

UNITED STATES PATENT AND TRADEMARK OFFICE

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**BEFORE THE PATENT TRIAL AND APPEAL BOARD**

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GOOGLE LLC, SAMSUNG ELECTRONICS CO. LTD.,  
AND SAMSUNG ELECTRONICS AMERICA, INC.,  
Petitioner

v.

MULTIMODAL MEDIA LLC,  
Patent Owner.

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Case No. IPR2024-00053  
U.S. Patent No. 8,107,978

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**DECLARATION OF DR. BENJAMIN B. BEDERSON IN SUPPORT OF  
PETITION FOR *INTER PARTES* REVIEW OF U.S. PATENT NO. 8,107,978**

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**LIST OF EXHIBITS**

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| Ex-1001 | U.S. Patent No. 8,107,978                                                                                                                                                                     |
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| Ex-1006 | PCT Publication WO2007/020627 (“Roujinsky”)                                                                                                                                                   |
| Ex-1007 | U.S. Patent Publication 2005/0136955 (“Mumick’955”)                                                                                                                                           |
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| Ex-1021 | <i>Multimodal Media LLC v. Guangdong Oppo Mobile Telecommunications Corp., Ltd.</i> , 2:21-cv-00436, D.I. 65 (E.D. Tex. Apr. 24, 2023) (Claim Construction Order) (“ <i>Oppo</i> Litigation”) |

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| Ex-1022 | <i>Multimodal Media LLC v. TCL Technology Group Corporation et al.</i> , 2:22-cv-00463, D.I. 23 (E.D. Tex. Feb. 22, 2023) (Stay Order) (“ <i>TCL litigation</i> ”)                                                                                                                                                                      |
| Ex-1023 | <i>Multimodal Media LLC v. Samsung Electronics Co., Ltd. et al.</i> , 2:22-cv-00462, Infringement Contentions (E.D. Tex. May 30, 2023) (“ <i>Samsung Infringement Contentions</i> ”)                                                                                                                                                    |
| Ex-1024 | U.S. Patent Publication 2008/0219416 (“ <i>Roujinsky-US</i> ”)                                                                                                                                                                                                                                                                          |
| Ex-1025 | Alok Sinha, Client-server computing (1992), Communications of the ACM, 35, 7 (July 1992), 77–98, DOI:<br><a href="https://doi.org/10.1145/129902.129908">https://doi.org/10.1145/129902.129908</a>                                                                                                                                      |
| Ex-1026 | Benjamin B. Bederson & James D. Hollan, Pad++: A Zooming Graphical Interface for Exploring Alternate Interface Physics, UIST ‘94 Proceedings of the 7th Annual ACM Symposium on User Interface Software and Technology 17 (1994), DOI:<br><a href="http://dx.doi.org/10.1145/192426.192435">http://dx.doi.org/10.1145/192426.192435</a> |
| Ex-1027 | Tim Berners-Lee, Robert Cailliau, Ari Luotonen, Henrik Frystyk Nielsen, and Arthur Secret, The World-Wide Web (1994), Communications of the ACM 37, 8 (August 1994), 76-82, DOI:<br><a href="http://dx.doi.org/10.1145/179606.179671">http://dx.doi.org/10.1145/179606.179671</a>                                                       |
| Ex-1028 | INTENTIONALLY LEFT BLANK                                                                                                                                                                                                                                                                                                                |
| Ex-1029 | C.J. Date, An Introduction to Database Systems at 8 (7th ed. 2000)                                                                                                                                                                                                                                                                      |
| Ex-1030 | Nokia 3250 User Guide (2006), available at:<br><a href="https://ia801806.us.archive.org/32/items/manualzilla-id-5923903/5923903.pdf">https://ia801806.us.archive.org/32/items/manualzilla-id-5923903/5923903.pdf</a>                                                                                                                    |
| Ex-1031 | David Dearman, Amy Karlson, Brian Meyers, and Ben Bederson, Multi-modal text entry and selection on a mobile device (2010), In Proceedings of Graphics Interface 2010 (GI ‘10), Canadian Information Processing Society, CAN, 19–26                                                                                                     |
| Ex-1032 | AOL Instant Messenger Registration page (1999), available at:<br><a href="https://web.archive.org/web/19991127133324/http://aim.aol.com/?promo=106712&amp;pageset=Aim">https://web.archive.org/web/19991127133324/http://aim.aol.com/?promo=106712&amp;pageset=Aim</a>                                                                  |

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| Ex-1033 | Newsroom, Apple Reinvents the Phone with iPhone (Jan. 9, 2007), available at: <a href="https://www.apple.com/newsroom/2007/01/09Apple-Reinvents-the-Phone-with-iPhone/">https://www.apple.com/newsroom/2007/01/09Apple-Reinvents-the-Phone-with-iPhone/</a>                                                                                                                                                                                                    |
| Ex-1034 | U.S. Patent Publication 2007/0150830                                                                                                                                                                                                                                                                                                                                                                                                                           |
| Ex-1035 | Webster's New World Computer Dictionary 264-65 (10th ed. 2003)                                                                                                                                                                                                                                                                                                                                                                                                 |
| Ex-1036 | Elia Palme, Chuan-Hoo Tan, Juliana Sutanto, and Chee Wei Phang, Choosing the smart phone operating system for developing mobile applications (2010), In Proceedings of the 12th International Conference on Electronic Commerce: Roadmap for the Future of Electronic Business (ICEC '10), Association for Computing Machinery, New York, NY, USA, 146–152, DOI: <a href="https://doi.org/10.1145/2389376.2389397">https://doi.org/10.1145/2389376.2389397</a> |
| Ex-1037 | Microsoft Computer Dictionary 378 (5th ed. 2002)                                                                                                                                                                                                                                                                                                                                                                                                               |
| Ex-1038 | RealPlayer 8 Plus User Manual (Rev. 1.0) (2000), available at: <a href="https://www.itya.unam.mx/computo/sites/manuales/realplayer/rp8manualfull.pdf">https://www.itya.unam.mx/computo/sites/manuales/realplayer/rp8manualfull.pdf</a>                                                                                                                                                                                                                         |
| Ex-1039 | The Wayback Machine Archive, Pine Information Center, Frequently Asked Questions, University of Washington (Oct. 4, 2000), available at: <a href="https://web.archive.org/web/20010410095757/http://www.washington.edu/pine/faq/sendreceive.html">https://web.archive.org/web/20010410095757/http://www.washington.edu/pine/faq/sendreceive.html</a>                                                                                                           |
| Ex-1040 | Nokia 9300 User Guide (2005), available at: <a href="https://www.manualslib.com/download/756822/Nokia-9300.html">https://www.manualslib.com/download/756822/Nokia-9300.html</a>                                                                                                                                                                                                                                                                                |
| Ex-1041 | Jackson Phipps, The History of PPC and Google Ads, 2060 Digital, available at: <a href="https://2060digital.com/blog/the-history-of-ppc-and-google-ads/#:~:text=In%202000%2C%20Google%20rolled%20out,digital%20advertisers%20across%20the%20world">https://2060digital.com/blog/the-history-of-ppc-and-google-ads/#:~:text=In%202000%2C%20Google%20rolled%20out,digital%20advertisers%20across%20the%20world</a>                                               |
| Ex-1042 | INTENTIONALLY LEFT BLANK                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| Ex-1043 | PCT Publication WO2006/020938 (“Mumick’938)                                                                                                                                                                                                                                                                                                                                                                                                                    |
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|---------|-------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Ex-1046 | <i>Multimodal Media LLC v. Guangdong Oppo Mobile Telecommunications Corp., Ltd.</i> , 2:21-cv-00436, D.I. 74 (E.D. Tex. Sept. 6, 2023) (Order of Dismissal) |
|---------|-------------------------------------------------------------------------------------------------------------------------------------------------------------|

1. I, Dr. Benjamin B. Bederson, declare as follows:

**I. INTRODUCTION**

2. I have been retained by Google LLC, Samsung Electronics Co. Ltd., and Samsung Electronics America, Inc. (collectively, “Petitioner”) as an independent expert consultant in this *inter partes* review (“IPR”) proceeding before the United States Patent and Trademark Office (“PTO”).

3. I have been asked by Petitioner Counsel (“Counsel”) to consider whether certain references disclose, teach and/or suggest the features recited in Claims 10-14 of U.S. Patent No. 8,107,978 (“the ’978 Patent”) (Ex-1001), which I understand is currently assigned to Patent Owner Multimodal Media LLC (“PO”).<sup>1</sup> My opinions and the bases for my opinions are set forth below.

4. I am being compensated at my ordinary and customary consulting rate for my work, which is \$600 per hour. My compensation is in no way contingent on the nature of my findings, the presentation of my findings in testimony, or the outcome of this or any other proceeding. I have no other direct financial interest in this proceeding.

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<sup>1</sup> Where appropriate, I refer to exhibits that I understand are attached to the petition for IPR of the ’978 Patent.

## **II. BACKGROUND AND QUALIFICATIONS**

5. All of my opinions stated in my Declaration are based on my own personal knowledge and professional judgment. In forming my opinions, I have relied on my knowledge and experience in designing, developing, researching, and teaching the technology referenced in my Declaration.

6. I am over 18 years of age and, if I am called upon to do so, I would be competent to testify as to the matters set forth in my Declaration. I understand that a copy of my current curriculum vitae, which details my education and professional and academic experience, is being submitted as Ex-1003. The following provides a brief overview of some of my experience that is relevant to the matters set forth in my Declaration.

7. I am currently Professor Emeritus of Computer Science at the University of Maryland (“UMD”). From 2014 to 2018, I was the Associate Provost of Learning Initiatives and Executive Director of the Teaching and Learning Transformation Center at the UMD. I am a member and previous director of the Human-Computer Interaction Lab (“HCIL”), the oldest and one of the best known Human-Computer Interaction (“HCI”) research groups in the country. I am co-founder of the J.S. Bryant School, a therapeutic high school planning to open in 2025. I was also co-founder and Chief Scientist of Zumobi, Inc. from 2006 to 2014, a Seattle-based startup that is a publisher of content applications and advertising

platforms for smartphones. I am also co-founder and co-director of the International Children's Digital Library ("ICDL"), a web site launched in 2002 that provides the world's largest collection of freely available online children's books from around the world at [www.childrenslibrary.org](http://www.childrenslibrary.org) with an interface aimed to make it easy for children and adults to search and read children's books online. I was also co-founder and prior Chief Technology Officer of Hazel Analytics, a data analytics company to improve food safety and better public health whose product sends alerts in warranted circumstances. In addition, I have for more than 15 years consulted for numerous companies in the area of user interfaces, including Microsoft, Logitech, the Palo Alto Research Center, Sony, Lockheed Martin, Hillcrest Labs, and NASA Goddard Space Flight Center.

8. The claims of the '978 Patent generally relate to a voice short message service ("SMS") messaging system. For more than 30 years, I have studied, designed, and worked in the field of computer science and HCI. My experience includes 30 years of teaching and research, with research interests in HCI and the software and technology underlying today's interactive computing systems. This includes the design and implementation of hardware and software systems including the use of interactive voice interfaces as well as many other kinds of sensors and interfaces for electronic devices on a range of devices, including embedded systems, controllers, smart phones and PDAs.

9. At UMD, I have been focused primarily on the area of HCI, a field that relates to the development and understanding of computing systems to serve users' needs. Researchers and practitioners in this field are focused on making universally usable, useful, efficient, and appealing systems to support people in their wide range of activities. My approach is to balance the development of innovative technology that serves people's practical needs. Example systems following this approach that I have built include Cortex-I (1992 embedded computer vision system that sensed licensed plates with custom motor, camera and controller), Audio Augmented Reality (1995 embedded system for sensing a user's location and playing audio suited to that location), Fisheye Menus (2000 software for sensing movement within and selection of linear list of items in a menu), PhotoMesa (2001 software for end users to browse personal photos), DateLens (2002 software for end users to use their mobile devices to efficiently access their calendar information), SlideBar (2005 linear sensor to control scrolling), LaunchTile (2005 "home screen" software for mobile devices to allow users to navigate apps in a zoomable environment), SpaceTree (2001 software for end users to efficiently browse very large hierarchies), ICDL (as I describe above), and StoryKit (a 2009 iPhone app for children to create stories).

10. I built a voice interface system in 2009, described in a 2010 paper<sup>2</sup>, to support user's rich text entry with multi-modal input on mobile devices to support communications including text messages. As illustrated in this figure from the paper, we enabled users to enter formatted text (bold, colored, etc.) using a touch screen, voice recognition, tilt, and a foot pedal and we measured which approach was most effective.

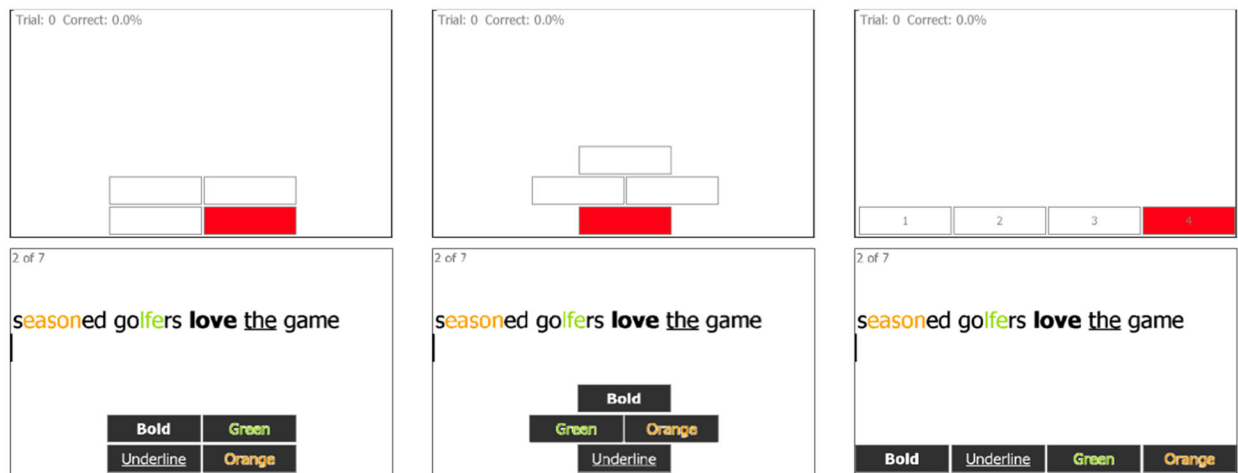


Figure 2. The software interface for the Target Selection (top) and Text Formatting (bottom) tasks. Presented are the Foot (left), Tilt (middle) and Touch/Voice (right) interfaces. The target to select for the Target Selection task is red. The phrase used in the Text Formatting task includes all four formats: 'eason' is orange; 'lfe' is green; 'love' is bold; and 'the' is underlined.

11. Throughout the 1990s and 2000s, I worked on a range of “zoomable user interfaces,” which are systems that support the multi-scale and spatial organization of and magnification-based navigation among multiple documents or visual objects. I built several different “ZUI” systems over the years, including

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<sup>2</sup> David Dearman, Amy Karlson, Brian Meyers, and Ben Bederson, Multi-modal text entry and selection on a mobile device (2010), In Proceedings of Graphics Interface 2010 (GI '10), Canadian Information Processing Society, CAN, 19–26 (Ex-1031).

Pad++, Jazz and Piccolo. In those systems, I used a range of solutions to allow users to control zooming through the information space.<sup>3</sup>

12. My work with ZUIs led to my creation of Zumobi in 2006, where I was responsible for investigating new software platforms and developing new user interface designs that provide efficient and engaging interfaces to permit end users to access a wide range of content on mobile platforms (including the iPhone and Android-based devices). For example, I designed and implemented software called “Ziibii,” a “river” of news for iPhone that used a capacitive sensor for controlling linear movement through news, software called “ZoomCanvas,” a zoomable user interface for several iPhone apps, and iPhone apps including “Inside Xbox” for Microsoft and Snow Report for REI.

13. At the ICDL, I have since 2002 been the technical director responsible for the design and implementation of the web site, [www.childrenslibrary.org](http://www.childrenslibrary.org) (originally at [www.icdlbooks.org](http://www.icdlbooks.org)). In particular, I have been closely involved in designing the user interface as well as the software architecture for the web site since its inception in 2002. Beginning in the mid-1990s, I have been responsible for the design and implementation of numerous other web sites in addition to the ICDL. For

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<sup>3</sup> Benjamin B. Bederson & James D. Hollan, Pad++: A Zooming Graphical Interface for Exploring Alternate Interface Physics, UIST ‘94 Proceedings of the 7th Annual ACM Symposium on User Interface Software and Technology 17 (1994), DOI: <http://dx.doi.org/10.1145/192426.192435> (Ex-1026).

example, I designed and built my own professional web site when I was an Assistant Professor of Computer Science at the University of New Mexico in 1995 and have continued to design, write the code for, and update both that site (which I moved to the UMD in 1998, currently at <http://www.cs.umd.edu/~bederson/>) as well as numerous project web sites, such as Pad++, <http://www.cs.umd.edu/hcil/pad++/>.

14. I received the Janet Fabri Memorial Award for Outstanding Doctoral Dissertation for my Ph.D. work in robotics and computer vision. My work has been published extensively in more than 160 technical publications, and I have given about 100 invited talks, including 9 keynote lectures. I have won a number of awards including the Brian Shackel Award for “outstanding contribution with international impact in the field of HCI” in 2007, and the Social Impact Award in 2010 from the Association for Computing Machinery’s (“ACM”) Special Interest Group on Computer Human Interaction (“SIGCHI”). ACM is the primary international professional community of computer scientists, and SIGCHI is the primary international professional HCI community. I have been honored by both professional organizations. I am an “ACM Distinguished Scientist,” which “recognizes those ACM members with at least 15 years of professional experience and 5 years of continuous Professional Membership who have achieved significant accomplishments or have made a significant impact on the computing field.” I am a member of the “CHI Academy,” which is described as follows: “The CHI Academy

is an honorary group of individuals who have made substantial contributions to the field of HCI. These are the principal leaders of the field, whose efforts have shaped the disciplines and/or industry, and led the research and/or innovation in human-computer interaction.” The criteria for election to the CHI Academy are: (1) cumulative contributions to the field; (2) impact on the field through development of new research directions and/or innovations; and (3) influence on the work of others. I have received two “Test of Time” awards from IEEE InfoVis for my 2001 and 2002 work on visualizing hierarchies, including those containing digital photos.<sup>4</sup>

15. I have appeared on radio shows numerous times to discuss issues relating to user interface design and people’s use and frustration with common technologies, web sites, and mobile devices. My work has been discussed and I have been quoted by mainstream media around the world over 120 times, including by the New York Times, the Wall Street Journal, the Washington Post, Newsweek, the Seattle Post Intelligencer, the Independent, Le Monde, NPR’s All Things Considered, New Scientist Magazine, and MIT’s Technology Review.

16. I have designed, programmed, and publicly deployed dozens of user-facing software products that have cumulatively had millions of users. My work is cited by several major companies, including Amazon, Apple, Facebook, Google, and

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<sup>4</sup> <https://ieevis.org/year/2021/info/awards/test-of-time-awards;>  
[https://ieevis.org/year/2022/info/awards/test-of-time-awards.](https://ieevis.org/year/2022/info/awards/test-of-time-awards)

Microsoft. I am a named inventor on 14 U.S. patents and 20 U.S. patent applications.

The patents are generally directed to user interfaces/experience.

17. I received a B.S. degree in Computer Science with a minor in Electrical Engineering in 1986 from the Rensselaer Polytechnic Institute. I received M.S. and Ph.D. degrees in Computer Science in 1989 and 1992, both from New York University.

### **III. INFORMATION CONSIDERED**

18. In preparation for my Declaration, I have considered the materials I discuss in my Declaration, including, for example, the '978 Patent, the references cited by the '978 Patent, the prosecution history of the '978 Patent (including the references cited therein), various background articles and materials referenced in my Declaration, and the prior art references I identify in my Declaration. In addition, my opinions are further based on my education, training, experience, and knowledge in the relevant field.

### **IV. RELEVANT LEGAL STANDARDS**

19. I am not an attorney and offer no legal opinions. For the purposes of my Declaration, I have been informed about certain aspects of the law that are relevant to my analysis, as summarized below.

#### **A. Claim Interpretation**

20. I have been informed and understand that in an IPR proceeding, claims are to be interpreted according to the *Phillips* claim construction standard. I

understand that under this standard, the meaning of claim terms is considered from the viewpoint of a hypothetical “person of ordinary skill in the art” (“POSITA”) at the time of the alleged invention. I have been informed and understand that claim construction is a matter of law and that the final claim constructions for this proceeding will be determined by the Patent Trial and Appeal Board (“PTAB”).

