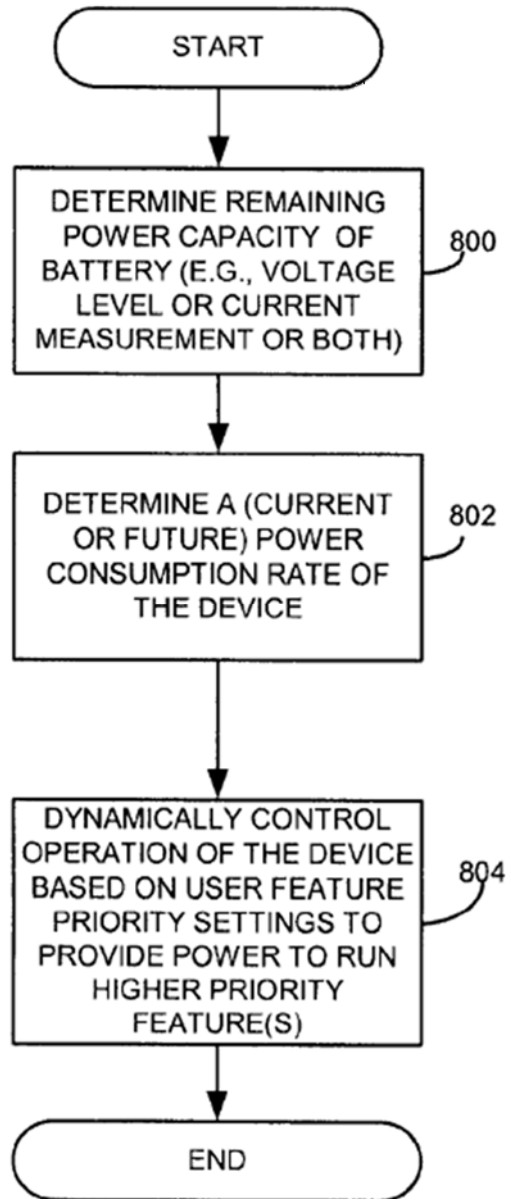
396. Aleksic specifically teaches controlling application-level quality of service based on battery capacity. For example, the user can select whether an application should maximize runtime or quality of service, and the controller can use lookup-table power control data to adjust the operational clock rates, supply voltage levels, graphics-processing settings, or other application settings to reduce or increase power consumption. EX1007, [0036], [0042]–[0043].



EX1007, Fig. 4. Figure 4 illustrates application-level power management using a battery energy level monitor, runtime/quality-of-service selection, and power-control data for different quality-of-service levels. EX1007, [0035]–[0037].

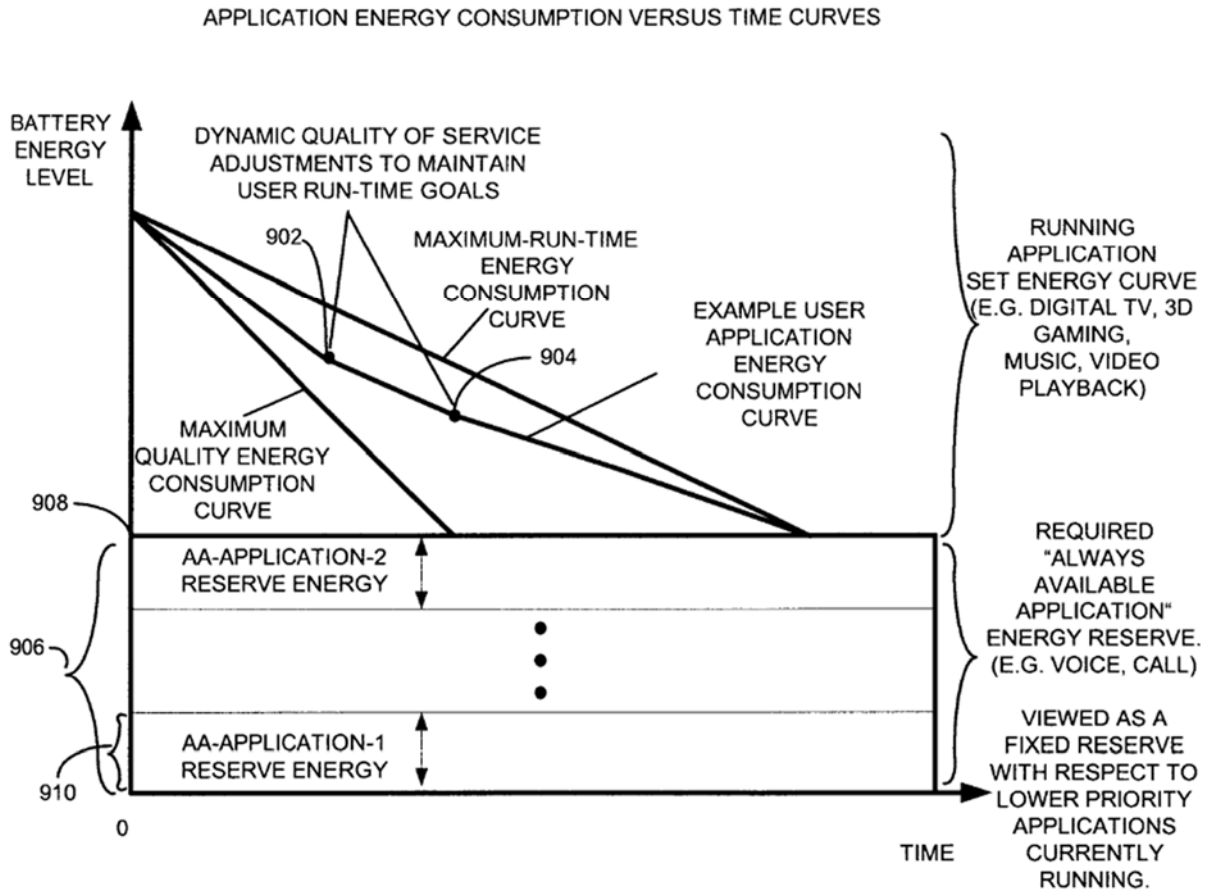
397. Aleksic further teaches examples of power-saving display determinations. When battery capacity decreases, a game application may operate at lower quality by reducing frame rate or lowering graphics resolution, which reduces processing demand and current draw. EX1007, [0045]. This teaches determining that displaying second low-priority data at a lower-quality or lower-power setting will reduce battery consumption at the mobile phone.

398. Aleksic also teaches determining whether a desired application quality-of-service level can be maintained for a desired runtime and adjusting power consumption and quality of service to meet that runtime. EX1007, claim 39. In the combination, that teaching applies to displaying secondary content in a lower-power manner when doing so preserves battery capacity.



EX1007, Fig. 8.

399. Aleksic's power-management logic predicts power usage and runtime, then selects revised power profiles or quality-of-service levels to meet the desired runtime or preserve reserve power. EX1007, [0025], [0038], [0041]–[0042], [0046]–[0048].



EX1007, Fig. 9. Figure 9 illustrates application energy consumption versus time and reserve battery energy levels; once a threshold is reached, certain applications or features are no longer allowed to execute, preserving power for higher-priority functions. EX1007, [0041].

400. Figure 7 of Aleksic shows an explicit algorithm for adjusting power level:

APPLICATION POWER LEVEL ADJUSTMENT ALGORITHM

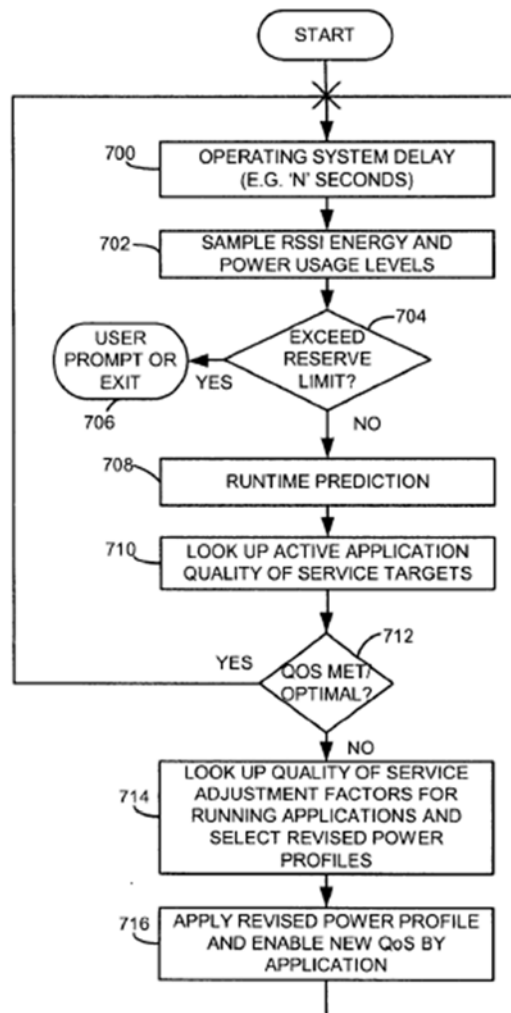


FIG. 7

EX1007, Fig. 7; *see also id.*, [0046].