21. I provide my opinions regarding terms that may require explicit construction to resolve the grounds I present in my Declaration in Section IX, ¶¶52-56.

**B. Perspective of One of Ordinary Skill in the Art**

22. I have been informed and understand that a patent is to be understood from the perspective of a hypothetical POSITA. Such an individual is considered to possess normal skills and knowledge in a particular technical field (as opposed to being a genius). I understand that in considering what the claims of a patent require, what was known prior to that patent, what a prior art reference discloses, and whether an invention is obvious or not, one must use the perspective of such a POSITA.

**C. Obviousness**

23. I have been informed and understand that a patent claim is obvious under 35 U.S.C. §103, and therefore invalid, if the claimed subject matter, as a whole, would have been obvious to a POSITA as of the priority date of the patent based on one or more prior art references and/or the knowledge of a POSITA.

24. I understand that an obviousness analysis must consider (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) secondary considerations, if any, of non-obviousness (such as unexpected results, commercial success, long-felt but unmet need, failure of others, copying by others, and skepticism of experts).

25. I understand that a prior art reference may be combined with other references to disclose each element of the invention under 35 U.S.C. §103. I understand that a reference may also be combined with the knowledge of a POSITA, and that this knowledge may be used to combine multiple references. I further understand that a POSITA is presumed to know the relevant prior art. I understand that the obviousness analysis may take into account the inferences and creative steps that a POSITA would employ.

26. In determining whether a prior art reference would have been combined with other prior art or other information known to a POSITA, I understand that the following principles may be considered:

- a. whether the references to be combined involve non-analogous art;
- b. whether the references to be combined are in different fields of endeavor than the alleged invention in the Patent;
- c. whether the references to be combined are reasonably pertinent to the problems to which the inventions of the Patent are directed;

- d. whether the combination is of familiar elements according to known methods that yields predictable results;
- e. whether a combination involves the substitution of one known element for another that yields predictable results;
- f. whether the combination involves the use of a known technique to improve similar items or methods in the same way that yields predictable results;
- g. whether the combination involves the application of a known technique to a prior art reference that is ready for improvement, to yield predictable results;
- h. whether the combination is “obvious to try”;
- i. whether the combination involves the known work in one field of endeavor prompting variations of it for use in either the same field or a different one based on design incentives or other market forces, where the variations are predictable to a POSITA;
- j. whether there is some teaching, suggestion, or motivation in the prior art that would have led one of ordinary skill in the art to modify the prior art reference or to combine prior art reference teachings to arrive at the claimed invention;
- k. whether the combination requires modifications that render the prior

art unsatisfactory for its intended use;

- l. whether the combination requires modifications that change the principle of operation of the reference;
- m. whether the combination is reasonably expected to be a success; and
- n. whether the combination possesses the requisite degree of predictability at the time the invention was made.

27. I understand that in determining whether a combination of prior art references renders a claim obvious, it is helpful to consider whether there is some teaching, suggestion, or motivation to combine the references and a reasonable expectation of success in doing so. I understand, however, that a teaching, suggestion, or motivation to combine is not required.

#### **V. LEVEL OF ORDINARY SKILL IN THE ART**

28. I am familiar with the level of ordinary skill in the art with respect to the '978 Patent around its filing date. Based on my experience working, teaching, and conducting research in the relevant field, and based on my review of the '978 Patent specification, claims, file history, and prior art, I believe one of ordinary skill in the art around the time of the alleged invention of the '978 Patent would have been someone with at least a bachelor's degree in electrical engineering, computer science, computer engineering, or a related field, and two-three years of experience

with multimedia and Internet-related communications technologies, or the equivalent, with additional education substituting for experience and vice versa.

29. In determining the level of ordinary skill in the art, I considered, for example, the type of problems encountered in the art, prior art solutions to those problems, the rapidity with which innovations are made, the sophistication of the technology, and the educational level of active workers in the field.

30. I met or exceeded the knowledge and experience that a POSITA would have had in 2007. In my work as a professor and entrepreneur, I worked with graduate students and others who had the knowledge and experience of a POSITA in 2007, and I am able to render opinions from the perspective of a POSITA based on that knowledge and experience. My opinions concerning the '978 Patent claims and the prior art are from the perspective of a POSITA, as set forth above.

## **VI. SUMMARY OF MY OPINIONS**

31. As I explain below in detail in my Declaration, it is my opinion that Claims 10-14 of the '978 Patent would have been obvious under 35 U.S.C. §103 on the following grounds:

- **Ground 1:** Claims 10-13 are obvious over U.S. Patent Publication No. 2005/0136955 to Mumick ("Mumick'955") (Ex-1007) in view of PCT Publication No. WO2001/013656 to Bengtsson ("Bengtsson") (Ex-1005).

- **Ground 2:** Claim 14 is obvious over Mumick’955 in view of Bengtsson in further view of PCT Publication No. WO2007/020627 to Roujinsky (“Roujinsky”) (Ex-1006).
- **Ground 3:** Claims 10-14 are obvious over Bengtsson in view of Roujinsky.

## **VII. TECHNOLOGICAL BACKGROUND**

32. By April 25, 2007, a POSITA would have been abundantly familiar with a wide range of technologies, including numerous techniques for addressing recipients, for structuring hardware and software through clients and servers including deciding how to design such client-server systems so that different functionalities would be located at the client or server, and for including more user-friendly and automated functionality to the user to support various communication techniques such as SMS messaging on the user’s mobile device. To provide context for the element-by-element analysis of the claims to follow, I present an overview of some of the relevant state of the art existing as of the time of the alleged invention.

### **A. Recipient Addressing Techniques**

33. The earliest of computing systems supported electronic communications through various techniques including email and chat, then later (but still before the time the ’978 Patent) social networks. All of these supported various techniques to decide who to address the communications to. It never made sense to ask a human user to remember the address of all possible recipients, and so it is no

surprise that various recipient addressing techniques were developed early on. For example, I remember using email clients such as “Pine” back in the 1990s that had a built-in address book where I could enter the names and email address of recipients, and then use them to easily select who to send emails to. And by 1999, as shown in the screenshot below<sup>5</sup>, commercial services, such as AOL Instant Messenger (AIM) provided “buddy lists”, which were a form of an address book of online friends to direct short messages to.

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<sup>5</sup> AOL Instant Messenger Registration page (1999), available at: <https://web.archive.org/web/19991127133324/http://aim.aol.com/?promo=106712&pageset=Aim> (Ex-1032).

**AOL.COM** Register and start using AOL Instant Messenger (SM) today!



- **FREE!**
- **Fast Sign Up**
- **Stay on Top of the News**
- **Watch Your Stocks**

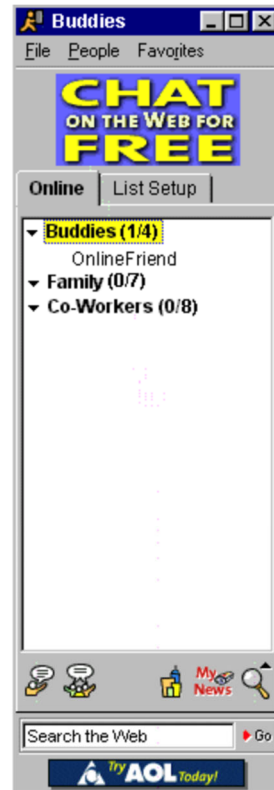
**New Users Click Here**

**Upgrade** Click here for the latest version of the software.

Sign up now and start using AOL Instant Messenger! Just click above to get your screen name, then download the latest version. It's that easy.

- Send private instant messages in real time
- Chat with multiple people
- New FTP allows you to send and receive files
- Keep track of online friends with your Buddy List (tm)

**Now you can chat instantly with the people you want--It's hassle-free no matter how you are connected to the Internet!**



**New Users Click Here**

**Upgrade**

**AOL.COM** Register and start using AOL Instant Messenger (SM) today!

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34. Similarly, cell phones commonly had contact lists or address books built in that were available for users to select recipients from in order to send short

text messages. For example, as shown in a user guide<sup>6</sup> (Ex-1030, 34) from the Nokia 3250 mobile phone from 2005, it let users select recipients or groups from the built-in “Contacts” program in order to send short text messages.

#### M e s s a g i n g

### ■ Write and send messages

The wireless network may limit the size of MMS messages. If the inserted picture exceeds this limit, the device may make it smaller so that it can be sent by MMS.

Your device supports the sending of text messages beyond the character limit for a single message. Longer messages are sent as a series of two or more messages. Your service provider may charge accordingly. Characters that use accents or other marks, and characters from some language options like Chinese, take up more space limiting the number of characters that can be sent in a single message.

Before you can send and receive an SMS message, a multimedia message, or an e-mail, or connect to your remote mailbox, you must have the correct connection settings in place. See “Messaging settings,” p. 41.

1. To create a message, select **Menu** > **Messag.** > **New message** and from the following options:

**Text message** — to create a text message

**Multimedia message** — to create a multimedia message (MMS)

**E-mail** — to create an e-mail message. If you have not set up your e-mail account, you are asked if you want to do so.

2. Press the joystick to select the recipients or groups from **Contacts** or enter the phone number or e-mail address of the recipient in the **To** field. To add a semicolon (;) to separate each recipient, press \*.

35. Many of these systems supported sending a message to a group of people simultaneously including at least email and text messaging. For example,

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<sup>6</sup> Nokia 3250 User Guide (2006), available at: <https://ia801806.us.archive.org/32/items/manualzilla-id-5923903/5923903.pdf> (Ex-1030).

documentation for the Pine email system I used in the 1990s had information about sending messages to multiple recipients.<sup>7</sup> Similarly, it was also common practice to be able to send text messages to multiple recipients. For example, the user manual for the Nokia 9300 mobile phone available in 2005<sup>8</sup> explained this (Ex-1040, 31):

**M e s s a g i n g**

Press *Write message*, select *Text message*, and press *OK*.

To write a new text message, press *Recipient* to select the recipients of the message, or enter the recipients' GSM phone numbers in the *To:* field. If you enter more than one number, separate the numbers with a semicolon or by pressing the Enter key after each number. Write the message, and press *Send*. You can see the number of characters that are left in the character counter. Note that a text message can only contain unformatted text.

**B. Click-Through Techniques**

36. A basic part of personal computing technology for decades has included the ability to display received information with links to other information and click or tap or interact with those links to “click through” to the linked information. This has been the essence of the World Wide Web in web browsers since the 1990s. It also is well-known in other information displays.

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<sup>7</sup> The Wayback Machine Archive, Pine Information Center, Frequently Asked Questions, University of Washington (Oct. 4, 2000), available at: <https://web.archive.org/web/20010410095757/http://www.washington.edu/pine/faq/sendreceive.html> (Ex-1039).

<sup>8</sup> Nokia 9300 User Guide (2005), available at: <https://www.manualslib.com/download/756822/Nokia-9300.html> (Ex-1040).

37. For example, text messages could include linked information that would allow clicking through to the linked information<sup>9</sup> by automatic dialing of a phone number using standard DTMF tones.<sup>10</sup>

38. No matter how one clicked through a link, doing so was a standard and lucrative technology for advertising. With the advent of click-through computing technology, advertising shifted its cost structure from “impressions” (how many times an advertisement was seen) to “pay per click” (how many times a user clicked through a link to an advertisement). Google was particularly recognized for developing this advertising payment model.<sup>11</sup>

### **C. Client-Server Structures**

39. Computer systems have been architected for decades with a wide range of structures. Historically, computers were big and expensive and they provided “time shared” access to multiple terminals. Sometimes those terminals (a.k.a.

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<sup>9</sup> PCT Publication WO2006/020938 (Ex-1043) at ¶29 (“The Multimodal SMS application 160 then generates a text SMS containing a link, which when activated (e.g., by clicking on the phone number) allows the receiving user 120 to call the multimodal platform 130 in order to retrieve the voice message.”).

<sup>10</sup> Ex-1030 (Nokia 3250 User Guide) at 27 (“Send DTMF – to send DTMF tone strings (for example, a password. Enter the DTMF string or search for it in Contacts. ... To send the tone, select OK. Tip: You can add DTMF tones to the Phone number or DTMF fields in a contact card.”). A POSITA would have understood that DTMF tone strings for passwords would be similar to sending a phone number via DTMF.

<sup>11</sup> Jackson Phipps, The History of PPC and Google Ads, 2060 Digital, available at: <https://2060digital.com/blog/the-history-of-ppc-and-google-ads/#:~:text=In%202000%2C%20Google%20rolled%20out,digital%20advertisers%20across%20the%20world> (Ex-1041).

“clients”) were “dumb” or “thin”, and provided primarily input and output capabilities while most of the computation was provided at the “server”. Other times, those clients had greater computation capability, and in the early 1980s with the introduction of “personal computers”, those clients (while still often connected to servers) had sufficient computational capabilities to run independently.

40. Back in 1992, client-server computing was significant enough that it was described in an article<sup>12</sup> in Communications of the ACM – the broad interest magazine of the main professional international computer society. That article characterized some of the key elements of client-server computing, including that the client typically communicates with the server, transmitting queries or commands, performs data analysis on query or command results from the server and presents the Graphical User Interface (GUI). On the other side, servers typically provide a service to the client, responding to the queries or commands – and do so in a way that hides much of the details of its implementation so that clients with various kinds of software and hardware can work with it. This article also explains that as far back as 1992, it was common to have the GUI of an application displayed on a computer remote from the application. It describes the X Window System that commonly ran on Unix environments which “provides network transparency so that an application

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<sup>12</sup> Alok Sinha, Client-server computing (1992). Communications of the ACM, 35, 7 (July 1992), 77–98, DOI: <https://doi.org/10.1145/129902.129908> (Ex-1025).

displaying a chart on a screen could be running on a local machine or a remote machine thousands of miles away.” Ex-1025, 91.

41. One particularly important set of clients and servers communicate over the Internet in what has come to be called the World Wide Web (WWW). Tim Berners-Lee initially developed the WWW in 1990. While Internet-based communications had been around for some time at that point, the WWW simplified things by combining a few basic technologies including web servers, web browsers, HTTP, and HTML. The Internet was an enabling technology – allowing computers to communicate arbitrary information between any location in the world.<sup>13</sup>

42. Another extremely common server functionality was to provide database services. Typically called database servers or database management systems (DBMSs), these servers provide services to enable client devices and applications to safely and efficiently access, store, and query data on those servers. A 2000 database textbook<sup>14</sup>, already in its 7<sup>th</sup> edition at that time, described DBMSs in this way (emphasis in original):

Between the physical database itself — i.e., the data as physically stored — and the users of the system is a layer of software, known variously as the **database manager** or **database server** or, more commonly, the **database management system**<sup>15</sup> (DBMS). All requests for access to the database are

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<sup>13</sup> Tim Berners-Lee, Robert Cailliau, Ari Luotonen, Henrik Frystyk Nielsen, and Arthur Secret, *The World-Wide Web* (1994), Communications of the ACM 37, 8 (August 1994), 76-82, DOI: <http://dx.doi.org/10.1145/179606.179671> (Ex-1027).

<sup>14</sup> C.J. Date, *An Introduction to Database Systems* at 8 (7th ed. 2000) (Ex-1029).

<sup>15</sup> Emphases have been added in my Declaration, unless I note otherwise.

handled by the DBMS; the facilities sketched in Section 1.1 for adding and removing files (or tables), retrieving data from and updating data in such files or tables, and so forth, are all facilities provided by the DBMS. One general function provided by the DBMS is thus the *shielding of database users from hardware-level details* (much as programming-language systems shield application programmers from hardware level details). In other words, the DBMS provides users with a perception of the database that is elevated somewhat above the hardware level, and it supports user operations (such as . . . SQL operations . . .) that are expressed in terms of that higher-level perception.

43. While there were (and are) good reasons to have servers architected to provide services such as those for the web and databases, a POSITA would have known that there are actually many different ways to structure such services. On one hand, those services could be distributed across different servers, or on the other hand, those services could be put on a client computer. Such decisions were well understood by a POSITA, and would be made based on the details of a particular situation considering factors such as expense, expected scale of use, required reliability, speed and availability of communication networks, etc.

44. For example, the same 2000 database textbook explained many possible database server configurations in Section 2.12 on Distributed Processing (Ex-1029, 50-54). “Many levels or varieties of distributed processing are possible.” (Ex-1029, 51). Or alternatively, “... a single client machine might be able to access several different server machines ...” (Ex-1029, 53).

45. Such database systems are agnostic as to what kind of data is stored in the database. This is indicated in that same 2000 database textbook in that the student

questions from the first chapter include storing content as varied as bottles of wine as well as audio in a database (Ex-1029, 29-30).

46. Another example of services provided by servers was voicemail. It was common by 2007 to have mobile phone voicemail stored on a server. I remember before 2007 calling a special voicemail number (often by pressing a special key on the mobile phone) to retrieve the voicemail – which worked because the voicemail was stored on the server. Apple built on this server based voicemail by providing an access method they called Visual Voicemail in their January 9, 2007 iPhone announcement<sup>16</sup>. Visual Voicemail worked by downloading the voicemail from the server to the phone and then provided access to each message in a list so they could be listened to in any order. “iPhone’s pioneering Visual Voicemail, an industry first, lets users look at a listing of their voicemails, decide which messages to listen to, then go directly to those messages without listening to the prior messages. Just like email, iPhone’s Visual Voicemail enables users to immediately randomly access those messages that interest them most.” *Id.*

## **VIII. THE ‘978 PATENT AND ITS FILE HISTORY**

47. The ’978 Patent generally relates to a method and system for integrating text content with voice content in a wireless short message service (“SMS”)

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<sup>16</sup> Newsroom, Apple Reinvents the Phone with iPhone (Jan. 9, 2007), available at: <https://www.apple.com/newsroom/2007/01/09Apple-Reinvents-the-Phone-with-iPhone/> (Ex-1033).

messaging system using “standard methods of recipient addressing.” Ex-1001, 3:3-

7. The patent enables a user to record a voice message that is associated with an SMS text message addressed and sent to a recipient. Figure 3A illustrates the exemplary system for voice short message service messaging of the invention:

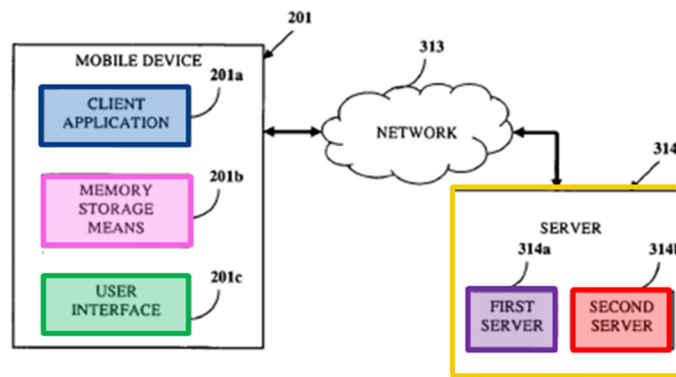


FIGURE 3A

48. As the figure illustrates, the system comprises mobile device 201 and server 314 (yellow) connected via network 313. Ex-1001, 5:23-25. Mobile device 201 includes client application 201a (blue), memory storage means 201b (pink), and user interface 201c (green). Ex-1001, 5:25-27. Client application 201a “integrates voice content to a text message” that is created by a user “using methods of recipient addressing” as used by text SMS messaging. Ex-1001, 5:27-30. The client application can “be implemented in the application layer, or in the hardware and firmware layer of the mobile device.” Ex-1001, 5:30-32. Memory storage means 201b stores a list of recipient addresses that are accessed by the user. Ex-1001, 5:32-

34. Moreover, the user inputs text and voice messages using user interface 201c. Ex-1001, 5:34-36. Server 314 may further include first server 314a (purple) for storing the user's voice messages and second server 314b (red) for transmitting "text SMS messages along with the attached voice message notification" to the recipients. Ex-1001, 5:36-46. The '978 Patent discloses using links or providing a number for the recipients to dial in the voice message notification. Ex-1001, 5:7-16 ("Bob and Mary, upon receiving the text SMS message may click on a 'Listen to Voice message' link included in the voice message notification. On clicking the link, Bob and Mary may directly listen to Alice's voice message. Alternatively, the recipients may dial a number in the voice message notification. The number may be a short code, such as \*0\*, providing access to all new messages.").

49. The '978 Patent was filed on March 28, 2008 and claims priority on it's face to a foreign application filed on April 25, 2007. On March 21, 2011, the examiner rejected Claims 10-14 as unpatentable over Shaked (WO2003/024069) in view of Blackburn (US2007/0275739). Ex-1004, 99-116. On September 21, 2011, in response, applicant amended Claim 10 to add a server for remotely "recording," "wherein said server is configured to provide access to said recipient for listening to said recorded voice message," and "said client application" for transmitting a voice message notification with an addressed text message to said recipients. Ex-1004, 125. Applicant argued that the Shaked-Blackburn combination "do[es] not provide

a client application for transmitting a voice message notification with a text SMS and also do[es] not disclose that a recipient of the text SMS comprising the voice message notification can access and listen to the voice message stored in the server.” Ex-1004, 139, 145-146. On October 4, 2011, the examiner allowed all claims, citing the applicant’s response as the reason for allowance. Ex-1004, 154.

50. For the reasons I discuss below, the prior art teaches the claimed voice SMS messaging system—including its well-known configuration of a client application, memory storage, user interface, and server performing their routine functions—and renders the challenged claims unpatentable. Accordingly, it is my opinion that Claims 10-14 of the ’978 Patent are invalid as obvious over the prior art.

51. I understand from Counsel that all prior art references I discuss in my Declaration are prior art.

## **IX. CLAIM CONSTRUCTION**

52. For the purposes of my Declaration, I do not believe that any term requires explicit construction to resolve the issues I present in my Declaration except for the terms below. Terms not expressly construed should be given their plain and ordinary meaning. I understand from Counsel that the challenged claims recite an element that uses the word “means,” creating a rebuttable presumption that it is a means-plus-function element under §112, ¶6. Moreover, I understand from Counsel

that various terms were construed or agreed upon by the parties (Multimodal and Guangdong OPPO Mobile Telecommunications Corp.) in the *Opportunity* district court litigation where Patent Owner asserted the '978 Patent against an unrelated party.<sup>17</sup>

I apply those constructions in my analysis, except where I note below.

**A. “memory storage means on said mobile device for storing a list of addresses of recipients” (Claim 10)**

53. I understand from Counsel that in the *Opportunity* district court litigation, the parties agreed that this claim term is subject to 35 U.S.C. §112, ¶6 and should be given the following construction:

Function: “storing a list of addresses of recipients.”

Structure: “a floppy disk, a flexible disk, hard disk, magnetic tape, any other magnetic medium, a Compact Disc-Read Only Memory (CD-ROM), Digital Versatile Disc (DVD), any other optical medium, punch cards, paper tape, any other physical medium with patterns of holes, a Random Access Memory (RAM), a Programmable Read-Only Memory (PROM), an Erasable Programmable Read-Only Memory (EPROM), an Electrically Erasable Programmable Read-Only Memory (EEPROM), a flash memory, any other memory chip or cartridge, a carrier wave as described hereinafter, or any other medium from which a computer can read,” and equivalents. Ex-1021, 47.

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<sup>17</sup> I understand from Counsel that the *Opportunity* litigation was settled (Ex-1046).

I apply this construction for purposes of my Declaration.

**B. “wherein the client application transmits one of a text message, a voice message, and a combination thereof” (Claim 13)**

54. I understand from Counsel that this claim term was construed by the district court in the *Oppo* litigation to mean “wherein the client application transmits a text message, a voice message, or a combination thereof.” Ex-1021, 16-21. I apply this construction for purposes of my Declaration.

**C. “operating system,” “wherein the client application is provided on an operating system of the mobile device,” and “voice short message service” (Claims 10, 14)**

55. I understand from Counsel that the parties in the *Oppo* litigation agreed that these claim terms should be given their plain and ordinary meaning. Ex-1021, 47-48. I apply the plain and ordinary meanings of these terms for purposes of my Declaration.

**D. “client application” (Claims 10, 13-14)**

56. I understand from Counsel that the parties in the *Oppo* litigation agreed that this claim term should be construed to mean “a program present on the sender’s mobile device.” Ex-1021, 48. But the full claim term recites “a client application on a mobile device.” Ex-1001, Cl. 10. Construing the term “client application” to mean “a program present on the sender’s mobile device” renders the claim term “a client application on a mobile device” redundant—for example, the full claim term with the *Oppo* litigation construction would read “a program present on the sender’s

mobile device on a mobile device.” This redundancy is not consistent with how a POSITA would have understood this term. Instead, a POSITA would have understood the term in its full context, “a client application on a mobile device,” to mean “a program present on the sender’s mobile device.” I apply this construction for purposes of my Declaration.

## **X. OVERVIEW OF THE APPLIED PRIOR ART REFERENCES**

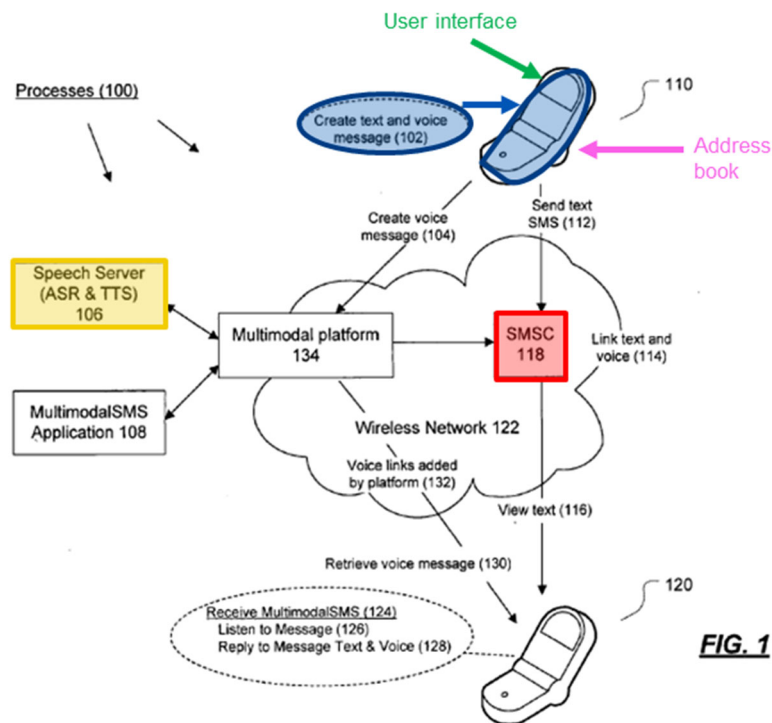
### **A. Mumick’955 (Ex-1007)**

57. Mumick’955, titled “Techniques for Combining Voice with Wireless Text Short Message Services,” was published as US2005/0136955 on June 23, 2005. Ex-1007, Cover. I understand from Counsel that Mumick’955 is §102(b) prior art.

58. Mumick’955 discloses methods for combining SMS text with speech “to create a multimodal SMS service.” Ex-1007, Abstract. Mumick’938 discloses “a Multimodal SMS mechanism (MultimodalSMS)” for “combining speech, or other modalities (such as image or video data), with standard text SMS” to enable “users to send and receive voice messages associated directly with text SMS messages.” Ex-1007 ¶8.

59. Mumick’955’s mobile device user “creates any text message she wishes to send ... and determines to whom the message is to be sent using whatever mechanisms are provided by the device.” *Id.* ¶40; *see also id.* at Fig. 1 (blue). If the user “wishes to add speech to the SMS message, she clicks on a MultimodalSMS

link in her phone book, or similar mechanism provided by the device,” (pink) “which connects her through the voice network” to a Multimodal Platform (such as Kirusa MultiModal Platform “KMMP”). Ex-1007 ¶40. There, the user is provided instructions “to allow her to record her voice message through the Speech Platform” (yellow) and the “recorded voice message is then stored for future retrieval” in a database, Media Server, or “any other storage mechanism ... that facilitates storing audio content.” *Id.*



60. The user “then sends the SMS message which is transmitted through the SMS network” to the SMSC (red), which further “transmits the message to the recipient and also communicates a link within the message that allows the Multimodal Platform ... to uniquely associate the SMS message and the stored voice

message.” *Id.* Mumick’955 also explains that the “the link embedded in an SMS message can be created at the sending device.” *Id.* ¶27. “When the message is received by the user at the other end of the connection there is a telephony link embedded in the message that, using whatever method is available on the recipients’ device, once accessed, connects the recipient to the Multimodal Platform 134 which retrieves the voice message from the Speech Server (or from a media server or database) and plays it to the recipient.” *Id.* ¶41.

**B. Bengtsson (Ex-1005)**

61. Bengtsson, titled “A System and Method for Sending Multimedia Attachments to Text Messages in Radio-communication Systems,” was published as WO2001/013656 on February 22, 2001. Ex-1005, Cover. I understand from Counsel that Bengtsson is §102(b) prior art.

62. Bengtsson discloses “systems ... for communicating multimedia attachments to short text messages in radiocommunication systems.” Ex-1005, 1:9-10. Bengtsson discloses that the user’s mobile terminal may be provided “an audio recorder for recording ... voice” and “captur[ing] and send[ing] audio information” for storage at the terminal. Ex-1005, 7:7-10. Moreover, Bengtsson’s system includes “an advanced messaging application” that enables the system to attach the image or audio files to an SMS message for transmission to another terminal. Ex-1005, 7:21-23, 7:12-14 (“[I]t would be desirable to send this file, e.g., image or audio, to another

terminal in the radiocommunication system or to a terminal outside of the radiocommunication system.”).

63. Bengtsson discloses that in the user’s terminal, the “user first creates a conventional SMS message” (green). Ex-1005, 7:23-25, Fig. 3 (annotated). Before the SMS message is sent by the user the advanced messaging application at the terminal (blue) prompts the user with a request of “whether an attachment file should be included.” Ex-1005, 7:25-27. If the user chooses “not attach a file to the SMS message,” then it is “transmitted conventionally.” Ex-1005, 7:28-30. If the user opts to attach a file, then “certain information is added to the SMS message,” which is then sent to the recipient selected by the user (pink), and “the attachment is sent to a special server” (e.g., server 32 (purple)) for the recipient to retrieve. Ex-1005, 7:30-8:3.

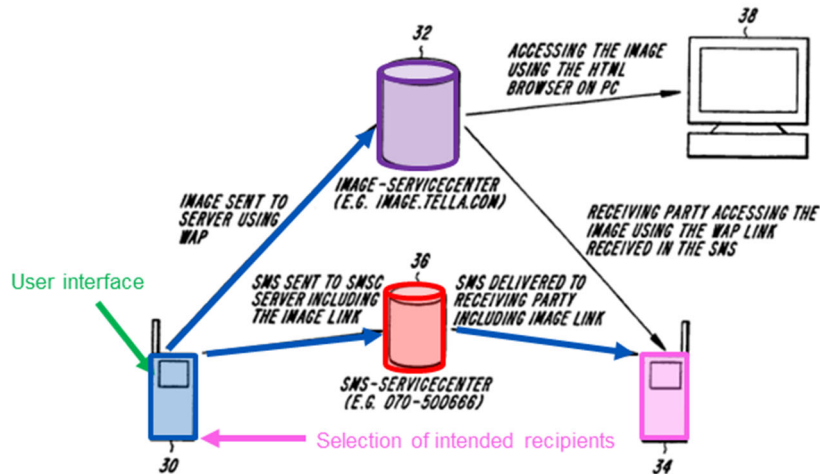


Fig. 3

64. Bengtsson further discloses that the attached image or audio file is not sent directly from terminal 30 to receiving party 34; instead, the text part of the message is sent to receiving party 34 via SMS server 36 (red) and “the attachment is transmitted to a different server 32” (purple). Ex-1005, 8:10-14. That is, terminal 30 includes as part of the SMS message that is sent to receiving party 34 “the URL address (e.g., image.telia.com/sending-phone-number/image-number),” which identifies “the server 32 that the image is to be sent to.” Ex-1005, 8:14-16, 8:21-24. The terminal can optionally “also include the file type (e.g., image, audio, etc.) of the attachment with the URL address in the SMS message.” Ex-1005, 8:23-24. Receiving party 34 then “receives a message containing the text message” and “the link to the server 32 where the image (or other attached file) is stored and, optionally, a file type associated with the attachment.” *Id.* at 8:25-27. The recipient can

download “the image from server 32 using, e.g., WAP to his or her terminal 34.”

Ex-1005, 8:27-28.

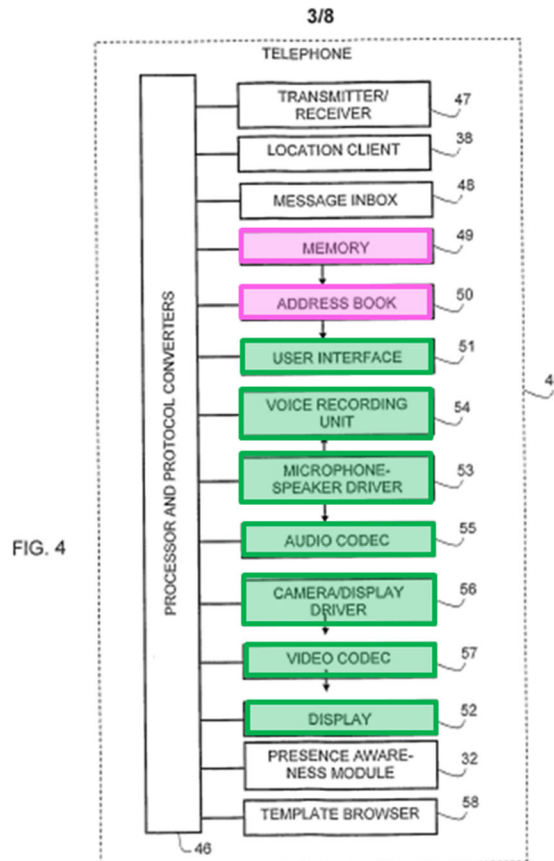
**C. Roujinsky (Ex-1006)**

65. Roujinsky, titled “Method and System for Obtaining Feedback from at Least One Recipient Via a Telecommunication Network,” was published as WO2007/020627 on February 22, 2007. Ex-1006, Cover. I understand from Counsel that Roujinsky is §102(a) prior art.

66. Roujinsky discloses a method for receiving recipient feedback through a telecommunication network comprising creating—using a sending device—a multimedia message, sending the message to a server for storing with the recipient’s identity, and receiving information regarding the recipient’s response or receipt of the message. Ex-1006, 3:12-19.

67. Roujinsky discloses with Figure 4 that memory 49 of cellular telephone 45 “stores data” such as sender/recipient profiles and address book 50 (pink), which allows the phone or the system’s server to use the “phone’s contact list or contacts and groups managed by the system.” Ex-1006, 9:1-2, 9:10-15. User interface 51 (green) allows telephone numbers corresponding to recipient addresses to be chosen “for conveying voice and/or video streaming.” Ex-1006, 9:11-13. Moreover, user interface 51 typically has “a keypad and scrolling keys for typing text messages and selecting options displayed on a display 52” and “allows respective telephone

numbers of one or more recipient addresses to be selected for conveying voice and/or video streaming thereto.” Ex-1006, 9:11-13, 9:15-16.



68. Telephone 45 also includes microphone/speaker driver 53 (green) that enables the conversion of speech “to electrical signals for recording using a voice recording unit 54” (green), which also has “a conventional user interface.” Ex-1006, 9:17-24. This conventional user interface may be used to “play/record and forward/backward rewind facilities” and voice recording unit 39 “is used to record and play a message.” Ex-1006, 9:23-24, 13:3-5. Roujinsky further discloses that messages may be “recorded by the sender” at their sending device or “the sender can

establish streaming or voice communication with the messaging server and dictate messages for direct storage by the messaging server.” Ex-1006, 18:8-12.

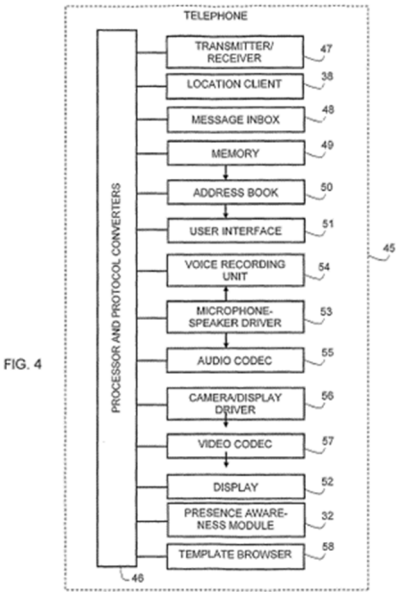
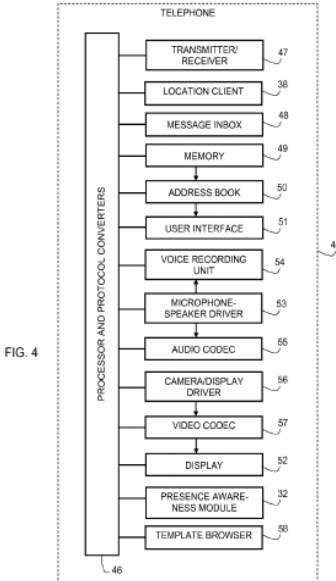
69. I understand from Counsel that Roujinsky-US (Ex-1024) is also §102(e) prior art to the '978 Patent based on the August 10, 2006 international filing date of the PCT. The table below includes cross references to the identical disclosures in Roujinsky-US corresponding to the Roujinsky cites in my Declaration. The disclosures of Roujinsky (Ex-1006) and Roujinsky-US (Ex-1024) are identical, and invalidate the claims for the same reasons I discuss in Sections XI.B-XI.C, ¶¶131-195, below.

| <b>Roujinsky (Ex-1006)</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                      | <b>Roujinsky-US (Ex-1024)</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1:2-3: “This invention relates generally to voice messaging and particularly to multimedia messaging having a voice component.”                                                                                                                                                                                                                                                                                                                                                 | ¶1: “This invention relates generally to voice messaging and particularly to multimedia messaging having a voice component.”                                                                                                                                                                                                                                                                                                                                                    |
| 3:12-19: “This object is realized in accordance with a first aspect of the invention by a method for obtaining feedback from at least one recipient via a telecommunication network, the method comprising: compiling a media message using a sending device; sending the media message to a server for storing together with a respective identity of each recipient; and receiving one or more events relating to a recipient receiving or responding to said media message.” | ¶¶11-14: “This object is realized in accordance with a first aspect of the invention by a method for obtaining feedback from at least one recipient via a telecommunication network, the method comprising: compiling a media message using a sending device; sending the media message to a server for storing together with a respective identity of each recipient; and receiving one or more events relating to a recipient receiving or responding to said media message.” |
| 4:10-16: “In accordance with one embodiment of the invention, such a method is typically carried out by a server operating the service to receive a                                                                                                                                                                                                                                                                                                                             | ¶23: “In accordance with one embodiment of the invention, such a method is typically carried out by a server operating the service to receive a                                                                                                                                                                                                                                                                                                                                 |

| <b>Roujinsky (Ex-1006)</b>                                                                                                                                                                                                                                                                                                                                                                                          | <b>Roujinsky-US (Ex-1024)</b>                                                                                                                                                                                                                                                                                                                                                                                       |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| voice message sent by a sender, to convey the voice message to one or more recipients and to receive and process their responses. The server typically operates an inbox for each recipient and, upon receiving a response (i.e. event) stores pertinent data in the corresponding recipient's inbox. Data pertaining to each message could be notification of an awaiting message or could be the message itself.” | voice message sent by a sender, to convey the voice message to one or more recipients and to receive and process their responses. The server typically operates an inbox for each recipient and, upon receiving a response (i.e. event) stores pertinent data in the corresponding recipient's inbox. Data pertaining to each message could be notification of an awaiting message or could be the message itself.” |
| 4:18-20: “It should however be noted that the advantages of the invention derive not only from the ease of recording voice messages in preference to typing text messages, but also from the greater convenience of listening to a message for many users.”                                                                                                                                                         | ¶24: “It should however be noted that the advantages of the invention derive not only from the ease of recording voice messages in preference to typing text messages, but also from the greater convenience of listening to a message for many users.”                                                                                                                                                             |
| 7:7-9: “The system 30 includes a messaging client 31 having an optional AB presence unit 32 that are loaded into a sending or receiving device shown as 45 in Fig. 4.”                                                                                                                                                                                                                                              | ¶36: “The system 30 includes a messaging client 31 having an optional AB presence unit 32 that are loaded into a sending or receiving device shown as 45 in FIG. 4.”                                                                                                                                                                                                                                                |
| 8:5-8: “The messaging client 31 can run on different devices such as mobile phones, smart phones, WDAs PDAs, etc. and be implemented in variety of technologies, for example Java, J2ME, Brew, Symbian, Linux, Windows, PocketPC, SmartPhone, PalmOS, or others.”                                                                                                                                                   | ¶37: “The messaging client 31 can run on different devices such as mobile phones, smart phones, WDAs PDAs, etc. and be implemented in variety of technologies, for example Java, J2ME, Brew, Symbian, Linux, Windows, PocketPC, SmartPhone, PalmOS, or others.”                                                                                                                                                     |
| 9:1-2: “In this depicted example, the telephone 45 is a cellular telephone that is enhanced by a software client.”                                                                                                                                                                                                                                                                                                  | ¶45: “In this depicted example, the telephone 45 is a cellular telephone that is enhanced by a software client.”                                                                                                                                                                                                                                                                                                    |
| 9:10-24: “A memory 49 stores data such as an address book 50 and optionally sender/recipient profiles and a user interface 51 allows respective                                                                                                                                                                                                                                                                     | ¶¶45-46: “A memory 49 stores data such as an address book 50 and optionally sender/recipient profiles and a user interface 51 allows respective                                                                                                                                                                                                                                                                     |