401. Aleksic combined with the Gagner-Liu-Mitchell system also teaches displaying the second low-priority data based on the battery-consumption determination. Gagner teaches displaying secondary content. EX1004, [0038], [0071]. And Aleksic teaches “dynamically control[ing] functional processing capability features of the device to provide power for a higher priority feature at the

expense of a lower priority functional processing capability feature” based on “a remaining power capacity of a battery,” “a power consumption level of the portable device,” “user prioritized functional processing capability features,” and/or “quality of service level.” EX1007, [0022], [0025], [0035]–[0039], [0041]–[0042], EX1007, [0046]–[0049]. Aleksic thus evaluates the relative power cost of candidate content and features—for example, reducing video quality, shortening audio play time, or substituting a lower-power presentation—and selects the option that conserves power. EX1007, [0038], [0041], [0049], Fig. 10. A POSITA would have found it obvious to apply Aleksic’s disclosed evaluation methods to Gagner’s queue of secondary content items to create a straightforward and predicable combined system that determines displaying a second, lower-power content item (*e.g.*, a static image rather than video or audio content) will reduce battery consumption relative to the alternatives and displays that item on that basis. EX1004, [0040]–[0043], [0059]–[0060]; *see also* §IX.B.1.

402. A POSITA would have been motivated to combine Aleksic’s portable device controller and runtime predictor module with Gagner’s wagering content display system to display prioritized secondary content that reduces battery consumption, thus facilitating Gagner’s “power management” functionality and extending battery life/play time of Gagner’s wagering device. Accordingly, the Gagner-Liu-Mitchell-Aleksic system teaches or renders obvious Claim 5.

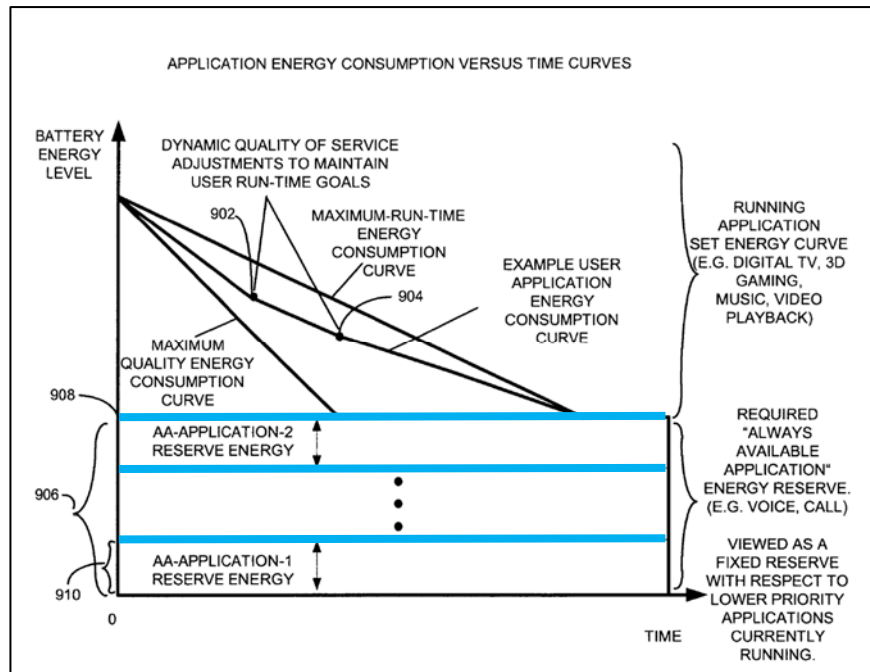
3. **Claim 6**

6[a]-6[b]: The mobile phone of claim 1, wherein the at least one computer processor is further configured to: determine a battery level at the mobile phone is below a predefined threshold; and

403. The Gagner-Liu-Mitchell system teaches a mobile phone with at least one computer processor for the reasons discussed for Limitations 1[a]-1[b] of Ground 1. *See also* Claim 5.

404. Aleksic teaches determining that a battery level is below a predefined threshold. Aleksic explains that known portable devices can operate in a low-battery condition when battery capacity drops below a threshold, and that a low-battery threshold may trigger power-reduction operations such as dimming displays or shutting down features. EX1007, [0002]–[0003]. Aleksic also teaches a battery energy level monitor and user-settable thresholds for reserve power or emergency-call functionality. EX1007, [0036]–[0039], [0041].

405. For example, Aleksic’s Figure 9 shows reserve battery energy levels and teaches that, once the battery energy level is met, the controller does not allow certain applications or features, such as a game application, to execute; at a lower emergency-call level, no other applications are allowed so that the device can preserve power for emergency calls. EX1007, [0041].



EX1007, Fig. 9.

6[c]-6[e]: *in response to the determination the battery level is below the predefined threshold, alter a manner of operation of the mobile phone to conserve the battery level, wherein to alter the manner of operation of the mobile phone to conserve the battery level, the at least one computer processor is configured to: dim a brightness level of the touch screen of the mobile phone; reduce a volume level of a speaker of the mobile phone; or shorten a video length of the low priority data.*

406. Aleksic teaches acting in response to the battery level falling below the threshold. When the reserve or threshold condition is met, Aleksic selects revised power profiles, reduces quality of service, shuts down lower-priority applications, or enters a lower-power mode to preserve power for higher-priority functions.

EX1007, [0041]–[0049].

407. Aleksic teaches altering a manner of operation of the mobile phone to conserve battery level. Aleksic dynamically controls functional processing capabilities to provide power for higher-priority features at the expense of lower-priority features, including by selecting which applications operate, reducing quality of service, changing clock rates or supply voltages, shutting down applications, or otherwise reducing power consumption. EX1007, [0022]–[0025], [0033]–[0034], [0042]–[0049].

408. Aleksic teaches the specific claimed examples of altering operation. For dimming, Aleksic explains that known portable devices can reduce power consumption by dimming displays when in a low-battery condition. EX1007, [0002]. For reducing volume, Aleksic's Figure 10 identifies digital-audio play time or volume level as a device-function setting that can be adjusted as battery power decreases. EX1007, [0049], Fig. 10. For shortening video length or otherwise reducing video output burden, Aleksic teaches changing video resolution, frame rate, and application quality-of-service settings for games, video, and other multimedia applications to reduce power consumption. EX1007, [0025], [0042], [0045], [0049].

QOS SETTINGS - AS BATTERY LEVEL DROPS, RUN APPS THAT ARE NOT LOWEST PRIORITY		
1002 → PRIORITY	DEVICE FUNCTION	USER SETTING → 1000
5	VOICE (PHONE)	10MIN ← 1004
3	DIGITAL AUDIO PLAYER	10MIN (OR VOLUME LEVEL)
2	VIDEO (E.G. CAMERA)	RESOLUTION SETTING
4	EMAIL	1MBYTE
1	GAMES	FRAMES/SEC OR RESOLUTION SETTING

FIG. 10

EX1007, Fig. 10.

409. Accordingly, Aleksic in combination with the Gagner-Liu-Mitchell system teaches or renders obvious Claim 6.

4. Claim 7

7. *The mobile phone of claim 1, wherein the at least one computer processor is further configured to: determine not to download second low priority data from the one or more server computers based on a determination that a battery level at the mobile phone is below a predefined threshold.*

410. The Gagner-Liu-Mitchell system teaches a mobile phone with at least one computer processor for the reasons discussed for Limitations 1[a]-1[b] of Ground 1. *See also* Claims 5 and 6.