| <b>Roujinsky (Ex-1006)</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | <b>Roujinsky-US (Ex-1024)</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p>telephone numbers of one or more recipient addresses to be selected for conveying voice and/or video streaming thereto. Address book function allows use of phone's contact list or contacts and groups managed by the system, either on the phone or on the system's server. Typically, the user interface 51 includes a keypad and scrolling keys for typing text messages and selecting options displayed on a display 52. The enhanced telephone 45 also has a microphone/speaker driver 53 that allows speech to be converted to electrical signals for recording using a voice recording unit 54 and which may be encoded by an audio codec 55 for producing an audio stream in a known manner. By virtue of the microphone/speaker driver 53, a message can be played immediately and loudly using a loudspeaker of the phone, regardless of the phone's settings before the reception of the message, so no manual intervention is required at all. The voice recording unit 54 includes a conventional user interface that provides play/record and forward/backward rewind facilities."</p> | <p>telephone numbers of one or more recipient addresses to be selected for conveying voice and/or video streaming thereto. Address book function allows use of phone's contact list or contacts and groups managed by the system, either on the phone or on the system's server. Typically, the user interface 51 includes a keypad and scrolling keys for typing text messages and selecting options displayed on a display 52. The enhanced telephone 45 also has a microphone/speaker driver 53 that allows speech to be converted to electrical signals for recording using a voice recording unit 54 and which may be encoded by an audio codec 55 for producing an audio stream in a known manner. By virtue of the microphone/speaker driver 53, a message can be played immediately and loudly using a loudspeaker of the phone, regardless of the phone's settings before the reception of the message, so no manual intervention is required at all. The voice recording unit 54 includes a conventional user interface that provides play/record and forward/ backward rewind facilities."</p> |
| <p>10:23-24: "A memory 64 stores message data and possibly icons or other image data of registered users."</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | <p>¶47: "A memory 64 stores message data and possibly icons or other image data of registered users."</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| <p>11:7-10: "The sender creates a voice/text message and selects those recipients to whom he wishes to send the message. The message and destination data are sent from the sender 11 to the server 13, which processes and stores the message, and</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | <p>¶49: "The sender creates a voice/text message and selects those recipients to whom he wishes to send the message. The message and destination data are sent from the sender 11 to the server 13, which processes and stores the message, and sends it to the recipients</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |

| <b>Roujinsky (Ex-1006)</b>                                                                                                                                                                                                                                                                                                                                                                                                    | <b>Roujinsky-US (Ex-1024)</b>                                                                                                                                                                                                                                                                                                                                                                                              |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| sends it to the recipients 12.”                                                                                                                                                                                                                                                                                                                                                                                               | 12.”                                                                                                                                                                                                                                                                                                                                                                                                                       |
| 13:3-5: “The voice recording unit 39 is used to record and play a message. Recording can be interrupted in the middle and continued later, restarted or aborted. Optionally, responses received vocally can also be recorded using one voice chunk for each answer.”                                                                                                                                                          | ¶54: “The voice recording unit 39 is used to record and play a message. Recording can be interrupted in the middle and continued later, restarted or aborted. Optionally, responses received vocally can also be recorded using one voice chunk for each answer.”                                                                                                                                                          |
| 14:1-5: “The user interface 36 allows the sender to choose recipients by list selection, by alphabet, by categories (e.g. family, friends, work), by phone number, and private number and allows a Voice Tag to be attached to the message. By ‘private number’ is meant a push-to-talk number (similar to phone number) used in iDEN network. Voice Tags are usually recipient's/sender's name recorded as a voice message.” | ¶68: “The user interface 36 allows the sender to choose recipients by list selection, by alphabet, by categories (e.g. family, friends, work), by phone number, and private number and allows a Voice Tag to be attached to the message. By ‘private number’ is meant a push-to-talk number (similar to phone number) used in iDEN network. Voice Tags are usually recipient's/sender's name recorded as a voice message.” |
| 16:26-29: “As shown, the sender records a message and selects recipients and options. The message is then sent to the messaging server using HTTP /TCP. The server stores the message together with the identities of the recipients in the message database and conveys to each recipient notification that a message has arrived.”                                                                                          | ¶92: “As shown, the sender records a message and selects recipients and options. The message is then sent to the messaging server using HTTP/TCP. The server stores the message together with the identities of the recipients in the message database and conveys to each recipient notification that a message has arrived.”                                                                                             |
| 17:3-5: “Upon receiving notification of an awaiting message, the recipient may retrieve the message from the server by sending a request using HTTP /TCP, whereupon the server conveys the message to the recipient also using HTTP/TCP.”                                                                                                                                                                                     | ¶93: “Upon receiving notification of an awaiting message, the recipient may retrieve the message from the server by sending a request using HTTP/TCP, whereupon the server conveys the message to the recipient also using HTTP/TCP.”                                                                                                                                                                                      |
| 18:8-12: “In the embodiments described above, messages are recorded by the sender at his or her                                                                                                                                                                                                                                                                                                                               | ¶98: “In the embodiments described above, messages are recorded by the sender at his or her sending device, be                                                                                                                                                                                                                                                                                                             |

| Roujinsky (Ex-1006)                                                                                                                                                                                                                                                                                       | Roujinsky-US (Ex-1024)                                                                                                                                                                                                                                                                 |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p>sending device, be it a telephone or computer. However, the invention also contemplates other approaches to compiling messages. For example, the sender can establish streaming or voice communication with the messaging server and dictate messages for direct storage by the messaging server.”</p> | <p>it a telephone or computer. However, the invention also contemplates other approaches to compiling messages. For example, the sender can establish streaming or voice communication with the messaging server and dictate messages for direct storage by the messaging server.”</p> |
| <p>3/8</p>  <p>FIG. 4:</p>                                                                                                                                                                                              |  <p>FIG. 4:</p>                                                                                                                                                                                     |

## XI. DETAILED EXPLANATION OF THE UNPATENTABILITY GROUNDS

### A. Ground 1: Claims 10-13 are rendered obvious by Mumick’955-Bengtsson

1. A POSITA would have been motivated to combine Mumick’955 and Bengtsson and had a reasonable expectation of success

70. In addition to the reasons set forth below, a POSITA would have been motivated to combine the teachings of Mumick’955 and Bengtsson (“Mumick’955-

Bengtsson”) and would have had a reasonable expectation of success in doing so because each relates to the same well-known technologies.

71. Both relate to and describe systems and methods for transmitting multimedia messages, including voice associated with SMS messages. Ex-1005, Abstract, 7:7-10; Ex-1007 ¶8. For example, Mumick’955 states that a user creates a text message and determines who to send it to “using whatever mechanisms are provided by the [user’s mobile] device.” Ex-1007 ¶40. The user may “add speech to the SMS message” by clicking on a link or similar mechanism provided by the device, which connects the user to a “Multimodal Platform” where they are given instructions on how to record a voice message. *Id.* “The recorded voice message is then stored for future retrieval” in a database, Media Server, or other storage mechanism “that facilitates storing audio content.” *Id.* The user “then sends the SMS message which is transmitted ... to the Short Message Service Center (SMSC),” which further “transmits the message to the recipient and also communicates a link within the message that allows the Multimodal Platform ... to uniquely associate the SMS message and the stored voice message.” *Id.* “When the message is received by the user at the other end of the connection there is a telephony link embedded in the message that, using whatever method is available on the recipients’ device, once accessed, connects the recipient to the Multimodal Platform 134 which retrieves the voice message from the Speech Server (or from a media server or database) and

plays it to the recipient.” Ex-1007 ¶41. Similarly, Bengtsson discloses “systems and methods for communicating multimedia attachments to short text messages.” Ex-1005, 1:9-10. Bengtsson teaches a method wherein a user “creates a conventional SMS message” at their mobile terminal; before the message is sent, an advanced messaging application at the terminal prompts the user with a request of “whether an attachment file should be included” such as a voice attachment; and if the user opts to attach a file then a URL address to the file is added to the SMS message, which is sent to the recipient, and “the attachment is sent to a special server for retrieval by the recipient.” Ex-1005, 7:23-8:3, 8:10-28. Moreover, Bengtsson discloses that the text part of the message is sent to the receiving party via an SMS server 36 and “the attachment is transmitted to a different server 32.” Ex-1005, 8:10-14. Therefore, the receiving party “receives a message containing the text message” and “the link to the server 32 where the image (or other attached file) is stored” and can be downloaded. Ex-1005, 8:25-28.

72. The '978 Patent explains that “in order to integrate 104 the text SMS message with voice content, the client application 201a intercepts 104a the addressed text message” and “then prompts 104b the user 202 as to whether a voice SMS message needs to be included.” Ex-1001, 3:42-46. A POSITA would have been motivated to combine Mumick'955 and Bengtsson because they would have recognized a benefit of incorporating the additional functionalities of Bengtsson's

client application on the mobile device, such as its ability to intercept a user's text message and prompt the user to add voice content to the message into a system like Mumick'955. Mumick'955 already teaches a client application on the mobile device that integrates voice content to a text message but explains that the user clicks on a Multimodal SMS link (or a similar mechanism provided by the device) to add voice to the SMS message. Ex-1007 ¶40. Specifically, the user clicks on a Multimodal SMS link, which connects them to the Multimodal Platform where they are provided instructions to record a voice message through the Speech Platform. *Id.* A POSITA would have recognized that such "a similar mechanism provided by the device" for the user to integrate voice content to the text message would be to implement Mumick'955's client application with the capability to intercept the user's text message and prompt the user to add voice content to the text message, as taught by Bengtsson. This would have streamlined the process for the user because the user could automatically be prompted by the client application to add voice content to the text message as opposed to having to click on a separate link using their device to then follow instructions to create a voice recording on the Speech Server as in Mumick'955's client application. As I explain in my technical background section, including more user-friendly and automated functionality on a client application on the mobile device would have been an obvious design choice to a POSITA as it would have ensured a faster, simpler, and more reliable user experience. *See Section*

VII, ¶¶32-46; *see also, e.g.*, Ex-1032 (AOL Instant Messenger: “Now you can chat instantly with the people you want—It’s hassle-free no matter how you are connected to the Internet!”); Ex-1033 (describing the “revolutionary” iPhone that “redefines what users can do on their mobile phones” including “mak[ing] calls by simply pointing at a name or number,” “go directly to those messages” that the user wants to listen to and “immediately randomly access those messages that interest them most,” “easily send and receive SMS messages in multiple sessions,” “easily choose a photo ... to include in an email”); Ex-1025, 78 (“An ideal Client completely hides the underlying communication methodology from the user.”), 97 (“Today, a wide spectrum of Client-Server systems are being implemented to make information easily accessible to the end-user.”); Ex-1030; Ex-1040. For example, allowing the user to automatically record a voice message when intercepted and prompted by the client application would avoid the user having to click on a link and follow instructions to create a voice message on the Speech Server, thus eliminating a number of steps (making it faster) and eliminating the need for a user to follow instructions to create a voice message each time (making it simpler for the user). This would result in a more reliable user experience because the user would not have to remember to click on a link and follow instructions—the system would automatically do this for them.

73. A POSITA would have also been motivated to combine Mumick’955 and Bengtsson because Bengtsson provides additional implementation details on how the client application on the mobile device embeds a link to a voice message into the SMS text message sent to the recipient. Mumick’955 already teaches that the SMS message sent to the recipient includes “a link within the message that allows the Multimodal Platform ... to uniquely associate the SMS message and the stored voice message,” Ex-1007 ¶40, and that the link embedded in the message “can be created at the sending device.” *Id.* ¶27. A POSITA would have looked to Bengtsson for additional details on how the embedded link can be created from the sender’s mobile device. Bengtsson discloses that its “advanced messaging application ... attach[es] such [imaging or audio] files to an SMS message.” Ex-1005, 7:17-23. Bengtsson states that in the user’s terminal 30, the “user first creates a conventional SMS message.” *Id.* at 7:23-25. Before the SMS message is sent by the user, the advanced messaging application at terminal 30 prompts the user to ask “whether an attachment file should be included.” *Id.* at 7:25-27. If the user opts to attach a file, then “certain information is added to the SMS message,” which is then sent to the recipient selected by the user, and “the attachment is sent to a special server,” e.g., server 32 for the recipient to retrieve. *Id.* at 7:30-8:3. Terminal 30’s application “includes the URL address (e.g., [46](http://image.telia.com/sending-phone-number/image-</a></p></div><div data-bbox=)

number) as part of the text that is sent” as an SMS message to receiving party 34. *Id.* at 8:21-24.

74. A POSITA would also have had a reasonable expectation of success in combining the teachings of Mumick’955 and Bengtsson because they both disclose straightforward applications of well-known technologies using standard hardware and software systems such as client applications present on mobile devices, multimodal messaging, user interfaces, and servers. Additionally, Mumick’955 and Bengtsson have similar architectures—for example, both have two separate servers: one for storing the voice messages of the user and one for transmitting a voice message notification to the user. As such, it would have been well within the skill of a POSITA to implement the automatic intercepting and prompting capabilities of Bengtsson’s client application into Mumick’955’s client application. Ex-1005, 7:23-8:3; Ex-1007 ¶40. For example, common operating systems in commercially available mobile phones that I used by 2007 all had built in support for SMS messaging. *See, e.g.*, Ex-1033 (describing the “revolutionary” iPhone that “redefines what users can do on their mobile phones” including “mak[ing] calls by simply pointing at a name or number,” “go directly to those messages” that the user wants to listen to and “immediately randomly access those messages that interest them most,” “easily send and receive SMS messages in multiple sessions,” “easily choose a photo ... to include in an email”); Ex-1030 (Nokia 3250 User Guide); Ex-1040

(Nokia 9300 User Guide). They also all had memory storage, user interfaces, and connections to servers that a POSITA would have been familiar with. For example, contacts, applications, photos and messages were all stored on device storage. Graphical user interfaces allowed users to interact with applications for making phone calls, looking up contacts, sending messages, etc. And connections to servers were provided for browsing the web and sending messages among other things. These are all exemplified in the January 9, 2007 announcement of the Apple iPhone (Ex-1033) which includes a description of the camera and photo management application (which provided storage for photos and a graphical user interface), an SMS application, and a web browser, which a POSITA would understand worked by connecting to web servers. Furthermore, I recall during that demonstration of the phone at the time of the announcement that the web browser was shown connecting to the New York Times web server.

## **2. Independent Claim 10**

### **a. Element 10[pre]: A system for voice short message service messaging, comprising:**

75. In my opinion, Mumick'955-Bengtsson teaches Claim 10's preamble to the extent it is limiting. Mumick'955 discloses methods for combining SMS text with speech "to create a multimodal SMS service." Ex-1007, Abstract. Mumick'955 discloses "a Multimodal SMS mechanism (MultimodalSMS)" for "combining speech, or other modalities (such as image or video data), with standard text SMS"

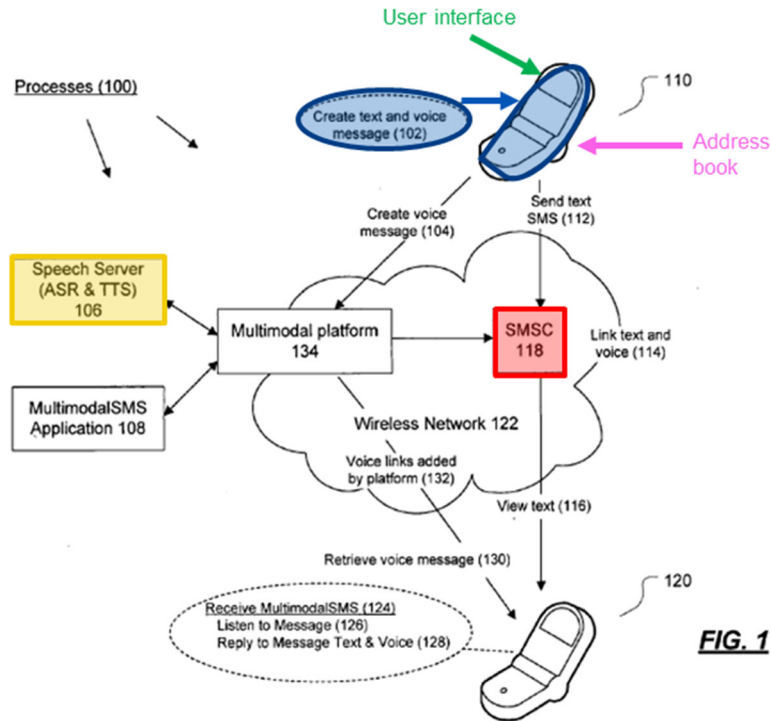
to enable “users to send and receive voice messages associated directly with text SMS messages.” Ex-1007 ¶8.

- b. Element 10[a]: a client application on a mobile device, wherein said client application integrates voice content to a text message created by a user using methods of recipient addressing as used by text short message service messaging;**

76. In my opinion, Mumick’955-Bengtsson teaches Element 10[a]. Mumick’955 teaches a client application on a mobile device. Mumick’955 states that its system includes “user input and/or output devices including those capable of playing and recording speech and those capable of entering and displaying text information.” Ex-1007 ¶9. Mumick’955 provides examples of such devices, including “Personal Digital Assistants (PDA),” and explains that “a PDA that supports simultaneous multimodal applications could be used to enter text via keyboard while recording the voice portion of the message.” *Id.* ¶50. Mumick’955 envisions that a client application would also be able to access a contacts list. For example, Mumick’955 states that “[i]f contacts are stored in the device ... they can also be used in addressing a MultimodalSMS message.” *Id.* ¶47. That is, they “could be accessed as part of the Multimodal application, by using an application on the device.” *Id.*

77. Mumick’955’s client application integrates voice content to a text message created by a user. Mumick’955 teaches with Figure 1 an exemplary process

for creating a MultimodalSMS message by a user device. *Id.* ¶¶14, 40. The mobile device user “creates any text message she wishes to send” and “determines to whom the message is to be sent using whatever mechanisms are provided by the device.” *Id.*; *see also id.* ¶8 (disclosing “standard wireless telephone devices capable of sending and receiving SMS text messages”), Fig. 1 (blue). If the user “wishes to add speech to the SMS message, she clicks on a MultimodalSMS link in her phone book, or similar mechanism provided by the device, which connects her through the voice network” to a Multimodal Platform. Ex-1007 ¶40. The user is given instructions “to allow her to record her voice message through the Speech Platform” (yellow), which is “stored for future retrieval.” *Id.* The user “then sends the SMS message which is transmitted through the SMS network” to the SMSC (red), which further transmits it “to the recipient and also communicates a link within the message that allows the Multimodal Platform ... to uniquely associate the SMS message and the stored voice message.” *Id.* The link embedded in the message “can be created at the sending device.” *Id.* ¶27. “When the message is received by the user at the other end of the connection there is a telephony link embedded in the message that, using whatever method is available on the recipients’ device, once accessed, connects the recipient to the Multimodal Platform 134 which retrieves the voice message from the Speech Server (or from a media server or database) and plays it to the recipient.” Ex-1007 ¶41.



78. A POSITA would have understood that Mumick’955’s “mechanism provided by the device” for creating a text message and voice message (102, blue) by connecting the sender to the Multimodal Platform to record a voice message on the Speech Platform is a client application that is present at the sender’s mobile device. Ex-1007 ¶40. Moreover, the client application on the sender’s device “integrates voice content to a text message created by a user” by embedding a link to the voice message stored on the server into the text message that is sent to the recipient. *Id.* ¶¶27, 40. Specifically, “voice is sent as part of an SMS message by including within the SMS message a link to retrieve the voice message from another location” such as “the Multimodal Platform 134 which, when accessed, causes the voice message to be retrieved from the Speech Platform 206 (or from a media server

or database).” Ex-1007 ¶41. A POSITA would thus have understood that Mumick’955’s client application integrates voice content to a text message in the same manner as the ‘978 patent. The ‘978 Patent discloses that if the user wishes to add voice content to the text message, the client application connects the sender to a server (314) to record the voice message. Ex-1001, 3:42-52. “[T]he voice message notification may be added to the addressed text SMS message by the client application 201a. The client application 201a communicates with the server 314 and receives the information required for the construction of the voice message notification from the server 314. The client application 201a based on the received information may add the voice message notification to the text SMS message.” Ex-1001, 7:29-36. The voice message notification may be a link to the voice message. *Id.* at 5:7-12 (“Bob and Mary, upon receiving the text message may click on a ‘Listen to Voice message’ link included in the voice message notification.”).

79. As mentioned above, Mumick’955 also discloses that the text message is “created by a user using methods of recipient addressing as used by text short message service messaging.” Mumick’955 discloses that “[i]f contacts are stored in the device ... they can also be used in addressing a MultimodalSMS message.” Ex-1007 ¶47. In particular, Mumick’955 discloses that the contacts may “be accessed as part of the Multimodal application, by using an application on the device.” *Id.* I note that the “Multimodal application” that Mumick’955 references as being

accessed on the sender's mobile device if the "contacts are stored in the device" is different from the "MultimodalSMS application 108" that is located on the network in Figure 1.

80. Moreover, Mumick'955 states that "[t]he MultimodalSMS application may provide the user with the capability of storing, editing and applying lists of recipients so that a message can be distributed to a number of recipients." *Id.* ¶44. The "lists would be stored in the application Database" and "could be entered by conventional means" or "to the network." *Id.* "One stored the lists could be used for addressing MultimodalSMS or even standard text SMS messages." *Id.*

81. The '978 Patent explains that "in order to integrate 104 the text SMS message with voice content, the client application 201a intercepts 104a the addressed text message" and "then prompts 104b the user 202 as to whether a voice SMS message needs to be included." Ex-1001, 3:42-46. This limitation is also taught by Bengtsson. Bengtsson teaches "an advanced messaging application" that "provides the capability to attach" such image or audio "files to an SMS message" created by the user in their mobile terminal for transmission to another mobile terminal. Ex-1005, 7:21-25, 7:12-14 ("[I]t would also be desirable to send this file, e.g., image or audio, to another terminal in the radiocommunication system or to a terminal outside of the radiocommunication system."). Bengtsson discloses that its terminal is a mobile terminal. Ex-1005, 6:9-12. A POSITA would have understood that

Bengtsson's advanced messaging application in the mobile terminal is a client application on a mobile device because Bengtsson's invention is described in terms of a client-server architecture. Ex-1005, 5:2-10 (describing Bengtsson's invention in terms of mobile (e-mail) client and SMS server: "According to exemplary embodiments of the present invention, these and other drawbacks, problems and limitations of conventional radiocommunication systems are overcome by providing methods and mechanisms for transmitting attachments to text messages without turning terminals into e-mail clients. When an attachment is to be transmitted, an address of an attachment server is appended to the text message. The text message is then forwarded to the intended recipient, e.g., via an SMS server, while the attachment is sent to the attachment server. Upon receipt of the text message, the recipient can download the attachment from the attachment server using the address included in the text message.").

82. As I explain in my technical background section, client-server computing including key components and functionality of the same were well-known by as early as 1992. *See* Section VII.C, ¶¶39-40. Computer systems have been architected for decades with a wide range of structures. Historically, computers were big and expensive and they provided "time shared" access to multiple terminals. Sometimes those terminals (a.k.a. "clients") were "dumb" or "thin", and provided primarily input and output capabilities while most of the computation was

provided at the “server”. Other times, those clients had greater computation capability, and in the early 1980s with the introduction of “personal computers”, those clients (while still often connected to servers) had sufficient computational capabilities to run independently.

83. Back in 1992, client-server computing was significant enough that it was described in an article in Communications of the ACM – the broad interest magazine of the main professional international computer society. Ex-1025. That article characterized some of the key elements of client-server computing, including that the client typically communicates with the server, transmitting queries or commands, performs data analysis on query or command results from the server and presents the Graphical User Interface (GUI). On the other side, servers typically provide a service to the client, responding to the queries or commands – and do so in a way that hides much of the details of its implementation so that clients with various kinds of software and hardware can work with it. This article also explains that as far back as 1992, it was common to have the GUI of an application displayed on a computer remote from the application. It describes the X Window System that commonly ran on Unix environments which “provides network transparency so that an application displaying a chart on a screen could be running on a local machine or a remote machine thousands of miles away.” Ex-1025, 91.

84. Moreover, a POSITA would have understood that Bengtsson's advanced messaging application in the mobile terminal is a "program present on the sender's mobile device." As I describe below and as was described in detail by Bengtsson (Ex-1005, 6:19-8:3), Bengtsson includes a terminal with an advanced messaging application that attaches voice to SMS messages that comes from built in or attached audio recorders.

85. Bengtsson's "client application integrates voice content to a text message created by a user" as required by Element 10[a] because the "advanced messaging application ... attach[es] such [image or audio] files to an SMS message." Ex-1005, 7:17-23. For example, Bengtsson states that in the user's mobile terminal 30, the "user first creates a conventional SMS message" (green). Ex-1005, 7:23-25, Fig. 3 (annotated). A POSITA would have understood that creating a conventional SMS message includes selection of the intended recipients for the message. Ex-1005, 8:2 (the message is "forwarded to the *intended recipient*"). Furthermore, such selection would have been well-known to a POSITA to include the use of a stored address book (pink).

86. Indeed, such techniques of recipient addressing were well-known in the art as I explain in my technical background section. See Section VII.A, ¶¶33-35. For example, the earliest of computing systems supported electronic communications through various techniques including email and chat, then later (but still before the

time the '978 Patent) social networks. All of these supported various techniques to decide who to address the communications to. It never made sense to ask a human user to remember the address of all possible recipients, and so it is no surprise that various recipient addressing techniques were developed early on. For example, I remember using email clients such as “Pine” back in the 1990s that had a built-in address book where I could enter the names and email address of recipients, and then use them to easily select who to send emails to. And by 1999, commercial services, such as AOL Instant Messenger (AIM) provided “buddy lists” (Ex-1032), which were a form of an address book of online friends to direct short messages to.

87. Similarly, cell phones commonly had contact lists or address books built in that were available for users to select recipients from in order to send short text messages. For example, as shown in a user guide (Ex-1030, 34) from the Nokia 3250 mobile phone from 2005, it let users select recipients or groups from the built-in “Contacts” program in order to send short text messages.

88. In Bengtsson’s system, before the SMS message is sent by the user, the advanced messaging application at terminal 30 (blue) prompts the user with a request of “whether an attachment file should be included.” Ex-1005, 7:25-27.

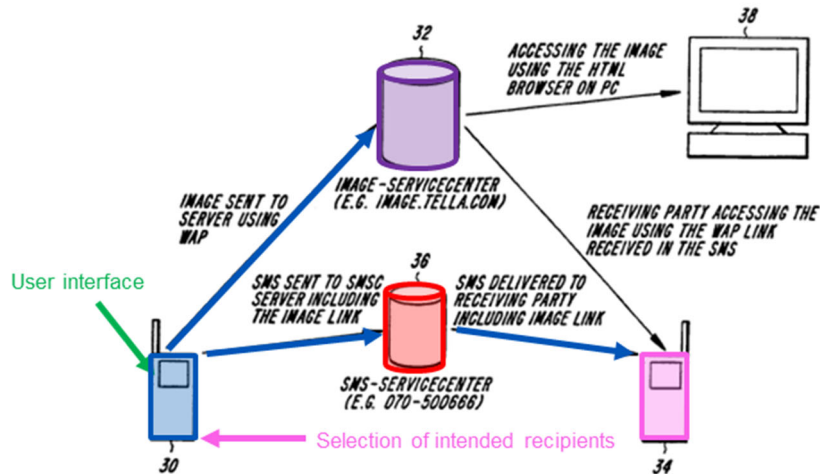


Fig. 3

89. If the user opts to attach a file, then “certain information is added to the SMS message,” which is then sent to the intended recipient, and “the attachment is sent to a special server,” for example, server 32 (purple) for the recipient to retrieve. Ex-1005, 7:30-8:3, 8:5-7 (terminal 30 sends the attached image or audio file from terminal 30 to server 32, which is “located in the network”). The application at mobile terminal 30 “includes the URL address (e.g., image.telia.com/sending-phone-number/image-number) as part of the text that is sent” as an SMS message to receiving party 34. Ex-1005, 8:21-24.

90. A POSITA would have understood that Bengtsson’s advanced messaging application (Ex-1005, 7:21-22) at the mobile terminal “integrates voice content to a text message created by a user,” as the claim requires, because it incorporates the voice message notification into the text message created by the user

in the same manner as the '978 Patent. The '978 Patent states that “to integrate 104 the text SMS message with voice content, the client application 201a intercepts 104a the addressed text SMS message” and “prompts 104b the user 202 as to whether a voice SMS message needs to be included.” Ex-1001, 3:42-46. And if the user “prefers to additionally add a voice SMS message, the client application 201a connects the mobile device 201 to a server 314” where the “user’s voice message is recorded and stored.” Ex-1001, 3:48-52. It then includes and transmits a “voice message notification” with the text SMS message “to the addressed recipients.” Ex-1001, 3:52-54. Specifically, “[t]he client application 201a communicates with the server 314” to “receive[] the information required for the construction of the voice message notification from the server 314” and “based on the received information may add the voice message notification to the text SMS message.” Ex-1001, 7:29-36. The voice message notification may be a link to the voice message. Id. at 5:7-12 (“Bob and Mary, upon receiving the text message may click on a ‘Listen to Voice message’ link included in the voice message notification.”). Therefore, as with the '978 Patent, Bengtsson integrates voice content to a text message, by allowing the user to create a text message and a voice message and then including a voice message notification (i.e., link) to the voice message in the text message, which is sent to the intended recipient.

91. A POSITA would have been motivated to combine Mumick'955 and Bengtsson for the reasons I explain in Section XI.A.1, ¶¶70-74, namely, because they would have recognized a benefit of incorporating the additional functionalities of Bengtsson's client application on the mobile device, such as its ability to intercept a user's text message and prompt the user to add a voice message into a system like Mumick'955. Mumick'955 already teaches a client application on the mobile device that integrates voice content to a text message but explains that the user clicks on a Multimodal SMS link (or a similar mechanism provided by the device) to add voice the SMS message. Ex-1007 ¶40. That is, the user clicks on a Multimodal SMS link, which connects them to the Multimodal Platform where they are provided instructions to record a voice message through the Speech Platform. *Id.* A POSITA would have recognized that such "a similar mechanism provided by the device" for the user to integrate voice content to the text message would be to implement Mumick'955's client application with the capability to intercept the user's text message and prompt the user to add voice content to the text message, as taught by Bengtsson. This would have streamlined the process so the user could automatically be prompted by the client application to add voice content to the text message, as opposed to having to click on a separate link using their device to then follow instructions to create a voice recording on the Speech Server as in Mumick'955's client application as in Mumick'955's client application. Including more user-

friendly and automated functionality on a client application on the mobile device would have been an obvious design choice to a POSITA as it would have ensured a faster, simpler, and more reliable user experience in integrating a voice message. For example, allowing the user to automatically record a voice message when intercepted and prompted by the client application would avoid the user having to click on a link and follow instructions to create a voice message on the Speech Server, thus eliminating a number of steps (making it faster) and eliminating the need for a user to follow instructions to create a voice message each time (making it simpler for the user). This would result in a more reliable user experience because the user would not have to remember to click on a link and follow instructions—the system would automatically do this for them.

92. A POSITA would have also been motivated to combine Mumick’955 and Bengtsson because Bengtsson provides additional implementation details on how the client application on the mobile device embeds a link to a voice message into the SMS text message sent to the recipient. Mumick’955 already teaches that the SMS message sent to the recipient includes “a link within the message that allows the Multimodal Platform ... to uniquely associate the SMS message and the stored voice message,” Ex-1007 ¶40, and that the link embedded in the message “can be created at the sending device.” *Id.* ¶27. A POSITA would have looked to Bengtsson for additional details on how the embedded can be created from the sender’s mobile

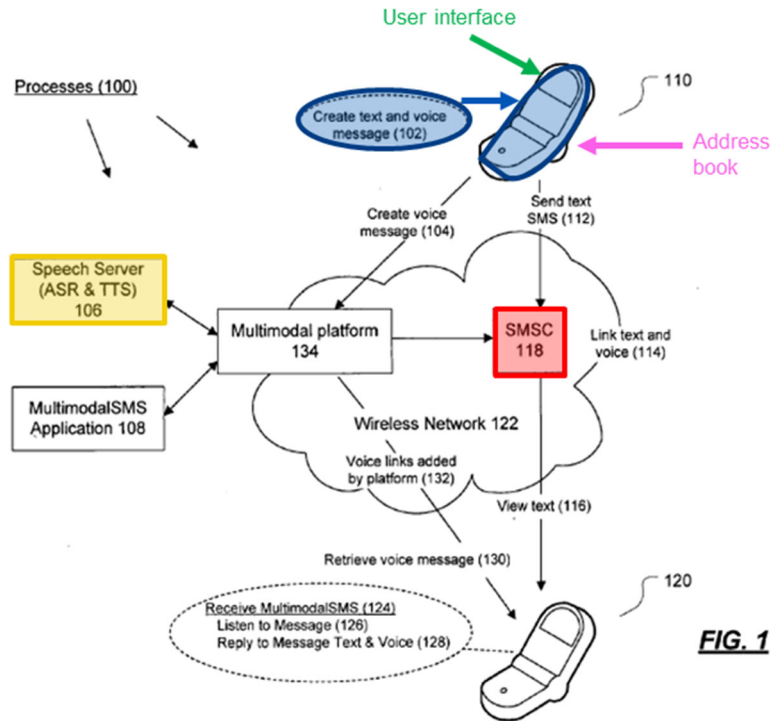
device. Bengtsson discloses that its “advanced messaging application ... attach[es] such [imaging or audio] files to an SMS message.” Ex-1005, 7:17-23. Bengtsson states that in the user’s terminal 30, the “user first creates a conventional SMS message.” *Id.* at 7:23-25. Before the SMS message is sent by the user, the advanced messaging application at terminal 30 prompts the user to ask “whether an attachment file should be included.” *Id.* at 7:25-27. If the user opts to attach a file, then “certain information is added to the SMS message,” which is then sent to the recipient selected by the user, and “the attachment is sent to a special server,” e.g., server 32 for the recipient to retrieve. *Id.* at 7:30-8:3. Terminal 30’s application “includes the URL address (e.g., image.telia.com/sending-phone-number/image-number) as part of the text that is sent” as an SMS message to receiving party 34. *Id.* at 8:21-24.

93. A POSITA would also have had a reasonable expectation of success in combining the teachings of Mumick’955 and Bengtsson for the reasons I explain in Section XI.A.1, ¶¶70-74, namely, because they both disclose straightforward applications of well-known technologies using standard hardware and software systems such as client applications present on mobile devices, multimodal messaging, user interfaces, and servers. Additionally, Mumick’955 and Bengtsson have similar architectures—for example, both have two separate servers: one for storing the voice messages of the user and one for transmitting a voice message notification to the user. As such, it would have been well within the skill of a

POSITA to implement the prompting capabilities of Bengtsson's client application into Mumick'955's client application. Ex-1005, 7:23-8:3; Ex-1007 ¶40.

**c. Element 10[b]: a memory storage means on said mobile device for storing a list of addresses of recipients;**

94. In my opinion, Mumick'955-Bengtsson teaches Element 10[b]. Mumick'955 teaches "a memory storage means" on the mobile device "for storing a list of addresses of recipients." Mumick'955's mobile device user creates a MultimodalSMS message by first creating "any text message she wishes to send" and "determin[ing] to whom the message is to be sent using whatever mechanisms are provided by the device." Ex-1007 ¶40. For example, if the user "wishes to add speech to the SMS message, she clicks on a MultimodalSMS link *in her phone book, or similar mechanism provided by the device*" (Fig. 1 (pink)), "which connects her through the voice network" to a Multimodal Platform. *Id.*



95. Mumick’955 further states that the “MultimodalSMS application may provide a user with the capability of *storing*, editing and applying *lists of recipients* so that a message can be distributed to a number of recipients.” Ex-1007 ¶44. Moreover, if the user’s “contacts are stored in the device ... they can also be used in addressing a MultimodalSMS message.” Ex-1007 ¶47. A POSITA would have understood that Mumick’955’s phone book and stored contacts lists in the mobile device meet the claimed “memory storage means” because their functions are to “stor[e] a list of addresses of recipients” (Ex-1007 ¶¶40, 47) and their structure can be a memory, including any medium from which a computer can read for storing data such as addresses, such as flash, EEPROM, or another type of memory for storing data such as addresses.

96. Memory means for storing a list of recipient addresses were well-known in the art as I explain in my technical background section. *See* Section VII.A, ¶¶33-35. Specifically, cell phones commonly had contact lists or address books built in that were available for users to select recipients from in order to send short text messages. For example, as shown in a user guide (Ex-1030, 34) from the Nokia 3250 mobile phone from 2005, it let users select recipients or groups from the built-in “Contacts” program in order to send short text messages. A POSITA would have understood that Mumick’955’s system includes a similar memory storage means on the mobile device for storing a list of addresses of recipients because the user can use the phone book and stored contacts on their mobile device to address a text message to a recipient.

## Messaging

### ■ Write and send messages

The wireless network may limit the size of MMS messages. If the inserted picture exceeds this limit, the device may make it smaller so that it can be sent by MMS.

Your device supports the sending of text messages beyond the character limit for a single message. Longer messages are sent as a series of two or more messages. Your service provider may charge accordingly. Characters that use accents or other marks, and characters from some language options like Chinese, take up more space limiting the number of characters that can be sent in a single message.

Before you can send and receive an SMS message, a multimedia message, or an e-mail, or connect to your remote mailbox, you must have the correct connection settings in place. See "Messaging settings," p. 41.

1. To create a message, select **Menu** > **Messag.** > **New message** and from the following options:

**Text message** — to create a text message

**Multimedia message** — to create a multimedia message (MMS)

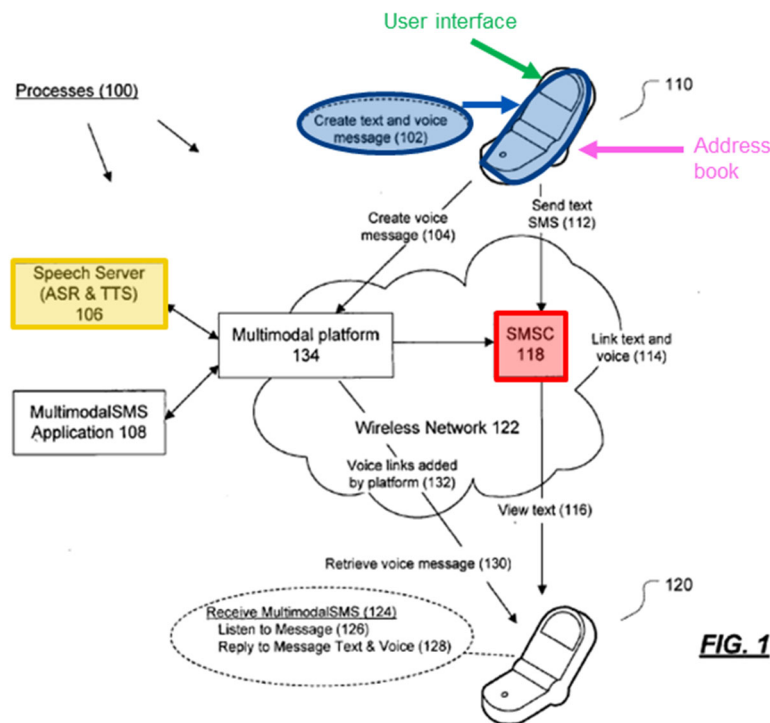
**E-mail** — to create an e-mail message. If you have not set up your e-mail account, you are asked if you want to do so.

2. Press the joystick to select the recipients or groups from **Contacts** or enter the phone number or e-mail address of the recipient in the **To** field. To add a semicolon (;) to separate each recipient, press \*.

**d. Element 10[c]: a user interface on the mobile device for said user to input voice messages and text messages; and**

97. In my opinion, Mumick'955-Bengtsson teaches Element 10[c]. Mumick'955 discloses "a user interface on the mobile device' for the "user to input voice messages and text messages." Mumick'955 discloses that its system includes "user input and/or output devices including those capable of pickup and playback of speech and those capable of entering and displaying text information." Ex-1007 ¶9, Fig. 1 (green). Mumick'955 further discloses that "[t]he text input device is used to

compose a message to be sent using standard SMS technology.” Ex-1007 ¶10, Fig. 1 (green). Moreover, Mumick’955 discloses that a voice message can be input using a microphone on the mobile device. For example, Mumick’955’s Claim 10 recites “inputting said audio message into a first wireless telephone by using a microphone associated with said first wireless telephone.” A POSITA would have understood that the user input and/or output capabilities of Mumick’955’s device meet the claimed user interface for inputting voice messages and text messages.