411. Aleksic combined with the Gagner-Liu-Mitchell system teaches determining not to download second low-priority data based on a battery level below

a predefined threshold. As discussed in Ground 1, Gagner's content server generates "control information," which allows Gagner's wagering device to "assemble" secondary content notifications by "obtaining" content stored on the server and "download[ing]" by the terminal to display. EX1004, [0054], [0088]; *see also* Limitation 1[g]. Gagner also discloses assembling and displaying content based on "rules" or "logic." EX1004, [0039].

412. Aleksic teaches selecting which applications operate and shutting down or limiting lower-priority applications based on battery capacity, including operations that require communication with a server to hold back lower-priority data such as email, and Figure 9 teaches that certain lower-priority applications are not allowed to execute after a battery threshold is reached. EX1007, [0033], [0041], Fig. 9; *see also* Claim 6. Aleksic also teaches selecting which application will operate based on received signal strength and battery capacity information. EX1007, claim 30. A POSITA would have understood that not downloading second low-priority content from a server is an obvious power-saving implementation of Aleksic's instruction to limit or shut down lower-priority functions when battery capacity is below a threshold. Thus, a POSITA would have been motivated to combine Aleksic's teachings with Gagner's "logic" for displaying secondary content to limit downloading of additional secondary content when assembling notifications based on battery thresholds, preserving battery and increasing wagering on Gagner's

device. Accordingly, the Gagner-Liu-Mitchell-Aleksic system teaches or renders Claim 7.

F. Ground 5 (Gagner + Liu + Mitchell + Louch)

1. Motivation to Combine

413. A POSITA would have been motivated to combine Louch's teachings with the Gagner-Liu-Mitchell system. Louch is analogous art to the '284 Patent because it is directed to mobile devices—including mobile phones and smartphones—that utilize sensors and processor-executed instructions to automatically adjust device features such as audio output and display characteristics based on detected device state. EX1008, Abstract, [0003]–[0004], [0010]–[0013]; §IX.B.1. Like Gagner and Liu, Louch discloses mobile devices with touch-sensitive displays, graphical user interfaces, microphones, speakers, and processors that execute software instructions to control device operation. EX1008, Figs. 2–3, [0018]–[0020], [0038]–[0039]; §IX.B.1. The '284 Patent's technical field likewise includes mobile devices with sensors, processors, touch screens, and the ability to adjust display and audio characteristics. EX1001, Fig. 2, 19:32-48, 20:4-7; 20:14-16.

414. A POSITA would have been motivated to combine Louch's teachings regarding sensor-based automatic control techniques with the Gagner-Liu-Mitchell system to automate device adjustments and enhance user experience through

automated adjustments, increased battery life during mobile wagering, and hands-free operation. While the Gagner-Liu-Mitchell system discloses that wagering game devices include mobile phones, such as smartphones, with touch screens (*see, e.g.*, Limitations 1[a] and 1[c]) and audio content with volume control (*see, e.g.*, EX1004, [0058]), Gagner, Liu, and Mitchell do not expressly teach automatically adjusting brightness based on ambient light sensor readings or automatically adjusting speaker volume based on microphone-detected noise levels and user proximity.

415. Louch discloses these features. Louch recognized that “[a] typical speakerphone system for a mobile device is controlled by hardware and/or software mechanisms which require the user to make physical contact with the mobile device,” and that “the manual steps of activating and deactivating the speakerphone system can be annoying to the user.” EX1008, [0003]. To solve this problem, Louch discloses an improvement over manual controls: a system that is “automatically controlled based on the current state of the mobile device” using sensors to detect device and environmental conditions. EX1008, Abstract, [0004]. Louch teaches that “an ambient light sensor 270 can also be used to determine the current state of the device” and that “the ambient light sensor 270 can be utilized to facilitate adjusting the brightness of the display 202[.]” EX1008, [0021], [0023]. Louch also teaches that “the microphone 122 can be used as a volume sensor which can detect the user’s voice volume” and that “the sensitivity of the microphone 122 and/or the volume of

the loudspeaker 124 can be adjusted in correspondence with the proximity change, thus guaranteeing optimal voice quality.” EX1008, [0022], [0052]. Louch further teaches that the device state includes detecting whether a user is near the device using multiple methods, including proximity sensors, voice detection via the microphone, and image capture via a camera. EX1008, [0021]–[0022], [0032], [0051].

416. A POSITA would have had a reasonable expectation of success in combining Louch’s teachings with the Gagner-Liu-Mitchell system because: (1) all references use compatible client-server architectures with processors executing software instructions (EX1004, [0061]–[0063]; EX1005, [0016]–[0018]; EX1010, 5:30-55; EX1008, [0043]; §IX.B.1); (2) Gagner already discloses wagering game devices with displays, speakers, and microphones (EX1004, [0052]–[0053], Fig. 8); (3) Louch provides detailed guidance on implementing sensor-based automatic adjustments for display brightness and speaker volume (EX1008, [0021]–[0023], [0052], Fig. 5); and (4) the combination requires only software-based modifications that are well within the capabilities of a POSITA. The result would be predictable: the Gagner-Liu-Mitchell wagering system enhanced with Louch’s ability to automatically adjust display brightness in response to ambient light conditions and to automatically adjust speaker volume based on detected user proximity and

ambient noise levels—eliminating “annoying” manual adjustments and improving user experience during mobile wagering.

2. Claim 8

- 8. *The mobile phone of claim 1, wherein the at least one computer processor is further configured to: detect, via a light sensor of the mobile phone, that a level of ambient light is above a predefined threshold; and alter a brightness level of the touch screen of the mobile phone.***

417. Louch teaches determining a “state” of a mobile device, such as a mobile phone, and “control action” can be undertaken by the processor of the mobile device to adjust a state of the mobile device. EX1008, [0010], [0012]–[0013]. The change, for example, can be adjusting a graphical user interface or any suitable control action. *Id.*

418. Louch teaches “an ambient light sensor 270 can also be used to determine the current state of the device,” and “the ambient light sensor 270 can be utilized to facilitate adjusting the brightness of the display 202[.]” EX1008, [0021]. The adjustment of the screen brightness can be performed automatically. EX1008, Fig. 4, [0049].

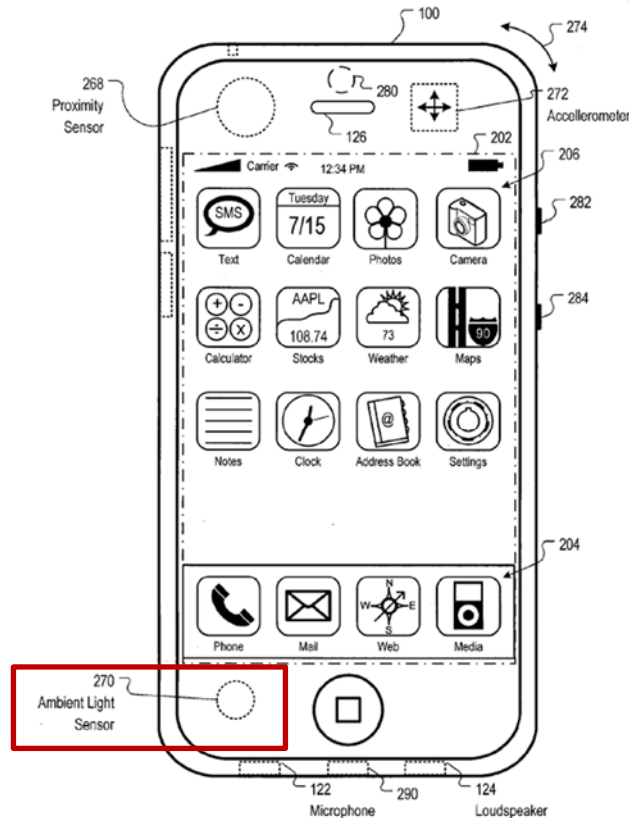


FIG. 2

EX1008, Fig. 2. Additionally, the devices in Louch are touch screens, similar to Gagner and Liu. EX1008, Fig. 2, Fig. 3, [0019], [0020], [0039]; *see also* Limitations 1[a] and 1[c].

419. Louch teaches that the “state of the mobile device” can be “defined by ... [t]he combination of [] sensor inputs” being above or below “a threshold value.” EX1008, [0014]–[0016]. Louch teaches that “control action[s]” (*e.g.*, “automatically controlling one or more graphical user interfaces[,]” including “adjusting the volume of the loudspeaker[,]” “adjusting the brightness of the display[,]” or “any other suitable control action”) can be triggered to change the state

of the device or “based on the current state of the device [] as determined by the state machine.” EX1008, [0004], [0012]–[0013], [0017], [0023], [0049]. A POSITA would have understood that using an ambient light sensor to facilitate adjusting the brightness of the display 202 would increase or decrease the brightness of the display based on the amount of ambient light detected by the sensor. A POSITA would further have understood that Louch’s threshold value is predetermined so that the mobile device can “automatically” adjust the display brightness when the detected ambient light crosses the threshold.

420. A POSITA would have been motivated to combine Louch and Gagner because Gagner discloses that its gaming application can run on “cell phones” like Louch’s device. A POSITA would have also been motivated to combine the ambient light sensor and dimming functionality of Louch’s device with the Gagner wagering device to improve the visibility of wagering content and secondary notifications under changing ambient light conditions. Gagner further motivates this combination by emphasizing that “very important or urgent” secondary content should be prioritized on the display so that “the secondary content [] become[s] very noticeable” and achieves “maximum notoriety.” EX1004, [0039]–[0040]. A POSITA would have understood that automatically adapting screen brightness to ambient light, as taught by Louch, would further Gagner’s objective of ensuring that

important content is displayed in a readily visible manner to the user without requiring manual adjustments in the middle of a wagering game.

421. Accordingly, Louch combined with the Gagner-Liu-Mitchell system teaches or renders obvious Claim 8.

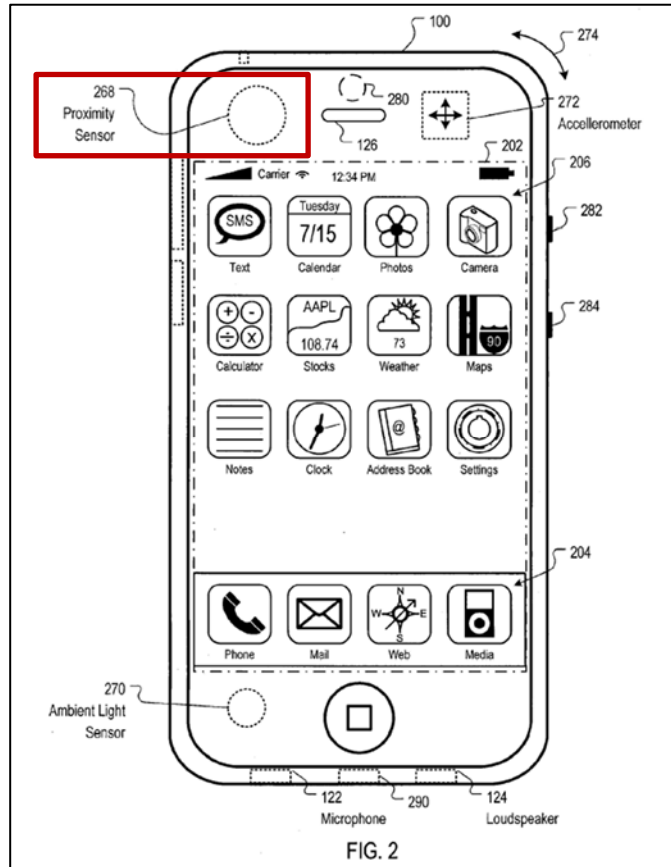
3. Claim 9

9[a]: The mobile phone of claim 1, wherein the low priority data includes audio and the at least one computer processor is further configured to:

422. Gagner teaches that low-priority data can include audio. *See, e.g.*, EX1004, [0008] (“the secondary content comprises any one or more of audio information”), [0040], [0052], [0053]. Additionally, the computer processor includes the instructions, in the form of code, to carry out the functions. *See also* Limitation 1[a].

9[b]: determine that the user is near the mobile phone;

423. Louch discloses a “proximity sensor” (red) embedded in a mobile phone that detects a device “state,” such as whether the device is next to an object like the user or the user’s head or ear. EX1008, [0016], [0021].

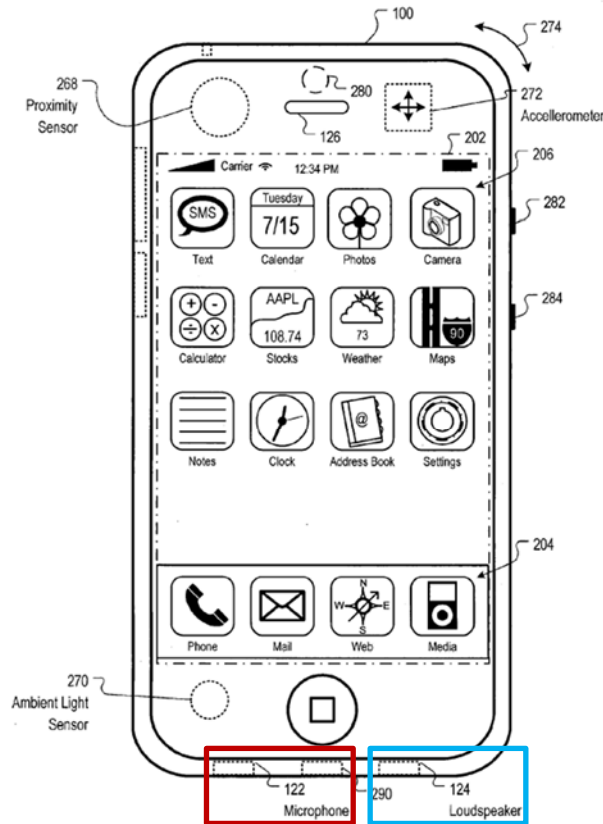


EX1008, Fig. 2.

9[c]: detect, via a microphone of the mobile phone, that a level of ambient noise is above a predefined threshold based on a determination that the user is near the mobile phone; and

424. Gagner teaches that the processor in the mobile phone can determine if the user is near a device. EX1004, [0079].

425. Louch teaches a mobile device, such as a mobile phone, with a **microphone** connected to the **speaker system**. EX1008, [0010], [0018], [0033].



EX1008, Fig. 2.

426. The microphone is used to detect the level of noise, which can be a defined state of the mobile device. EX1008, [0051], [0058]. The mobile device can further include “audio management instructions” to “facilitate functions managing audio subsystem, including the loudspeaker 124, and the microphone 122.” EX1008, Fig. 3, [0044]. As discussed above, “the volume of the loudspeaker [] can be adjusted in correspondence with the proximity change, [to] guarantee[] optimal voice quality.” EX1008, [0052]; §IX.F.1.

427. Louch teaches that the mobile device can “learn[]” particular actions or patterns. EX1008, [0057]. The device can learn “a signature of proximity” or other patterns and compare them to, for example, detected volume levels to adjust the mobile device according to a pattern of adjustments that the user has made in the past. EX1008, [0057]–[0059].

9[d]: increase a volume level of a speaker of the mobile phone;

428. Gagner teaches the control information can specify the volume of the content presented by the wagering device, and that content can be dynamically controlled according to rules or logic. EX1004, [0058]. A louder specified volume would include an increase in the volume level of the speaker. EX1004, [0058].

429. Louch teaches automatically adjusting the speaker volume or activating speakerphone based on certain conditions, including adjusting loudspeaker volume in correspondence with detected conditions to “guarantee[] optimal voice quality.” EX1008, [0013]–[0014], [0031]–[0033], [0044], [0052]. A POSITA would have been motivated to combine Louch’s teachings to automatically increase volume settings based on user-proximity and ambient noise with Gagner’s secondary content display rules to increase user interactivity with displayed secondary content. §IX.F.1.

9[e]: wherein to determine that the user is near the mobile phone, the at least one computer processor is further configured to: identify a user voice in audio detected by the microphone of the mobile phone; identify the user in an image captured by a camera at the mobile

phone; or identify a signal from a second mobile phone by an antenna of the mobile phone.

430. Louch and Gagner both teach detecting when the user is near the mobile phone.

431. Louch teaches activating or deactivating the speaker phone by detecting if the user's voice is oriented toward or away from the microphone. Louch also teaches that the microphone can be used as a volume sensor that can detect the user's voice volume and that the state of the device can be determined based on a proximity or distance to a user. EX1008, [0022] ("microphone 122 can be used as a volume sensor which can detect the user's voice volume. For example, when the volume level from the voice source exceeds a default value, an assumption can be made that the user is speaking directly into the microphone 122 while holding the mobile device 100 to their ear, resulting in the speakerphone system being deactivated."), [0051] ("the current state can be any desired state of the mobile device 100, including but not limited to: the mobile device 100 being orienting towards or away from a user; the mobile device 100 being in proximity or within a distance to a user; ... volume levels received at the microphone 122; ... and other events that tend to denote a change of position, orientation, or state of the mobile device 100.").