- e. **Element 10[d]: a server for remotely recording and storing said voice messages of the user, wherein said server is configured to provide access to said recipient for listening to said recorded voice message; and**

98. In my opinion, Mumick’955-Bengtsson teaches Element 10[d]. Mumick’955 discloses “a server for remotely recording and storing” the “voice

messages of the user.” Mumick’955’s system includes a “speech server” that may be used for recognizing “voice commands, rendering of text into speech, *and recording or playing back voice recordings.*” Ex-1007, Abstract; *see also id.* ¶¶9-10 (“a speech recognition engine” has “an additional capability of recording voice” and “may be used for easy control of the playback and recording of voice messages as well as the control of other useful messaging function”). For example, Mumick’955 states that a user that wishes “to add speech to the SMS message” created at the user’s device may “click[] on a MultimodalSMS link in her phone book, or similar mechanism provided by the device,” and be connected “through the voice network” to the Multimodal Platform. Ex-1007 ¶40. The user is given instructions “to allow her to *record her voice message through the Speech Platform.*” Ex-1007 ¶40, Fig. 2 (yellow). Moreover, Mumick’955 states that “[t]he recorded voice message is then stored for future retrieval in database 214.” Ex-1007 ¶40. Furthermore, “[t]he specific storage mechanism used *may include a Media Server,* a database or any other storage mechanism 107 that facilitates storing audio content” (purple). Ex-1007 ¶40.

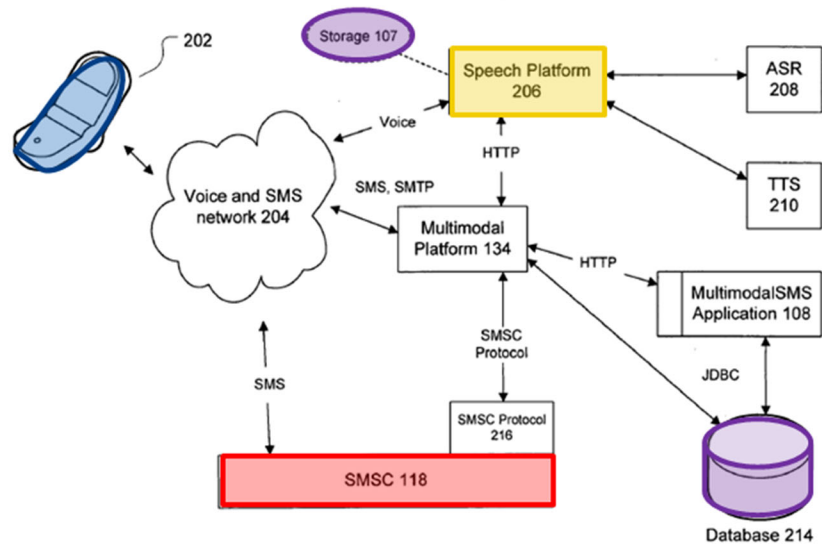


**FIG. 2**

99. Mumick’955 further discloses a server that “is configured to provide access to” the “recipient for listening to” the “recorded voice message.” Mumick’955 discloses an SMSC, which “provides a standard mechanism for transmitting SMS text messages” and may be “used to transmit or to insert the link into the text messages that allow connection to the speech server.” Ex-1007 ¶¶11, 28. In particular, after recording a voice message, the user “sends the SMS message which is transmitted through the SMS network” to the SMSC (red), which then “transmits the message to the recipient and also communicates a link within the message that allows the Multimodal Platform 134 to uniquely associate the SMS message and The stored voice message.” Ex-1007 ¶40. For example, “voice is sent as part of an SMS message by including within the SMS message a link to retrieve the voice message from another location,” such as, e.g., the Multimodal Platform,

which, when accessed, retrieves the voice message “from the Speech Platform” or “from a media server or database” where it was stored. *Id.*

100. Although Mumick’955 teaches using two servers to record and store (speech and media servers), the phrase “a server” in this Element 10[d] would have been understood by a POSITA to mean “at least one server.” In particular, a POSITA would have understood that a single server or multiple servers could be used to accomplish the recording, storing, and providing access elements of the server claimed in limitation 10[d] to meet it. Moreover, a POSITA would have understood that the term “a server” in this limitation does not limit the claim to a single server, because of the dependent claims, which require at least two servers (*see* Claim 11 (“wherein said server comprises a first server for storing the voice messages of the user”), Claim 12 (“wherein said server comprises a second server for transmitting said voice message notification with said addressed text message to the recipients”)) and the corresponding Figure 3A, which depicts a first server 314a and a second server 314b performing the functions of dependent Claims 11 and 12. A POSITA would have known that the separate servers described by Mumick’955 would have provided redundancy and reliability as well as scalability—all of which would have been motivations to use multiple servers. Furthermore, a POSITA would have known that multiple servers could have been structured to put different services on different servers. For example, as I explain in my technical background section. *See*

Section VII.C, ¶¶41-45, both database and web servers were commonly used to store and communicate information, respectively and those are examples of services that could easily and would frequently be put on different servers.

101. As I explain in Section VII.C, ¶¶41-45, one particularly important set of clients and servers communicate over the Internet in what has come to be called the World Wide Web (WWW). Tim Berners-Lee initially developed the WWW in 1990. While Internet-based communications had been around for some time at that point, the WWW simplified things by combining a few basic technologies including web servers, web browsers, HTTP, and HTML. The Internet was an enabling technology – allowing computers to communicate arbitrary information between any location in the world. Ex-1027.

102. Another extremely common server functionality was to provide database services. Typically called database servers or database management systems (DBMSs), these servers provide services to enable client devices and applications to safely and efficiently access, store, and query data on those servers. A 2000 database textbook (Ex-1029), already in its 7<sup>th</sup> edition at that time, described DBMSs in this way (emphasis in original):

Between the physical database itself — i.e., the data as physically stored — and the users of the system is a layer of software, known variously as the **database manager** or **database server** or, more commonly, the **database management system** (DBMS). All requests for access to the database are handled by the DBMS; the facilities sketched in Section 1.1 for adding and removing files (or tables), retrieving data from and updating data in such

files or tables, and so forth, are all facilities provided by the DBMS. One general function provided by the DBMS is thus the *shielding of database users from hardware-level details* (much as programming-language systems shield application programmers from hardware level details). In other words, the DBMS provides users with a perception of the database that is elevated somewhat above the hardware level, and it supports user operations (such as . . . SQL operations . . .) that are expressed in terms of that higher-level perception.

103. While there were (and are) good reasons to have servers architected to provide services such as those for the web and databases, a POSITA would have known that there are actually many different ways to structure such services. On one hand, those services could be distributed across different servers, or on the other hand those services could be put on a client computer. Such decisions were well understood by a POSITA, and would be made based on the details of a particular situation considering factors such as expense, expected scale of use, required reliability, speed and availability of communication networks, etc.

104. For example, the same 2000 database textbook explained many possible database server configurations in Section 2.12 on Distributed Processing (Ex-1029, 50-54). “Many levels or varieties of distributed processing are possible.” (Ex-1029, 51). Or alternatively, “... a single client machine might be able to access several different server machines ...” (Ex-1029, 53).

105. Such database systems are agnostic as to what kind of data is stored in the database. This is indicated in that same 2000 database textbook in that the student

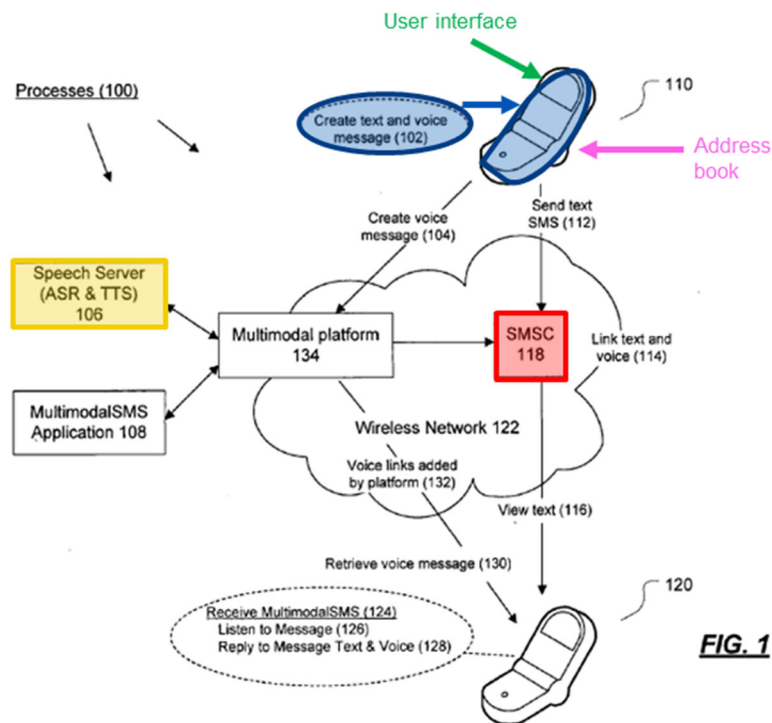
questions from the first chapter include storing content as varied as bottles of wine as well as audio in a database (Ex-1029, 29-30).

**f. Element 10[e]: said client application for transmitting a voice message notification with an addressed text message to said recipients.**

106. In my opinion, Mumick’955-Bengtsson teaches Element 10[e]. Mumick’955 teaches a client application on the mobile device for the same reasons I discuss in Section XI.A.2.b, ¶¶76-78. *See, e.g.*, Ex-1007 ¶40 (a user creates a text message using mechanisms provided by their device and clicks on a MultimodalSMS link in their device to be connected to a speech platform to record a voice message).

107. Moreover, Mumick’955 teaches that the client application transmits a voice message notification with an addressed text message to the recipients. Mumick’955 states that the user creates a text message “and determines to whom the message is to be sent using whatever mechanisms are provided by the device.” *Id.* ¶40, Fig. 1 (blue). If the user “wishes to add speech to the SMS message, she clicks on a MultimodalSMS link in her phone book, or similar mechanism provided by the device, which connects her through the voice network” to a Multimodal Platform. Ex-1007 ¶40. There, the user is given instructions “to allow her to record her voice message through the Speech Platform” (yellow). *Id.* The user “then sends the SMS message which is transmitted through the SMS network” to the SMSC

(red), which further “transmits the message to the recipient and also communicates a link within the message that allows the Multimodal Platform ... to uniquely associate the SMS message and the stored voice message.” *Id.* Mumick’955 further states that “the link embedded in an SMS message *can be created at the sending device.*” Ex-1007 ¶27; *see also id.* at Cl. 10. A POSITA would have understood that the link to the voice message, Which may be embedded in the addressed text message meets the claimed voice message notification.



108. Mumick’955 states that “[w]hen the message is received by the user ... there is a telephony link embedded in the message that, using whatever method is available on the recipients device, once accessed, connects the recipient to the

Multimodal Platform,” which then “retrieves the voice message from the Speech Server” or other storage mechanism “and plays it to the recipient.” Ex-1007 ¶41.

109. If a POSITA would have desired additional implementation details for the client application, such as the ability for it to intercept the user’s text message and prompt the user to add voice content to the text message, this limitation is also taught by Bengtsson. Bengtsson teaches a client application on the mobile device for the same reasons I describe in Section XI.A.2.b, ¶¶81-90. Ex-1005, 6:9-12 (Bengtsson’s terminal is a mobile terminal), 5:2-10 (Bengtsson’s invention is described in terms of a client-server architecture: “According to exemplary embodiments of the present invention, these and other drawbacks, problems and limitations of conventional radiocommunication systems are overcome by providing methods and mechanisms for transmitting attachments to text messages without turning terminals into e-mail clients. When an attachment is to be transmitted, an address of an attachment server is appended to the text message. The text message is then forwarded to the intended recipient, e.g., via an SMS server, while the attachment is sent to the attachment server. Upon receipt of the text message, the recipient can download the attachment from the attachment server using the address included in the text message.”).

110. As I explain in my technical background section, client-server computing including key components and functionality of the same were well-

known by as early as 1992. *See* Section VII.C, ¶¶39-40. Computer systems have been architected for decades with a wide range of structures. Historically, computers were big and expensive and they provided “time shared” access to multiple terminals. Sometimes those terminals (a.k.a. “clients”) were “dumb” or “thin”, and provided primarily input and output capabilities while most of the computation was provided at the “server”. Other times, those clients had greater computation capability, and in the early 1980s with the introduction of “personal computers”, those clients (while still often connected to servers) had sufficient computational capabilities to run independently.

111. Back in 1992, client-server computing was significant enough that it was described in an article in *Communications of the ACM* – the broad interest magazine of the main professional international computer society. Ex-1025. That article characterized some of the key elements of client-server computing, including that the client typically communicates with the server, transmitting queries or commands, performs data analysis on query or command results from the server and presents the Graphical User Interface (GUI). On the other side, servers typically provide a service to the client, responding to the queries or commands – and do so in a way that hides much of the details of its implementation so that clients with various kinds of software and hardware can work with it. This article also explains that as far back as 1992, it was common to have the GUI of an application displayed

on a computer remote from the application. It describes the X Window System that commonly ran on Unix environments which “provides network transparency so that an application displaying a chart on a screen could be running on a local machine or a remote machine thousands of miles away.” Ex-1025, 91.

112. Bengtsson’s system includes “an advanced messaging application” that “provides the capability to attach” an image or audio file “to an SMS message” created by the user in their terminal for transmission to another mobile terminal. Ex-1005, 7:21-25. Just as with the ’978 Patent, Bengtsson’s client application can rely on the underlying mobile phone platform—“The network interface 309 of the mobile device 201 transmits and receives text messages, voice messages, voice calls, etc. over the wireless network 313.” Ex-1001, 6:7-9.

113. Moreover, Bengtsson teaches that the client application transmits a voice message notification with an addressed text message to the recipients. Bengtsson states that in the user’s mobile terminal, the “user first creates a conventional SMS message” (green) and specifies intended recipients (pink). Ex-1005, 7:23-8:3, Fig. 3 (annotated). Before the SMS message is sent by the user, the advanced messaging application at the terminal (blue) prompts the user with a request of “whether an attachment file should be included.” Ex-1005, 7:25-27.

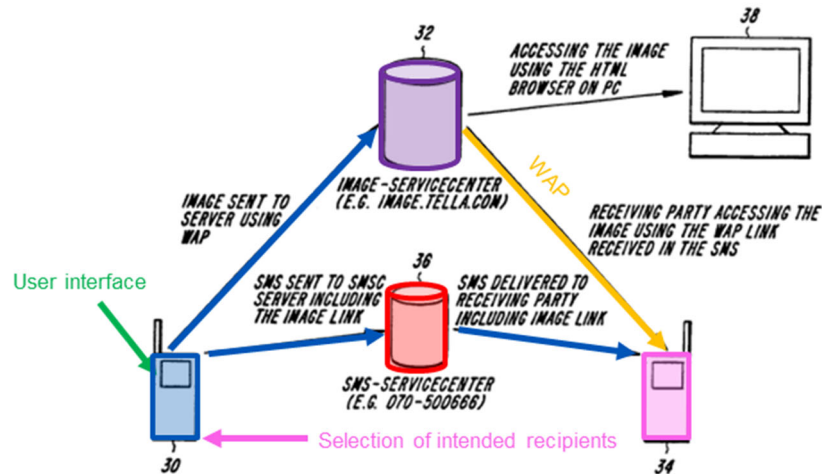


Fig. 3

114. If the user chooses to attach a file, then “certain information is added to the SMS message” by the advanced messaging application at the mobile terminal, which is then sent to the recipient, and “the attachment is sent to a special server” for the recipient to retrieve. Ex-1005, 7:30-8:3.

115. Terminal 30 sends the attached image or audio file from terminal 30 to server 32 (purple). Ex-1005, 8:5-7. Moreover, the advanced messaging application at terminal 30 “includes the URL address (e.g., image.telia.com/sending-phone-number/image-number) as part of the text that is sent” as an SMS message to receiving party 34. Ex-1005, 8:21-24. The receiving party 34 therefore “receives a message containing the text message” and “the link to the server 32 where the image (or other attached file) is stored.” Ex-1005, 8:25-28. Bengtsson discloses that “optionally, a file type associated with the attachment,” and “[t]he receiving party

may choose to download the image from server 32 using, e.g., WAP, to his or her terminal 34.” Ex-1005, 8:25-29; *see also id.* at 9:1-10 (“[R]eceiving terminal 34 sends, e.g., a Wireless Session Protocol (WSP) request with the URL to a WAP Gateway/Proxy 40, which provides protocol conversion, encoding/decoding, etc. of the signals transmitted therethrough. For example, the WAP Gateway/Proxy 40 can translate the WSP request to a HyperText Transfer Protocol (HTTP) request which is then sent over the Internet to the server 32. The server 32 then returns (Figure 4(b)) an HTTP response, including a Wireless Markup Language (WML) coded attachment, to the WAP Gateway/Proxy 40,” which “converts this message into, for example, binary encoded WML.”).

116. Thus, the recipient “receives a message containing the text message” and “the link to the server 32 where the image (or other attached file) is stored” and can be downloaded. Ex-1005, 8:25-28. A POSITA would have understood that the “link to the server 32 where the image (or other attached file) is stored” is a voice message notification because the link notifies the recipient of the existence of the voice message, and the '978 Patent itself discloses using links or providing a number for the recipients to dial in the voice message notification. Ex-1001, 5:7-16 (“The server 314 adds a voice message notification, ‘You have received a new Voice message’ in the addressed text message and sends the message to Bob and Mary. Bob and Mary, upon receiving the text SMS message may click on a ‘Listen to Voice

message' link included in the voice message notification. On clicking the link, Bob and Mary may directly listen to Alice's voice message. Alternatively, the recipients may dial the number in the voice message notification. The number may be a short code, such as \*0\*, providing access to all new messages.”).

117. A POSITA would have been motivated to implement the combination with Bengtsson's teachings to obtain the benefit of its use of a specific URL address (or similar such unique identifier) linking the stored voice message to the text message that is sent to the recipient into Mumick'955's voice notification, if it is not already implemented as such in Mumick'955. Mumick'955 already teaches that the embedded link that allows the Multimodal Platform to “uniquely associate the SMS message and the stored voice message,” Ex-1007 ¶40, may be “created at the sending device.” Ex-1007 ¶27. A POSITA would have been interested in examples of embedded links that “uniquely associate the SMS message and the stored voice message” and would have looked to Bengtsson's embedded URL address as a routine example, which includes “image.telia.com/sending-phone-number/image-number.” Ex-1005, 8:21-24. A POSITA would have found it beneficial to include a URL address specifically “identifying the server 32 that the image [or video file] is to be sent to,” as Bengtsson's URL does, to streamline and quicken the process for the recipient to obtain the stored image or message.

118. A POSITA would have had a reasonable expectation of success in combining Mumick'955 and Bengtsson because these references disclose interrelated teachings based on routine technologies that would have been amenable to various well-understood and predictable combinations, as I explain in Section XI.A.1, ¶¶70-74.

**3. Dependent Claim 11: The system of claim 10, wherein said server comprises a first server for storing the voice messages of the user.**

119. In my opinion, Mumick'955-Bengtsson teaches Claim 11. Mumick'955 discloses a server for the same reasons I describe in Section XI.A.2.e, ¶¶98-105. *See, e.g.*, Ex-1007, Abstract (speech server can be utilized for “recording or playing back voice recordings”). Mumick'955 further discloses a first server for storing the voice messages of the user. Mumick'955 discloses that a user that wishes “to add speech to the SMS message” created at the user’s device may “click[] on a MultimodalSMS link in her phone book, or similar mechanism provided by the device,” and be connected “through the voice network 204 to the Multimodal Platform 134.” Ex-1007 ¶40. The user is then provided instructions “to allow her to record her voice message through the Speech Platform.” Ex-1007 ¶40, Fig. 2 (yellow). Moreover, Mumick'955 discloses that “[t]he recorded voice message is then stored for future retrieval in database 214.” Ex-1007 ¶40. Furthermore, “[t]he specific storage mechanism used may include a Media Server, a database or any

other storage mechanism 107 that facilitates storing audio content” (purple). Ex-1007 ¶40. Accordingly, a POSITA would have understood that at least a Media Server, a database, or any other storage mechanism in Mumick’955 that facilitates storing audio content is the first server for storing the voice messages.