432. Louch further teaches "[t]he camera can capture still images and/or video. In some implementations, the images captured by the camera can be used to measure proximity to a user or if the mobile device 100 is held by the user and the

speakerphone system and graphical user interface can be activated or adjusted accordingly.” EX1008, [0032].

433. Gagner teaches that the wagering game machine can connect to other devices on the network by Bluetooth, which includes the identification of a signal from another mobile phone by the user’s mobile phone. EX1004, [0061] [0096] (“Bluetooth transceiver”). Louch also teaches communication protocols such as Bluetooth. EX1008, [0033]. Accordingly, Louch combined with the Gagner-Liu-Mitchell system teaches or renders obvious Claim 9.

G. Ground 6 (Gagner + Liu + Mitchell + Felt)

1. Motivation to Combine

434. A POSITA would have been motivated to combine Felt’s teachings with the Gagner-Liu-Mitchell system. Felt is analogous art to the ’284 Patent because it is directed to secure messaging frameworks for transaction processing systems in which messages—including application-level messages—are transmitted between servers and client devices using digital signatures and encryption to ensure authentication, integrity, and controlled temporal validity. EX1009, Abstract, [0049], [0094]–[0095], Fig. 6. All references use compatible client-server architectures to transmit messages over networks, including the Internet. EX1009, [0004]–[0009], [0015]–[0016], [0094]–[0095]; §IX.B1. Gagner further teaches that users log in and are authenticated by credentials and other functions of the device

include “security checks” (EX1004, [0068], [0085]), and Liu teaches a security module for secure messaging and authentication (EX1005, [0054]–[0055]). The ’284 Patent’s technical field likewise includes mobile wagering devices that receive content from servers over networks and that authenticate and verify messages. EX1001, 17:66-18:45.

435. A POSITA would have been motivated to combine Felt’s teachings regarding digital signature and timestamp verification techniques with the Gagner-Liu-Mitchell system to provide secure messaging between the client devices and the servers. While Liu teaches a “security module” for “encryption and/or authentication of messages sent between mobile terminal 100 and game server 150” (EX1005, [0054]–[0055]), and Gagner teaches authenticating user credentials and performing “security checks” before allowing mobile wagering devices to receive content from servers over the Internet (EX1004, [0061], [0068], [0085], [0090]), neither reference expressly teaches receiving low-priority data with a digital signature and timestamp, authenticating that signature, or determining that the timestamp falls within a predefined time window.

436. Felt discloses these features. Felt recognized that “[m]essage-based digital signatures enhance transaction server security by allowing a message originator to prove its identity, and to bind that proof to a specific message buffer,” and that “[m]utually authenticated and tamper-proof communication is considered

essential for most applications that transport data over the Internet, either between companies or between a company and the general public.” EX1009, [0113]. To address these security concerns, Felt teaches a system where digital signatures include timestamps that are “included as an authenticated attribute in the checksum calculation, so that tampering with the time stamp value will be detected when a signature is verified.” EX1009, [0114], [0223]. Felt teaches that a “server may choose to reject requests with time stamps too old or too far in the future,” providing “a measure of protection against replay attacks.” EX1009, [0114]. Felt further provides specific administrative parameters for configurable “Signature Timestamp Windows,” including offsets that define acceptable time ranges—SIGNATURE_AHEAD limits how far into the future a valid signature’s timestamp may be, and SIGNATURE_BEHIND limits how far into the past. EX1009, [0301]–[0304]. These parameters enable the detection and rejection of signatures with timestamps outside the predefined window. EX1009, [0255]–[0259], [0301]–[0304]. A POSITA would have found it obvious to apply Felt’s security techniques to Gagner’s server-provided secondary content using Liu’s existing message-security framework.

437. A POSITA would have also been motivated to combine Felt’s teachings with the Gagner-Liu-Mitchell system because Gagner’s secondary content presents a particular need for the configurable signature timestamp techniques taught by Felt.

Gagner teaches embodiments where the value of the secondary content depends on when it is displayed. For example, Gagner's wager-multiplier notification offers a "quadruple" bet that degrades to "triple" and then "double" as time passes, and its betting notifications are tied to scheduled event times. EX1004, [0042], [0070]–[0071]. A POSITA would have recognized that time-limited wagering offers delivered over the Internet would be verified as authentic and current before display, because a stale or altered offer would expose the operator to honoring terms it never authorized. These protections would have predictably improved the authenticity, integrity, and temporal validity of Gagner's Internet-delivered secondary content.

438. A POSITA would have had a reasonable expectation of success in combining Felt's teachings with the Gagner-Liu-Mitchell system because: (1) all references use compatible client-server architectures transmitting data over networks (EX1004, [0061]–[0063]; EX1005, [0016]–[0018]; EX1010, 5:30-55; EX1009, [0004]–[0009]; §IX.B.1); (2) Liu already contemplates a security module for authentication of messages between mobile terminal and game server (EX1005, [0054]) and Gagner teaches other functions of the device include security checks (EX1004, [0063]); (3) Felt provides detailed guidance on implementing digital signatures with timestamps, signature verification, and configurable time windows for accepting or rejecting signed messages (EX1009, [0113]–[0123], [0301]–[0304], Figs. 10–13); and (4) the combination requires only software-based modifications

that are well within the capabilities of a POSITA. The result would be predictable: the Gagner-Liu-Mitchell wagering system enhanced with Felt’s ability to receive digitally signed content with timestamps, authenticate the digital signature, and verify that the timestamp is within a predefined time from the current time—providing the security benefits that Felt recognized as “essential” for applications transporting data over the Internet. This combination would enable a mobile wagering platform to securely verify the authenticity and temporal validity of low-priority content such as advertisements, while providing protection against tampering and replay attacks—a known security concern for any Internet-connected mobile device receiving server content.

2. Claim 10

10[a]: The mobile phone of claim 1, wherein the low priority data includes a digital signature from the one or more server computers and a timestamp, and the at least one computer processor is further configured to:

439. As discussed in Limitations 1[e] and 1[p]-1[q] of Ground 1, Gagner teaches receiving low-priority secondary content from one or more servers after authenticating log-in credentials.

440. Liu further teaches a “security module” in the mobile device that “provides for encryption and/or authentication of messages sent between mobile terminal 100 and game server 150.” EX1005, [0054].

441. Felt combines message-based encryption and message-based digital signatures into a reliable and secure messaging authentication system. EX1009, [0049]. The digital signatures include verifiable timestamps. EX1009, Abstract. Felt describes a “message digest” as the result of a hash of a message. EX1009, [0072]; *see also* EX1001, 17:66-18:8. Message digests are included in Felt’s digital signature processes and are combined “with the private key of the sender” to create the digital signature. EX1009, Figs. 9-11, 13, [0120]–[0121]. Felt teaches that “[t]he digital signature is then sent together with the message ... to the receiving party.” EX1009, [0121]. Felt’s system provides the ability for any two devices or any third party to a transaction between other devices to verify a transaction and maintain security. EX1009, [0017].

442. Felt teaches a “transaction server” as a first party and a client or other server as a second party, which messages using the system described by Felt are passed back and forth between. EX1009, [0094]. Gagner, Liu, and Mitchell all teach similar system architectures with servers and client devices. *See, e.g.*, EX1004, [0046]; EX1005, Fig. 1; EX1010, 5:30-55.

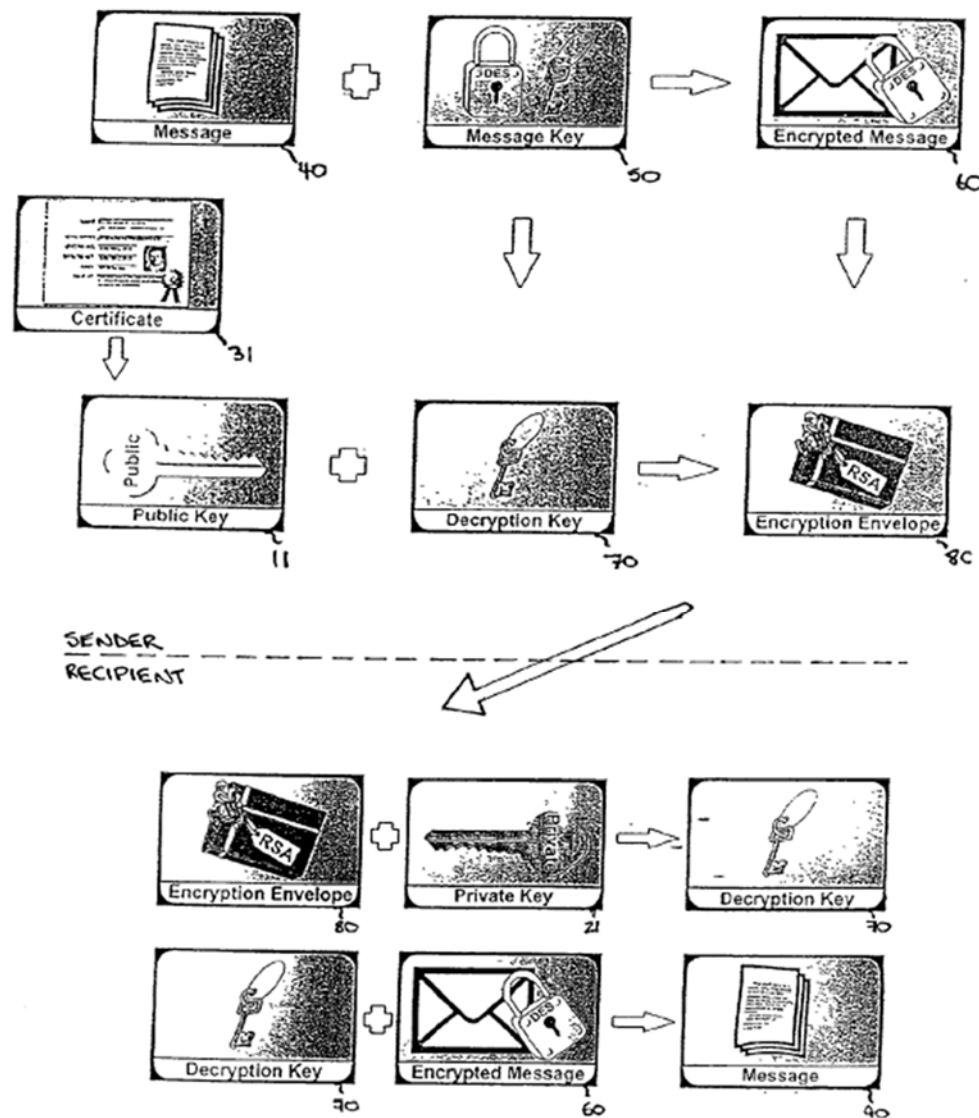


FIG. 9

EX1009, Fig. 9. As illustrated in Figure 9, the sender and recipient are any two devices in communication.

443. Felt teaches encrypting messages and then signing the encrypted messages with a digital signature. EX1009, [0034]. "A time stamp, based on the message signer's local clock, can be attached to the signature. The time stamp is

included as an authenticated attribute in the checksum calculation, so that tampering with the time stamp value will be detected when a signature is verified.” EX1009, [0114], [0222]–[0223]. Indeed, “[w]hen a signature is generated, a timestamp from the local system’s clock is attached.” EX1009, [0236]. Felt teaches that the sender can handle it automatically or rely on a call to a signing function. EX1009, [0116]–[0119].

444. Digital signatures were widespread as a method of authentication in network communications. They were the subject of multiple Internet standards, including RFC 3126 in September 2001, entitled, “Electronic Signature Formats for long term electronic signature.” EX1065. That RFC also teaches timestamping:

This document also specifies the uses of time-stamping services to prove the validity of a signature long after the normal lifetime of critical elements of an electronic signature and to support non-repudiation.

...

Additional data also includes time-stamps and other time related data used to provide evidence of the timing of given events. It is required, as a minimum, that either the signer or verifier obtains a time-stamp over the signer's signature or a secure time record of the electronic signature must be maintained. Such secure records must not be undetectably modified and must record the time close to when the signature was first validated.

Id.

445. A POSITA would regard an Internet standard as conventional because of its widespread dissemination. *See, e.g.*, §§VIII.L (RFC 3161), VIII.M (RFC 3126), and VIII.Z (RFC 3971).

446. The original sender of the message carries out the steps of creating, encrypting, and digitally signing the message, as well as including the time stamp. EX1009, [0114], [0116]–[0119].

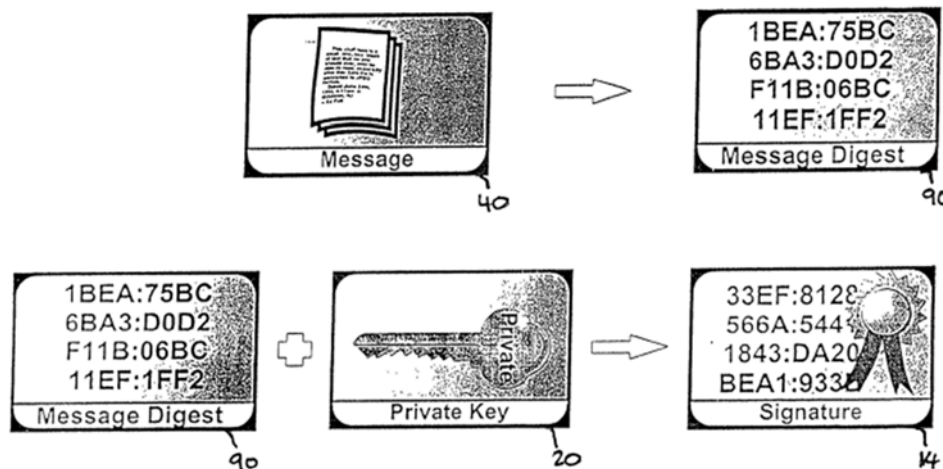


FIG. 10

EX1009, Fig. 10. Figure 10 is an illustration of the digital signature creation process.

447. Felt teaches that a timestamp is part of the digital signature such that altering the timestamp is detectable. EX1009, [0114], [0223]; EX1001, 18:24-44. A POSITA would have known to use digital signatures as a widespread method of authentication in network communications (EX1039; EX1052; EX1065) and been motivated to combine Felt's message-security teachings with Gagner's secondary content such that the content is secured by a digital signature from the server with a

verifiable timestamp. *See also* §IX.G.1. Moreover, Felt's disclosed security techniques could be applied to enhance communications between any devices in Gagner's or Liu's networks. EX1009, [0033].

448. Thus, Felt combined with the Gagner-Liu-Mitchell system teaches this limitation.

10[b]: authenticate the digital signature from the one or more server computers; and

449. Felt teaches authenticating the server's digital signature at the receiving client. A "server process can be configured to automatically sign message buffers whenever they leave the process," and "[d]igital signatures are verified whenever a signed message buffer enters a transaction process," including a "client" process. EX1009, [0253], [0273]. To verify the signature, the recipient receives the signed message, generates one message digest from the message and another using the sender's public key and transmitted signature, compares the two message digests, and if they are identical, then "the message is deemed to have arrived from a valid identified sender." EX1009, [0122]–[0123], Figs. 12-13; *see also id.*, [0016], [0033], [0095], [0113].

10[c]: determine that the timestamp is within a predefined time from a current time.

450. Felt teaches that the recipient may determine that a timestamp is "too old or too far in the future" and choose to reject it. EX1009, [0114], [0223]. Felt

provides specific instructions for creating a “Signature Timestamp Window[,],” which includes “offsets” for the predetermined times that the digital signature timestamp must fall within. EX1009, [0301]–[0304]; *see also id.*, [0255]–[0259]. Thus, Felt combined with the Gagner-Liu-Mitchell system teaches this limitation. Accordingly, Felt combined with the Gagner-Liu-Mitchell system teaches or renders obvious Claim 10.