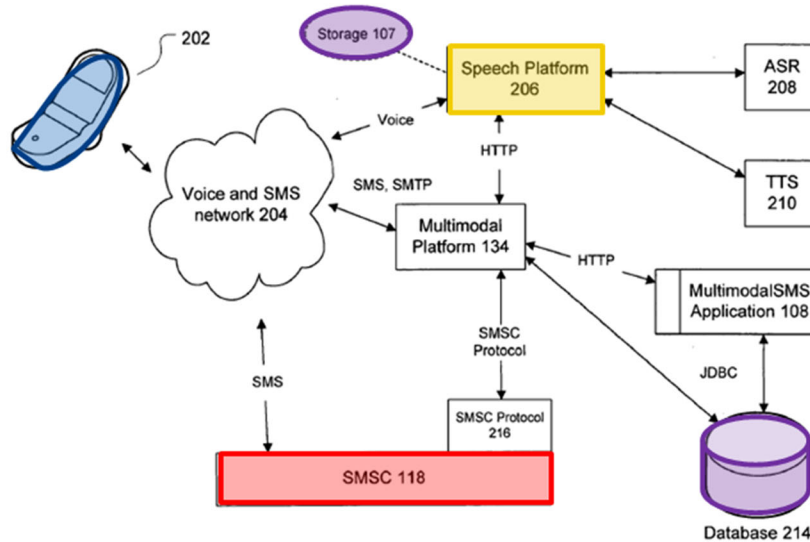


**FIG. 2**

4. **Dependent Claim 12: The system of claim 10, wherein said server comprises a second server for transmitting said voice message notification with said addressed text message to the recipients.**

120. In my opinion, Mumick’955-Bengtsson teaches Claim 12. Mumick’955 discloses a server for the same reasons I describe in Section XI.A.2.e, ¶¶98-105. *See, e.g.*, Ex-1007, Abstract (speech server can be utilized for “recording or playing back voice recordings”). Mumick’955 further discloses a second server for transmitting the voice message notification with the addressed text message to the recipients. Mumick’955 discloses an SMSC, which “provides a standard

mechanism for transmitting SMS text messages and is also used to transmit or to insert the link into the text messages that allow connection to the speech server.” Ex-1007 ¶11. In particular, after recording a voice message, the user “sends the SMS message which is transmitted through the SMS network 204 to the” SMSC (red), which then “transmits the message to the recipient and also communicates a link within the message that allows the Multimodal Platform 134 to uniquely associate the SMS message and the stored voice message.” Ex-1007 ¶40. For example, “voice is sent as part of an SMS message by including within the SMS message a link to retrieve the voice message from another location,” such as, e.g., Multimodal Platform 134, which, when accessed, retrieves the voice message “from the Speech Platform 206 (or from a media server or database).” *Id.*

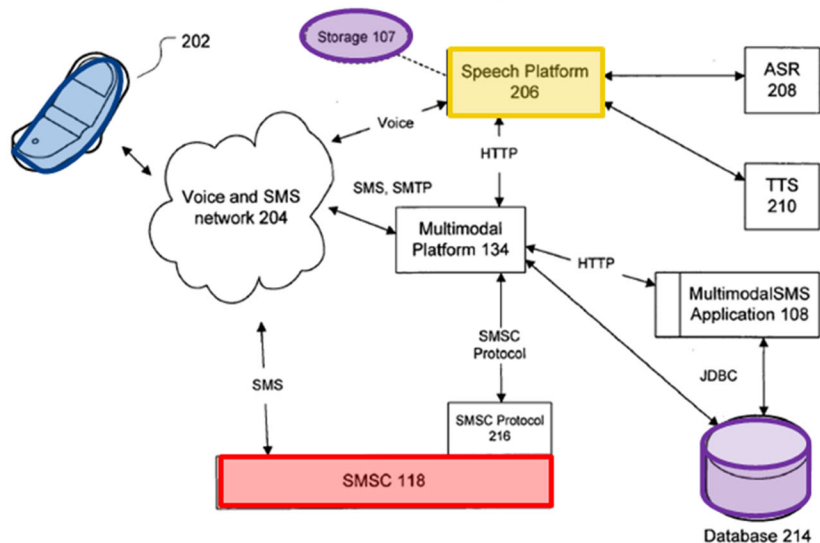


**FIG. 2**

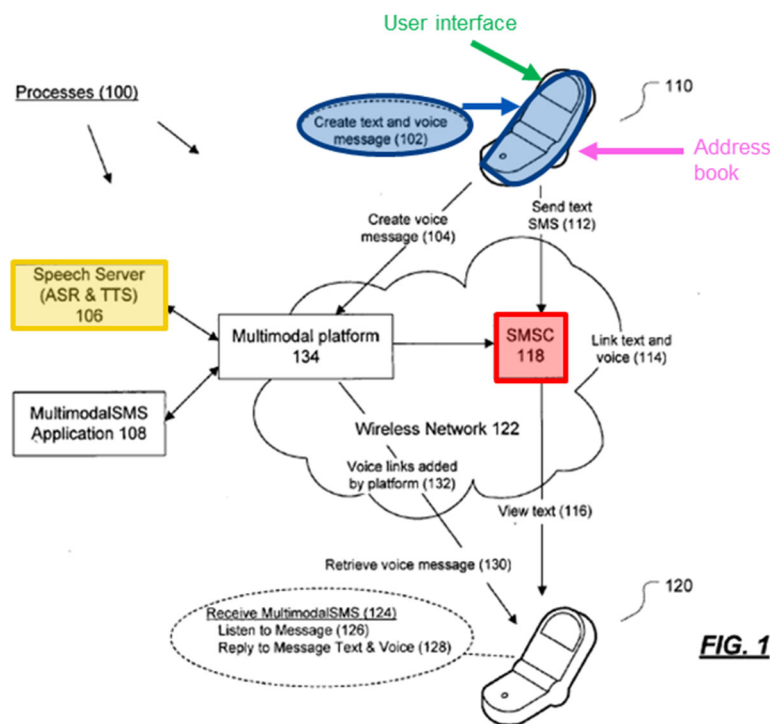
121. Mumick’955 discloses that “[w]hen the message is received by the user ... there is a telephony link embedded in the message that, using whatever method

is available on the recipients device, once accessed, connects the recipient to the Multimodal Platform,” which then “retrieves the voice message from the Speech Server” or other storage mechanism “and plays it to the recipient.” Ex-1007 ¶41. A POSITA would have understood that the link to the voice message in Mumick’955, which may be embedded in the addressed text message meets the claimed voice message notification because the ’978 Patent itself discloses using links in the voice message notification. Ex-1001, 5:7-16. Accordingly, a POSITA would have understood that at least the SMSC is the second server for transmitting the voice message notification with the addressed text message to the recipients.

**5. Dependent Claim 13: The system of claim 10, wherein the client application transmits one of a text message, a voice message, and a combination thereof.**

122. In my opinion, Mumick’955-Bengtsson teaches Claim 13. Mumick’955 teaches a client application on the mobile device for the same reasons I discuss in Section XI.A.2.b, ¶¶76-78. *See, e.g.*, Ex-1007 ¶40 (a user creates a text message using mechanisms provided by their device and clicks on a MultimodalSMS link in their device to be connected to a speech platform to record a voice message). Moreover, Mumick’955 teaches that the client application transmits one of a text message, a voice message, and a combination thereof. Mumick’955 explains that the user creates a text message “and determines to whom the message is to be sent using whatever mechanisms are provided by the device.”

*Id.* ¶40, Fig. 1 (blue). If the user “wishes to add speech to the SMS message, she clicks on a MultimodalSMS link in her phone book, or similar mechanism provided by the device, which connects her through the voice network” to a Multimodal Platform. Ex-1007 ¶40. There, the user is provided instructions “to allow her to record her voice message through the Speech Platform” (yellow). *Id.* The user “then **sends the SMS message** which is transmitted through the SMS network” to the SMSC (red), which further “transmits the message to the recipient and also communicates a link within the message that allows the Multimodal Platform ... to uniquely associate the SMS message and the stored voice message.” *Id.* Mumick’955 further discloses that “the link embedded in an SMS message can be created at the sending device.” Ex-1007 ¶27.



123. This claim is also taught by Bengtsson. Bengtsson teaches a client application on the mobile device for the same reasons I discuss in Section XI.A.2.b, ¶¶81-90. *See, e.g.*, Ex-1005, 7:21-25 (Bengtsson’s advanced messaging application provides the capability to attach an image or audio file “to an SMS message” for transmission to another mobile terminal), 6:9-12 (Bengtsson’s terminal is a mobile terminal), 5:2-10 (Bengtsson’s invention is described in terms of a client-server architecture: “According to exemplary embodiments of the present invention, these and other drawbacks, problems and limitations of conventional radiocommunication systems are overcome by providing methods and mechanisms for transmitting attachments to text messages without turning terminals into e-mail clients. When an attachment is to be transmitted, an address of an attachment server is appended to the text message. The text message is then forwarded to the intended recipient, e.g., via an SMS server, while the attachment is sent to the attachment server. Upon receipt of the text message, the recipient can download the attachment from the attachment server using the address included in the text message.”).

124. As I explain in my technical background section, client-server computing including key components and functionality of the same were well-known by as early as 1992. *See* Section VII.C, ¶¶39-40. Computer systems have been architected for decades with a wide range of structures. Historically, computers

were big and expensive and they provided “time shared” access to multiple terminals. Sometimes those terminals (a.k.a. “clients”) were “dumb” or “thin”, and provided primarily input and output capabilities while most of the computation was provided at the “server”. Other times, those clients had greater computation capability, and in the early 1980s with the introduction of “personal computers”, those clients (while still often connected to servers) had sufficient computational capabilities to run independently.

125. Back in 1992, client-server computing was significant enough that it was described in an article in Communications of the ACM – the broad interest magazine of the main professional international computer society. Ex-1025. That article characterized some of the key elements of client-server computing, including that the client typically communicates with the server, transmitting queries or commands, performs data analysis on query or command results from the server and presents the Graphical User Interface (GUI). On the other side, servers typically provide a service to the client, responding to the queries or commands – and do so in a way that hides much of the details of its implementation so that clients with various kinds of software and hardware can work with it. This article also explains that as far back as 1992, it was common to have the GUI of an application displayed on a computer remote from the application. It describes the X Window System that commonly ran on Unix environments which “provides network transparency so that

an application displaying a chart on a screen could be running on a local machine or a remote machine thousands of miles away.” Ex-1025, 91.

126. Moreover, Bengtsson teaches that its client application “transmits one of a text message, a voice message, and a combination thereof,” as required. Bengtsson states that in the user’s terminal, the “user first creates a conventional SMS message” (green) and selects the intended recipients (pink). Ex-1005, 7:23-8:3, Fig. 3 (annotated). Before the SMS message is sent by the user, the advanced messaging application at the terminal (blue) prompts the user with a request of “whether an attachment file should be included.” Ex-1005, 7:25-27. If the user chooses “not attach a file to the SMS message,” then it is “transmitted conventionally.” Ex-1005, 7:28-30.

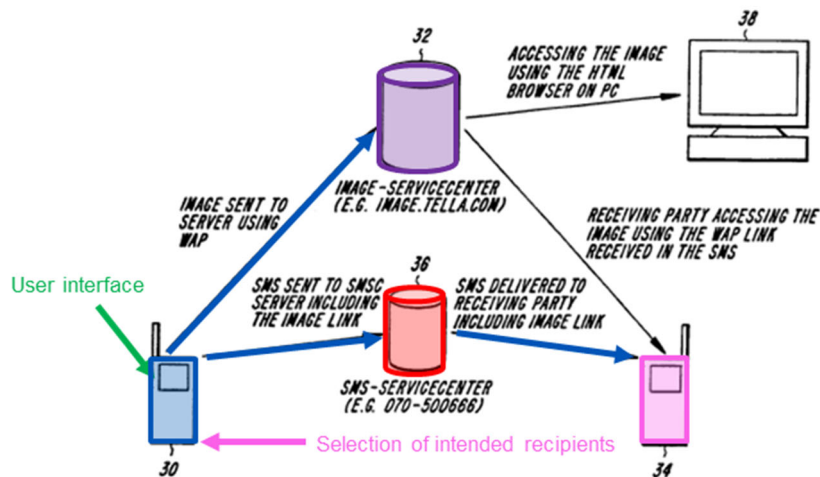


Fig. 3

127. If the user chooses to attach a file, then “certain information is added to the SMS message,” which is then sent to the recipient, and “the attachment is sent to a special server” for the recipient to retrieve or access. Ex-1005, 7:30-8:3.

128. Bengtsson also states that terminal 30 (where the client application resides) “includes the URL address (e.g., [image.telia.com/sending-phone-number/image-number](http://image.telia.com/sending-phone-number/image-number)) as part of the text that is sent” as an SMS message to the receiving party. Ex-1005, 8:21-24. A POSITA would have considered this message to be a combination voice/text message as envisioned by the '978 Patent.

129. A POSITA would have been motivated to combine Mumick'955 and Bengtsson because they would have recognized a benefit of incorporating Bengtsson's specific URL address linking the recipient to the stored voice message into the text message that is sent to the recipient into Mumick'955's voice notification, if it is not already implemented as such in Mumick'955. Mumick'955 already teaches that the embedded link that allows the Multimodal Platform to “uniquely associate the SMS message and the stored voice message,” Ex-1007 ¶40, may be “created at the sending device.” Ex-1007 ¶27. A POSITA would have been interested in examples of embedded links that “uniquely associate the SMS message and the stored voice message” and would have looked to Bengtsson's embedded URL address, which includes “[image.telia.com/sending-phone-number/image-number](http://image.telia.com/sending-phone-number/image-number).” Ex-1005, 8:21-24. A POSITA would have found it beneficial to include a

URL address specifically “identifying the server 32 that the image [or video file] is to be sent to,” as Bengtsson’s URL does, to streamline and quicken the process for the recipient to obtain the stored image or message.

130. A POSITA would have had a reasonable expectation of success in combining Mumick’955 and Bengtsson because these references disclose interrelated teachings based on routine technologies that would have been amenable to various well-understood and predictable combinations, as I explain in Section XI.A.1, ¶¶70-74.

**B. Ground 2: Claim 14 is rendered obvious by Mumick’955-Bengtsson-Roujinsky**

**1. A POSITA would have been motivated to combine Mumick’955-Bengtsson-Roujinsky and had a reasonable expectation of success**

131. A POSITA would have been motivated to combine the teachings of Mumick’955 with Bengtsson and Roujinsky (“Mumick’955-Bengtsson-Roujinsky”) and would have had a reasonable expectation of success in doing so because each relates to the same well-known technologies.

132. All relate to and describe methods for systems and methods for transmitting multimedia messages, including voice SMS messages. Ex-1005, Abstract, 7:7-10; Ex-1006, 1:2-3; Ex-1007, ¶8. For example, Mumick’955 teaches using an application on the user’s device to embed a link to a voice message, Ex-1007 ¶27, created by the user on a speech server into an addressed text message

created by the user at their device and transmitting the combined message to the recipient. Ex-1007 ¶40. Similarly, Bengtsson teaches a method wherein a user “creates a conventional SMS message” at their mobile terminal; before the message is sent, an advanced messaging application at the terminal prompts the user with a request of “whether an attachment file should be included” such as a voice attachment; and if the user opts to attach a file then a URL address to the file is added to the SMS message, which is sent to the recipient, and “the attachment is sent to a special server for retrieval by the recipient.” Ex-1005, 7:23-8:3, 8:10-28. Moreover, Roujinsky teaches systems and methods for receiving recipient feedback through a telecommunication network comprising creating—using a messaging client on the sending device (Ex-1006, 7:7-9)—a multimedia message, sending the message to a server for storing with the recipient’s identity and transmission to the recipient, and receiving information regarding the recipient’s response or receipt of the message. Ex-1006, 3:12-19, 11:8-10. Roujinsky additionally discloses that its messaging client 31 can “be implemented in a variety of technologies,” such as for example, “Java, J2ME, Brew, Symbian, Linux, Windows, PocketPC, SmartPhone, PalmOS, or others.” Ex-1006, 8:5-8.

133. As I explain in Section XI.A.2.b, ¶¶91-93, it would have been obvious to modify Mumick’955’s client application (Ex-1007 ¶40) to include Bengtsson’s ability to intercept a user’s text message and prompt the user to add a voice message

(Ex-1005, 7:25-27), but Mumick'955 does not expressly disclose an operating system. A POSITA would have been motivated to combine Mumick'955 and Bengtsson with Roujinsky because they would have recognized a benefit of incorporating Roujinsky's teachings of a client application provided *on an operating system* of the mobile device into the combined Mumick'955-Bengtsson system because operating systems were well-known to provide stability for users and efficiency for application developers. For example, building applications on top of existing operating systems allows developers to take advantage of the innumerable technological supports built into those operating systems to reduce the amount of effort that must be spent in building new applications and systems. Mumick'955's client application can be used on such devices having operating systems. Ex-1007 ¶50 (PDAs, PocketPCs support multimodal applications). Roujinsky discloses that its "messaging client 31 can run on different devices such as mobile phones, smart phones, WDAs PDAs, etc. and be implemented in [a] variety of technologies." Ex-1006, 8:5-8. Thus, a POSITA would have been motivated to incorporate Roujinsky's more detailed teachings regarding implementation of a client application provided on an operating system of the mobile device into Mumick'955-Bengtsson combined system.

134. A POSITA would also have had a reasonable expectation of success in combining the teachings of Mumick'955, Bengtsson, and Roujinsky. Mumick'955-

Bengtsson-Roujinsky all disclose systems and methods for transmitting multimedia messages using familiar elements such as client applications on mobile devices, multimodal messaging, user interfaces, and servers that a POSITA would have understood are amenable to various well-understood and predictable combinations. Ex-1005, 7:23-8:3; 1006, 3:12-19; Ex-1007 ¶40. For example, common operating systems in commercially available mobile phones that I used by 2007 all had built in support for SMS messaging. They also all had memory storage, user interfaces, and connections to servers that a POSITA would have been familiar with. For example, contacts, applications, photos and messages were all stored on device storage. Graphical user interfaces allowed users to interact with applications for making phone calls, looking up contacts, sending messages, etc. And connections to servers were provided for browsing the web and sending messages among other things. These are all exemplified in the January 9, 2007 announcement of the Apple iPhone (Ex-1033) which includes a description of the camera and photo management application (which provided storage for photos and a graphical user interface), an SMS application, and a web browser, which a POSITA would understand worked by connecting to web servers. Furthermore, I recall during that demonstration of the phone at the time of the announcement that the web browser was shown connecting to the New York Times web server.

**2. Dependent Claim 14: The system of claim 10, wherein the client application is provided on an operating system of the mobile device.**

135. Mumick’955-Bengtsson-Roujinsky teaches a “client application is provided on an operating system of the mobile device.” As I explain in Section XI.A.2.b, ¶¶91-93, it would have been obvious to modify Mumick’955’s client application (Ex-1007 ¶40) to include Bengtsson’s ability to intercept a user’s text message and prompt the user to add a voice message (Ex-1005, 7:25-27), but Mumick’955 does not expressly describe its reliance on an operating system.

136. Roujinsky teaches a similar system for creating—using a messaging client on the sending device (Ex-1006, 7:7-9)—a multimedia message and sending the message to a server for storing. *Id.* at 3:12-19. Roujinsky additionally discloses that its messaging client 31 can “be implemented in a variety of technologies,” such as for example, “Java, J2ME, Brew, Symbian, Linux, Windows, PocketPC, SmartPhone, PalmOS, or others.” Ex-1006, 8:5-8. These include the same operating systems that are disclosed in the prior art by the ’978 Patent. Ex-1001, 3:11-20. These are all well-known operating systems to a POSITA. For example, the letters “OS” in “PalmOS” stand for “operating system.” I personally used mobile phones based on the Brew, Symbian, Microsoft’s PocketPC, and PalmOS operating systems as well as others such as Google’s Android, Apple’s iPhone OS, and RIM’s BlackBerry OS. Every one of these operating systems provided a SMS messaging

client application built into the mobile phone, so a POSITA would have expected that functionality to exist. Furthermore, a POSITA would have been familiar with all of these widely used commercially available mobile phone operating systems as indicated by the inclusion in a 2010 review article<sup>18</sup> describing Symbian, PalmOS, iPhone OS, Android, Microsoft's mobile phone operating system (unnamed in this article), and RIM's Blackberry OS.

137. A POSITA would have been motivated to combine Mumick'955-Bengtsson-Roujinsky and had a reasonable expectation of success in doing so for the reasons I describe in Section XI.B.1, ¶¶131-134.