H. Ground 7 (Gagner + Liu + Mitchell + Mgrdechian)

1. Motivation to Combine

451. A POSITA would have been motivated to combine Mgrdechian’s teachings with the Gagner-Liu-Mitchell system. Mgrdechian is analogous art to the ’284 Patent because it is directed to wireless communication systems in which mobile devices discover neighboring devices using local wireless protocols—including Bluetooth—and enable users to target and transmit information to those detected devices. EX1011, Abstract, [0010]–[0012], [0026], [0072]. Like Gagner and Liu, Mgrdechian discloses systems in which mobile devices connect to servers over wireless networks, retrieve user-related information (*e.g.*, profile information), and enable communication between users based on that information. EX1011, [0071]–[0075]; §IX.B.1. Gagner similarly teaches mobile wagering devices that connect to networks and include “Bluetooth transceiver[s]” for device-to-device communication. EX1004, [0061], [0096]. The ’284 Patent’s technical field likewise

includes mobile phones that detect nearby devices using Bluetooth or NFC, target those devices, and transmit content to them. EX1001, Claim 12.

452. A POSITA would have been motivated to combine Mgrdechian's teachings regarding local device discovery and targeted transmission techniques with the Gagner-Liu-Mitchell system to enable mobile wagering devices to detect nearby users and share promotional or wagering-related content directly between devices. While Gagner teaches that secondary content can notify a player that "a friend has entered the casino" and that users may have "friends" lists in their user accounts (EX1004, [0043], [0082]), and while Gagner further teaches Bluetooth-enabled wagering devices (EX1004, [0061], [0096]), Gagner does not expressly teach using a local wireless protocol to detect a second mobile phone, target that phone via a user interface, and transmit content directly to the targeted device.

453. Mgrdechian discloses these features. Mgrdechian recognized that it "would clearly be advantageous to develop a system whereby a user could access information about a specific person in their general location" and "initiate communications with this person by sending them a message[.]" EX1011, [0010]. To address this need, Mgrdechian teaches that an initiating device broadcasts "a wireless inquiry to neighboring devices ... requesting that they provide their unique identification numbers" using "any Bluetooth or any 802.11 standard" or equivalent local wireless protocol. EX1011, [0026], [0072]. Once device IDs are received,

“User A can scroll through them to uniquely select the person with whom they are attempting to communicate[,]” and the initiating device can then “transmit[] information ... directly to the target device.” EX1011, [0030], [0077], [0081], Figs. 4–5. Mgrdechian specifically teaches that this technique is advantageous for “entertainment or other gaming applications operating on mobile devices when one player decides to initiate or play a game with another.” EX1011, [0045]. A POSITA would have found it obvious to use Mgrdechian’s local device discovery and targeting techniques in Gagner’s mobile wagering system to yield the predictable result of allowing wagering device users to detect friends or other players in their vicinity and share the same server-provided low-priority data—such as promotional offers, game invitations, or betting opportunities—directly with targeted recipients. EX1004, [0043], [0082]; EX1011, [0045], [0077]–[0079].

454. A POSITA would have also been motivated to combine Mgrdechian’s teachings with the Gagner-Liu-Mitchell system from Gagner’s teachings. For example, Gagner expressly contemplates scenarios where secondary content is triggered by proximity to other users or friends. Gagner teaches that “[t]he secondary content notification 505 includes information indicating that a friend, ‘Jane’, has entered the casino, and identifies the location of the friend within the casino” and that the system can access “user accounts” that may include “friends” lists and other social information. EX1004, [0043], [0082]. This demonstrates Gagner’s interest in

social features for wagering systems, which Mgrdechian's device discovery techniques would directly enhance. Gagner further contemplates personalizing content based on user identity, teaching that "[a] secondary content notification can utilize a player's avatar, or other identifying information, as obtained from the user's account" and that such identifying information "can be manipulated to appear in the secondary content." EX1004, [0104]. A POSITA would have understood that combining these avatar and identification features with Mgrdechian's device-discovery techniques would enable a wagering device to present personalized information about nearby friends or players, enhancing the social experience of mobile wagering.

455. A POSITA would have had a reasonable expectation of success in combining Mgrdechian's teachings with the Gagner-Liu-Mitchell system because: (1) all references operate on compatible client-server architectures that execute software applications and communicate over wireless networks (EX1004, [0061]–[0063]; EX1005, [0016]–[0018]; EX1010, 5:30-55; EX1011, [0071]–[0075]; §IX.B.1); (2) Gagner already teaches mobile wagering devices with Bluetooth transceivers for wireless communication (EX1004, [0061], [0096]); (3) Mgrdechian provides detailed guidance on implementing local device discovery using Bluetooth and equivalent protocols, device ID transmission, profile retrieval, and targeted messaging (EX1011, [0026], [0071]–[0079], [0091]–[0092], Figs. 4–8); and (4) the

combination requires only software-based modifications well within the capabilities of a POSITA. The result would be predictable: the Gagner-Liu-Mitchell wagering system enhanced with Mgrdechian's ability to detect nearby mobile devices using Bluetooth, retrieve and display profile information about those devices' users, present the user with a targeting interface for selecting recipients, and transmit promotional content or wagering-related information to targeted devices—enabling the kind of social wagering interactions that Gagner expressly contemplated.

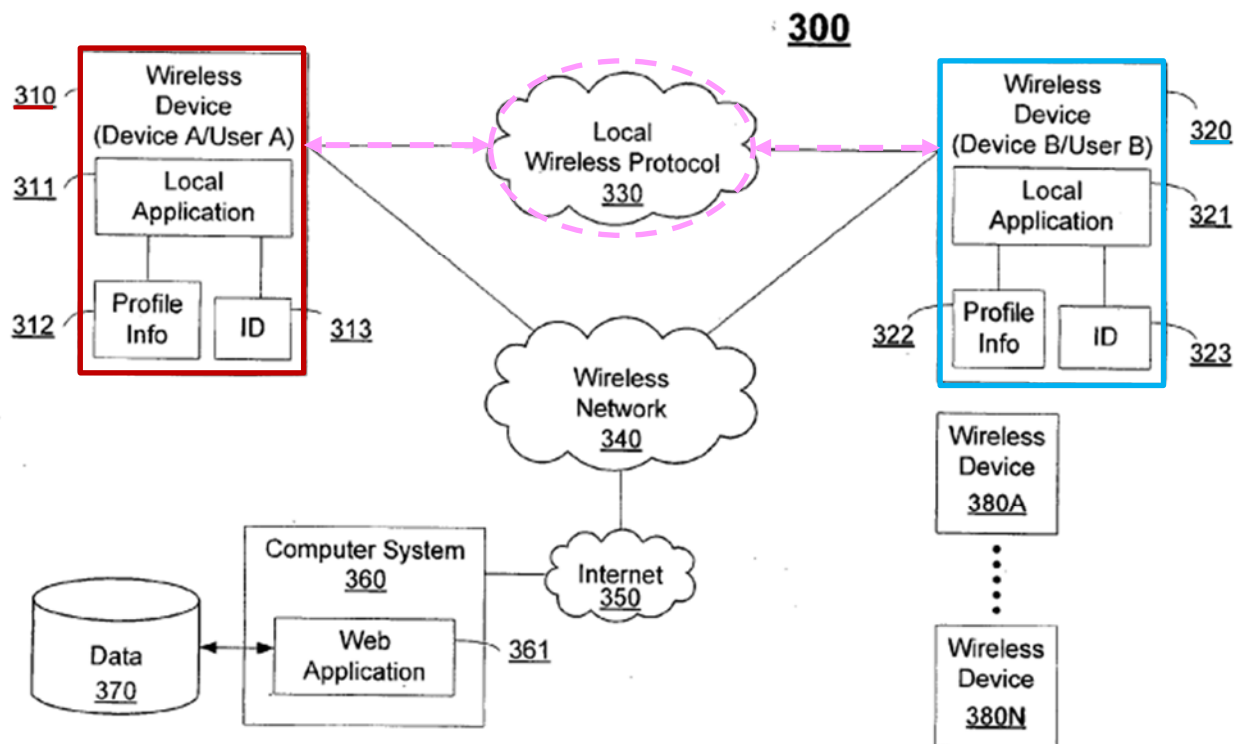
2. Claim 12

12[a]-12[b]: The mobile phone of claim 1, wherein the at least one computer processor is further configured to: detect a second mobile phone based on a signal from the second mobile phone, wherein the signal includes Bluetooth data or near field communication (NFC) data;

456. The Gagner-Liu-Mitchell system teaches a mobile phone with at least one computer processor for the reasons discussed for Limitations 1[a]-1[b] of Ground 1.

457. Mgrdechian independently teaches dynamic communication systems and methods for mobile device messaging and connections. EX1011, Abstract, [0010]–[0012]. Mgrdechian teaches wireless devices, which can be hardware or software embedded cellphones, that can connect and communicate information. EX1011, [0017], [0039], [0041]. Software can be downloaded to the device(s) to perform the described operations. EX1011, [0047].

458. Mgrdechian further teaches detecting a second mobile phone based on a Bluetooth or NFC data signal from the second mobile phone. Mgrdechian's wireless devices—including cell phones and PDAs—may “act as both Sender and Recipient” and communicate directly when within wireless range. EX1011, [0039], [0072]. For example, Device A (red) sends an identification request to nearby devices, and Device B (blue) responds by transmitting its device ID to Device A using a “local wireless protocol,” which includes “Bluetooth, an 802.11 protocol, Zigbee or equivalent wireless technology for establishing a peer-to-peer or ad hoc network or detecting the presence of other wireless devices and exchanging device IDs.” EX1011, [0072]. The local wireless protocol can detect or communicate with all devices in its range. EX1011, [0104].



EX1011, Fig. 3A.

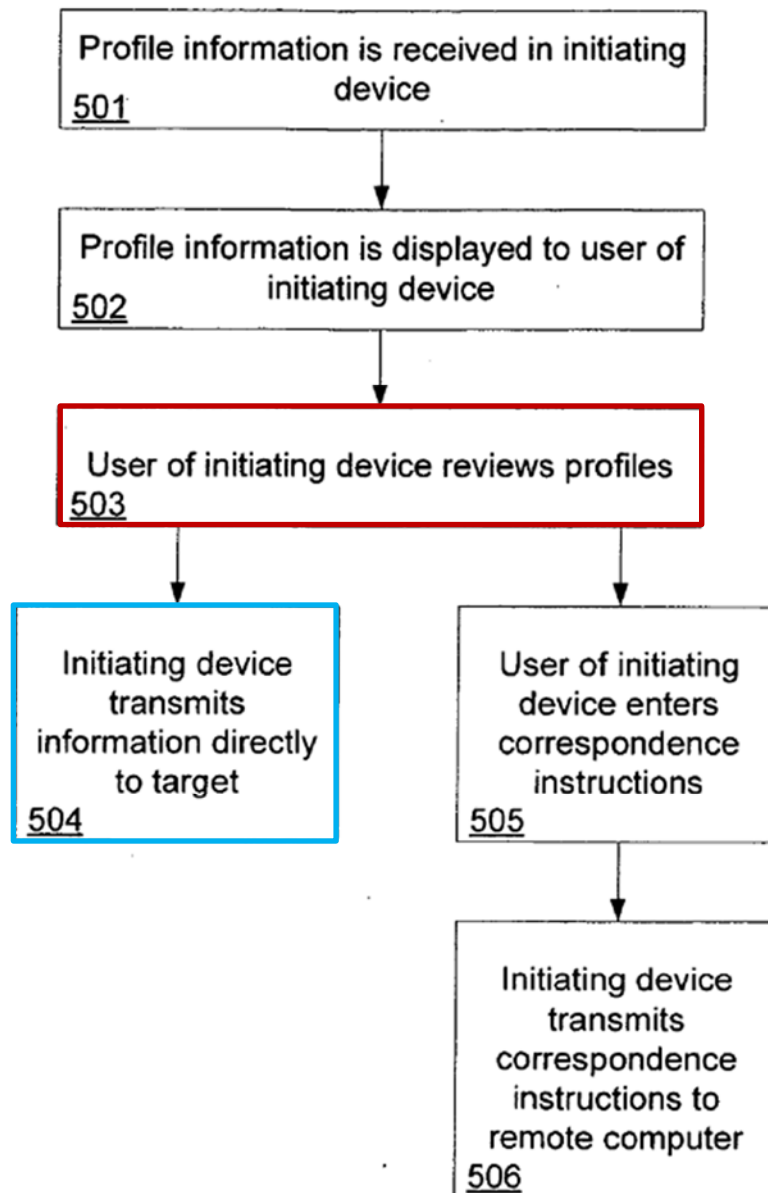
459. In Mgrdechian's Bluetooth embodiment, "cellular phones 810 and 820" communicate using "Bluetooth Protocol 830," and Device B sends a "reply 802" containing its "wireless device ID[]" to Device A. EX1011, [0090]–[0091], Fig. 8. Thus, the "reply" sent by Device B to Device A necessarily contains a signal including Bluetooth data.

12[c]-12[d]: target the detected second mobile phone via a targeting interface; and transmit the low priority data to the targeted second mobile phone.

460. Mgrdechian teaches targeting the detected second mobile phone via a targeting interface, such as a graphical user interface. As explained above for Limitation 12[a]-12[b], Mgrdechian teaches an "initiating" user and a "targeted" user for correspondence between two individuals. EX1011, [0098]–[0101]. The targeted user can set parameters about received messages, including from whom they can be received and where they can be received.

461. Mgrdechian provides a social networking application that allows user-selected targeting and detection of second phones. *See, e.g.*, EX1011, Fig. 3A-D, [0077]. After an initiating mobile device receives device IDs associated with detected devices nearby, the initiating device displays "a list of profiles" on a "graphical user interface" of the initiating device for the user to "review and select." EX1011, [0096], [0106], Fig. 11. The user may then "select the profile to view the

complete profile” and respond to the selected profile “by sending his/her own profile, a saved message or a custom message.” EX1011, [0106]. Mgrdechian also explains that the initiating mobile device displays detected users’ images, allows the user to “scroll through the images to uniquely select the person with whom they are attempting to communicate,” and then permits the user to “select a target user based on the picture” (indicated in red below) and/or “customize and send a message” “directly to the target device using the local wireless protocol” (indicated in blue below). EX1011, [0077]–[0079], [0081], [0096], [0106], Figs. 5, 8, 11.



EX1011, Fig. 5.

462. Mgrdechian also teaches transmitting the low-priority message data to the targeted second mobile phone. For example, Mgrdechian's messages or information can be sent directly to the second device, or sent to a server first then to the other device. Mgrdechian teaches that this functionality is advantageous for

initiating interactions with nearby users, including “select[ing] any of several pre-recorded audio, video, text, or other messages to send,” “forward[ing] his own user profile,” or “customiz[ing] and send[ing] a message in real-time” to a targeted user. EX1011, [0077], [0079]. A POSITA would have recognized that the “low priority data” in Gagner—which includes promotional content, advertisements, and wagering game opportunities (*see* Limitation 1[e])—could be transmitted to targeted devices using the same peer-to-peer transmission techniques that Mgrdechian uses for social networking messages. EX1004, [0048]–[0049], [0071]; *see also* §IX.H.1. Both Gagner and Mgrdechian contemplate mobile devices that can receive, process, and display various forms of multimedia content including images, audio, video, and text. EX1004, [0052]–[0053]; EX1011, [0078]. The combination would predictably enable Gagner’s wagering device to detect a nearby second device, present the user with a targeting interface showing available devices, and transmit promotional content or wagering opportunities to the selected target.

463. Direct or indirect transmission meets this limitation; therefore, Mgrdechian’s local wireless protocol (direct) or server-intermediated communications (indirect) meet the requirement of transmit.

464. Lastly, this claim addresses functionality for detecting nearby devices, targeting them via an interface, and transmitting content to those devices. This type of peer-to-peer mobile device discovery and targeted content transmission was well-

established in the art by 2009. Mgrdechian exemplifies this functionality in the context of social networking and messaging applications, where one mobile device discovers nearby devices, retrieves their profiles, and enables the user to selectively transmit information to chosen targets. EX1011, [0010]–[0012], [0077], [0079]. Thus, Mgrdechian in combination with the Gagner-Liu-Mitchell system teaches or renders obvious Claim 12.

X. CONCLUDING STATEMENT

465. Relying on my education, experience, skill, and training in the relevant field of art, and after reviewing the materials identified above, it is my opinion that all of the Challenged Claims are invalid.

XI. JURAT

466. In signing this declaration, I recognize that the declaration will be filed as evidence in a contested case before the Patent Trial and Appeal Board of the United States Patent and Trademark Office. I also recognize that I may be subject to cross-examination in the case and that cross-examination will take place within the United States. If cross-examination is required of me, I will appear for cross-examination remotely within the United States during the time allotted for such cross-examination at a time and place agreed by counsel.

467. 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

Declaration of Michael I. Shamos

U.S. Patent No. 12,406,284

further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code.

Executed September 1, 2026 at Pittsburgh, PA

By: 
Michael Ian Shamos