**C. Ground 3: Claims 10-14 are rendered obvious by Bengtsson-Roujinsky**

**1. A POSITA would have been motivated to combine Bengtsson-Roujinsky and had a reasonable expectation of success**

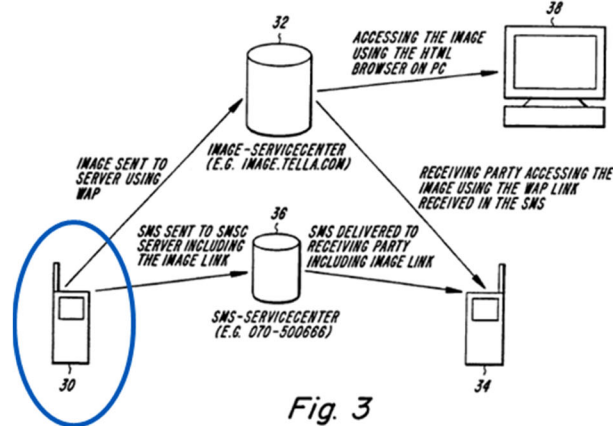
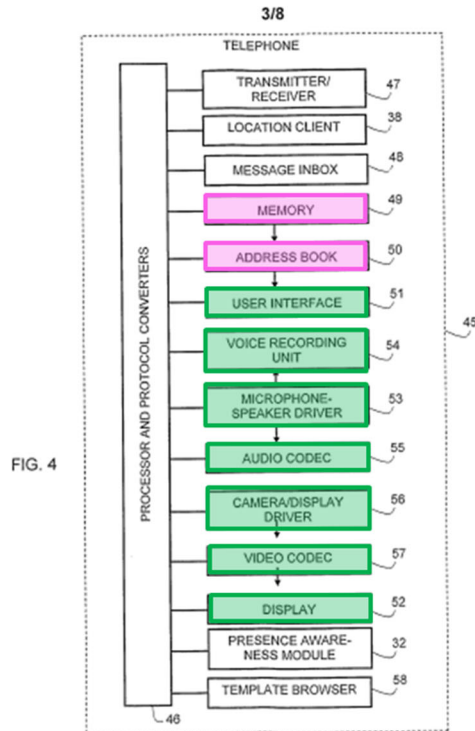
138. In addition to the reasons set forth below, a POSITA would have been motivated to combine the teachings of Bengtsson and Roujinsky ("Bengtsson-Roujinsky") and would have had a reasonable expectation of success in doing so because each relates to the same well-known technologies.

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<sup>18</sup> Elia Palme, Chuan-Hoo Tan, Juliana Sutanto, and Chee Wei Phang, Choosing the smart phone operating system for developing mobile applications (2010), In Proceedings of the 12th International Conference on Electronic Commerce: Roadmap for the Future of Electronic Business (ICEC '10), Association for Computing Machinery, New York, NY, USA, 146–152, DOI: <https://doi.org/10.1145/2389376.2389397> (Ex-1036).

139. Both relate to and describe systems and methods for transmitting multimedia messages, including voice associated with SMS messages. Ex-1005, Abstract, 7:7-10; Ex-1006, 1:2-3. For example, Bengtsson discloses “systems and methods for communicating multimedia attachments to short text messages.” Ex-1005, 1:9-10. Bengtsson discloses a method wherein a user “creates a conventional SMS message” at their terminal; before the message is sent, the terminal prompts the user with a request of “whether an attachment file should be included” (such as a voice attachment); and if the user opts to attach a file then a URL address to the file is added to the SMS message, which is sent to the recipient, and “the attachment is sent to a special server for retrieval by the recipient.” Ex-1005, 7:23-8:3, 8:10-28. Similarly, Roujinsky discloses systems and methods for receiving recipient feedback through a telecommunication network comprising creating—using a sending device—a multimedia message such as a voice message, sending the message to a server for storing with the recipient’s identity and transmission to the recipient, and receiving information regarding the recipient’s response or receipt of the message. Ex-1006, 3:12-19, 11:8-10. Roujinsky also discloses a memory on the sending device that stores an address book, a user interface that enables a user to input text and voice messages and address them, and the ability for voice messages to be dictated by a user for remote recording and storage by a messaging server. Ex-1006, 9:10-24, 13:3-5, 18:8-12.

140. A POSITA would have been motivated to combine Bengtsson-Roujinsky because they would have recognized a benefit of incorporating Roujinsky's teachings of an address book stored in memory on the sender's device (Fig. 4, pink), and a straightforward user interface for creating and addressing voice and text messages (Fig. 4, green) into Bengtsson's mobile device (Fig. 3, blue). These would meet users' expectations of being able to use their existing contacts that are already on their device when creating and addressing text messages. By incorporating well-known user interface and memory storage elements, the user would not have to learn new systems. Moreover, incorporating Roujinsky's user interface and memory storage elements into Bengtsson's device would combine familiar elements with predictable results. Roujinsky described itself as using a "conventional user interface." Ex-1006, 9:23. Furthermore, Roujinsky didn't provide any detail about its conventional user interface beyond a basic functional description, which is because a POSITA would have been abundantly familiar with such user interfaces, and which is part of the reason it would have been so straightforward to apply that user interface to Bengtsson's device.



141. Furthermore, a POSITA would have been motivated to include the remote recording capabilities via a server of Roujinsky into a system like Bengtsson to take advantage of the more significant resources on a server which would reduce the likelihood, for example, of running out of storage if all the voice messages were stored on the client device. For example, Roujinsky states that each recipient has a subscriber inbox (message inbox 48) on the messaging server and “limited local storage” on their device for “incoming messages downloaded from the server.” Ex-1006, 9:8-10. A POSITA would have known that incorporating Roujinsky’s remote recording capabilities into Bengtsson’s server would therefore result in a more resource-efficient system because recording the voice messages remotely on a server would conserve the storage resources of the user’s device.

142. A POSITA would also have had a reasonable expectation of success in combining the teachings of Bengtsson-Roujinsky. A POSITA would have understood that these references disclose related teachings based on well-known technologies. Bengtsson and Roujinsky both disclose systems and methods for transmitting multimedia messages using familiar elements such as mobile devices, SMS messaging, memory storage, user interfaces, and servers that a POSITA would have understood are amenable to various well-understood and predictable combinations, as I explain in further detail below. Ex-1005, 7:23-8:3; Ex-1006, 3:12-19. As I describe in Section XI.B.1, ¶¶131-134, common operating systems in commercially available mobile phones that I used all had built in support for SMS messaging. They also all had memory storage, user interfaces, and connections to servers that a POSITA would have been familiar with. For example, contacts, applications, photos and messages were all stored on device storage. Graphical user interfaces allowed users to interact with applications for making phone calls, looking up contacts, sending messages, etc. And connections to servers were provided for browsing the web and sending messages among other things. These are all exemplified in the January 9, 2007 announcement of the Apple iPhone (Ex-1033) which includes a description of the camera and photo management application (which provided storage for photos and a graphical user interface), an SMS application, and a web browser, which a POSITA would understand worked by

connecting to web servers. Furthermore, I recall during that demonstration of the phone at the time of the announcement that the web browser was shown connecting to the New York Times web server.

## **2. Independent Claim 10**

### **a. Element 10[pre]: A system for voice short message service messaging, comprising:**

143. In my opinion, Bengtsson-Roujinsky teaches Claim 10's preamble to the extent it is limiting. Bengtsson discloses "systems ... for communicating multimedia attachments to short text messages in radiocommunication systems." Ex-1005, 1:9-10. Bengtsson further discloses the user creating an SMS message and attaching an audio file. Ex-1005, 7:8-10 ("an audio recorder for recording audio, voice, music, or any kind of sounds, may be provided to the terminal and used to capture and send audio information"), 7:21-27 ("advanced messaging application provides the capability to attach such files to an SMS message for routing" within the system), 8:21-24 ("terminal 30 may ... include the file type (e.g., image, audio, etc.) of the attachment with the URL address in the SMS message").

### **b. Element 10[a]: a client application on a mobile device, wherein said client application integrates voice content to a text message created by a user using methods of recipient addressing as used by text short message service messaging;**

144. In my opinion, Bengtsson-Roujinsky teaches Element 10[a]. Bengtsson teaches a client application on a mobile device that integrates voice content to a text

message for the same reasons I discuss in Ground 1 (*see* Section XI.A.2.b, ¶¶81-90).

*See, e.g.*, Ex-1005, 7:21-8:3 (before the user sends the SMS message, the advanced messaging application at the mobile terminal intercepts text messages and prompts the user about whether an attachment (e.g., image or audio file) should also be included), 6:9-12 (Bengtsson's terminal is a mobile terminal), 5:2-10 (Bengtsson's invention is described in terms of a client-server architecture: "According to exemplary embodiments of the present invention, these and other drawbacks, problems and limitations of conventional radiocommunication systems are overcome by providing methods and mechanisms for transmitting attachments to text messages without turning terminals into e-mail clients. When an attachment is to be transmitted, an address of an attachment server is appended to the text message. The text message is then forwarded to the intended recipient, e.g., via an SMS server, while the attachment is sent to the attachment server. Upon receipt of the text message, the recipient can download the attachment from the attachment server using the address included in the text message.").

145. As I explain in my technical background section, client-server computing including key components and functionality of the same were well-known by as early as 1992. *See* Section VII.C, ¶¶39-40. Computer systems have been architected for decades with a wide range of structures. Historically, computers were big and expensive and they provided "time shared" access to multiple

terminals. Sometimes those terminals (a.k.a. “clients”) were “dumb” or “thin”, and provided primarily input and output capabilities while most of the computation was provided at the “server”. Other times, those clients had greater computation capability, and in the early 1980s with the introduction of “personal computers”, those clients (while still often connected to servers) had sufficient computational capabilities to run independently.

146. Back in 1992, client-server computing was significant enough that it was described in an article in Communications of the ACM – the broad interest magazine of the main professional international computer society. Ex-1025. That article characterized some of the key elements of client-server computing, including that the client typically communicates with the server, transmitting queries or commands, performs data analysis on query or command results from the server and presents the Graphical User Interface (GUI). On the other side, servers typically provide a service to the client, responding to the queries or commands – and do so in a way that hides much of the details of its implementation so that clients with various kinds of software and hardware can work with it. This article also explains that as far back as 1992, it was common to have the GUI of an application displayed on a computer remote from the application. It describes the X Window System that commonly ran on Unix environments which “provides network transparency so that

an application displaying a chart on a screen could be running on a local machine or a remote machine thousands of miles away.” Ex-1025, 91.

147. If Bengtsson does not expressly disclose using “methods of recipient addressing” to create the text message, it would have been obvious to a POSITA that the message would be created using methods of recipient addressing, such as by the user selecting a recipient’s phone number from the user’s mobile address book, as this was a standard and well-known implementation in mobile devices by 2007, as I explain in my technical background section. *See* Section VII.A, ¶¶33-35. For example, a POSITA would have understood that creating a conventional SMS message in Bengtsson would include selection of the intended recipients for the message. Ex-1005, 8:2 (the message is “forwarded to the *intended recipient*”). Furthermore, such selection would have been well-known to a POSITA to include the use of a stored address book.

148. For example, the earliest of computing systems supported electronic communications through various techniques including email and chat, then later (but still before the time the ’978 Patent) social networks. All of these supported various techniques to decide who to address the communications to. It never made sense to ask a human user to remember the address of all possible recipients, and so it is no surprise that various recipient addressing techniques were developed early on. For example, I remember using email clients such as “Pine” back in the 1990s that had

a built-in address book where I could enter the names and email address of recipients, and then use them to easily select who to send emails to. And by 1999, commercial services, such as AOL Instant Messenger (AIM) provided “buddy lists” (Ex-1032), which were a form of an address book of online friends to direct short messages to.

149. Similarly, cell phones commonly had contact lists or address books built in that were available for users to select recipients from in order to send short text messages. For example, as shown in a user guide (Ex-1030, 34) from the Nokia 3250 mobile phone from 2005, it let users select recipients or groups from the built-in “Contacts” program in order to send short text messages.

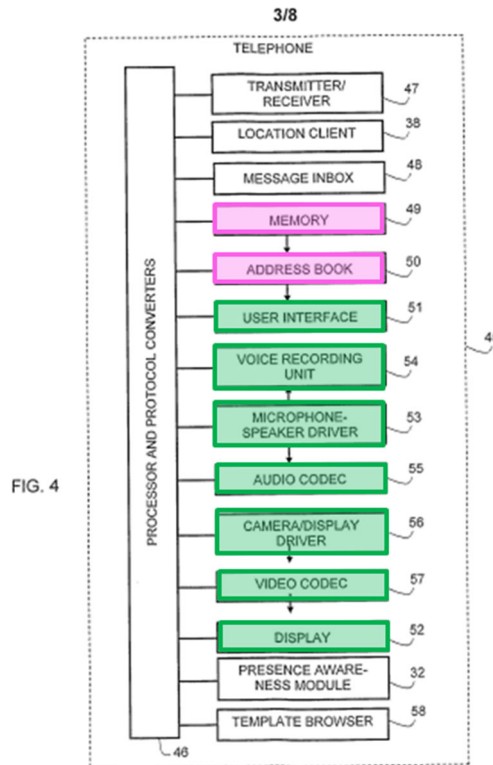
150. Furthermore, U.S. Patent Publication 2007/0150830 (Ex-1034) describes a graphical user interface containing an address book. Ex-1034 ¶37 (“the list of items may include contact information, such as names, addresses, photographs, and/or telephone numbers, for a plurality of individuals (sometimes referred to as a user's contact list or address book)”). It further describes selection of contacts from the contact list. “If the point of contact with the touch-sensitive display corresponds to a user selection of a respective information item in the list of information items, information corresponding to the respective information item may be displayed on the touch-sensitive display. For example, if the user selects a respective name, the corresponding contact information may be displayed.” Ex-1034 ¶46. More generally, this patent application describes aspects of the Apple iPhone

as reflected in the Correspondence Address referencing Apple Computer Inc. This is consistent with the January 9, 2007 announcement of the original iPhone which explains that the project includes a contact list that can be used to make calls. “iPhone syncs all of your contacts from your PC, Mac® or Internet service such as Yahoo!, so that you always have your full list of up-to-date contacts with you. In addition, you can easily construct a favorites list for your most frequently made calls, and easily merge calls together to create conference calls.” Such standard and well-known recipient addressing techniques are also exemplified by Roujinsky.

151. Roujinsky discloses a method for receiving recipient feedback through a telecommunication network comprising creating—using a sending device—a multimedia message, sending the message to a server for storing with the recipient’s identity, and receiving information regarding the recipient’s response or receipt of the message. Ex-1006, 3:12-19; *see also id.* at 5:29-6:1 (disclosing a user sending a voice message via his mobile phone to a recipient’s mobile phone).

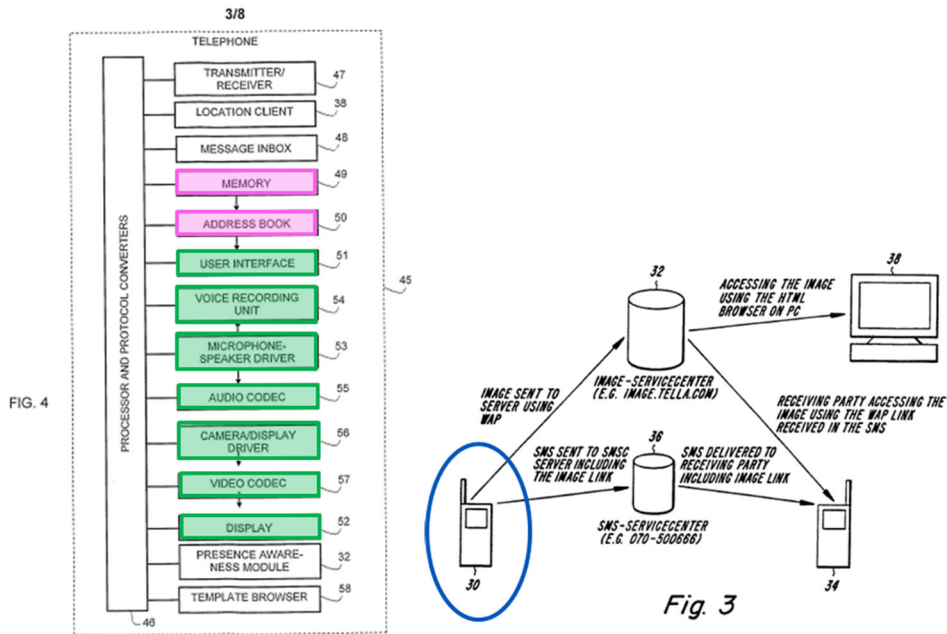
152. Similar to Bengtsson, Roujinsky discloses with Figure 4, telephone 45, which is a cellular phone “enhanced by a software client” (i.e., messaging client 31) that is loaded into the sending or receiving device 45. Ex-1006, 9:1-2, 7:7-9, Fig. 4 (telephone 45). Roujinsky discloses that “[a] memory 49 stores data such as an address book 50 and optionally sender/recipient profiles and a user interface 51 allows respective telephone numbers of one or more recipient addresses to be

selected for conveying voice and/or video streaming thereto. Address book function allows use of phone's contact list or contacts and groups managed by the system, either on the phone or on the system's server." Ex-1006, 9:10-15.



153. Moreover, Roujinsky discloses that “[t]he sender creates a voice/text message” and selects the “recipients to whom he wishes to send the message.” Ex-1006, 11:7-8; *see also id.* at 14:1-5 (a user interface (green) “allows the sender to choose recipients by list selection, by alphabet, by categories (e.g. family, friends, work), by phone number, and private number and allows a voice tag to be attached to the message”). The recipient information and message are sent by messaging client 31 from the sender to a server, which processes, stores, and sends the message to recipients 12. Ex-1006, 11:8-10.

154. A POSITA would have been motivated to implement Roujinsky's teachings of an address book on the sender's device (Fig. 4, pink) and a user interface (Fig. 4, green) for creating messages using methods of recipient addressing into Bengtsson's mobile terminal (Fig. 3, blue), if they are not already incorporated in Bengtsson's system, to improve and ease the user's interactive experience of creating a multimedia message and enable to user to select an intended recipient for a text message. That is, although not expressly disclosed by Bengtsson, a POSITA would have understood that to implement this familiar element in mobile messaging clients, as taught by Roujinsky. A POSITA would have included Roujinsky's disclosed methods of recipient addressing to allow the user to use their existing contacts when creating text messages. Without the use of such common techniques, a user may have instead needed to remember and manually enter the phone number of the recipient. Or even if they had a separate address book on their mobile device that was connected to the messaging application, they would have had copy the phone number from the address book and enter or paste it into the messaging application which would have introduced extra steps that would have been inconvenient, slow, and error-prone.



155. A POSITA would have had a reasonable expectation of success in combining Bengtsson-Roujinsky because both of these references disclose interrelated teachings based on routine technologies that would have been amenable to various well-understood and predictable combinations. For example, both Bengtsson and Roujinsky describe their inventions to include cellular phones. Ex-1005, 6:21-22, 9:22-27; Ex-1006 5:26-28. Neither describe any specialized hardware or software configurations. Rather, they both describe straightforward applications of well-known technologies using standard hardware and software systems such as mobile devices, SMS messaging, memory storage, and user interfaces. As such, it would have been well within the skill of a POSITA to implement Roujinsky's addressing technologies within Bengtsson's mobile device. Ex-1005, 7:23-8:3; Ex-1006, 3:12-19.

**c. Element 10[b]: a memory storage means on said mobile device for storing a list of addresses of recipients;**

156. In my opinion, Bengtsson-Roujinsky teaches Element 10[b]. Bengtsson teaches a memory storage means on the mobile device. Bengtsson states that the mobile phone's "camera can take a still image," or "video sequence, and send it to the remote terminal for storage in a memory device." Ex-1005, 6:22-26. Bengtsson also states that terminal 30 can store an address such as a URL address, "identifying the server 32 that the image is to be sent to." Ex-1005, 8:14-16. A POSITA would have understood that storing URL addresses requires memory. Bengtsson's memory device storage would also have the capability to store a list of recipient addresses. Indeed, it is implied that such storage exists because Bengtsson states that "[t]he text message is forwarded to the *intended recipient*." Ex-1005, 5:6-7. It would have been extremely burdensome to users to have to remember every phone number that a message might be sent to. Given the ubiquity of storing a list of addresses of recipients to alleviate that problem, and because there was nothing special about Bengtsson's memory device storage, a POSITA would have understood that Bengtsson's memory device storage could readily have been used to store a list of addresses of recipients if it didn't already. Moreover, it was well-known by POSITAs in 2007 that mobile devices were configured to store recipient addresses, as I explain in my technical background section. See Section VII.A, ¶¶33-35.

Specifically, cell phones commonly had contact lists or address books built in that were available for users to select recipients from in order to send short text messages. For example, as shown in a user guide (Ex-1030, 34) from the Nokia 3250 mobile phone from 2005, it let users select recipients or groups from the built-in “Contacts” program in order to send short text messages. A POSITA would have understood that Bengtsson’s system would include a similar memory storage means on the mobile device for storing a list of addresses of recipients so that the user can use the phone book or stored contacts list on their mobile device to address a text message to a recipient.

## M e s s a g i n g

### ■ Write and send messages

The wireless network may limit the size of MMS messages. If the inserted picture exceeds this limit, the device may make it smaller so that it can be sent by MMS.

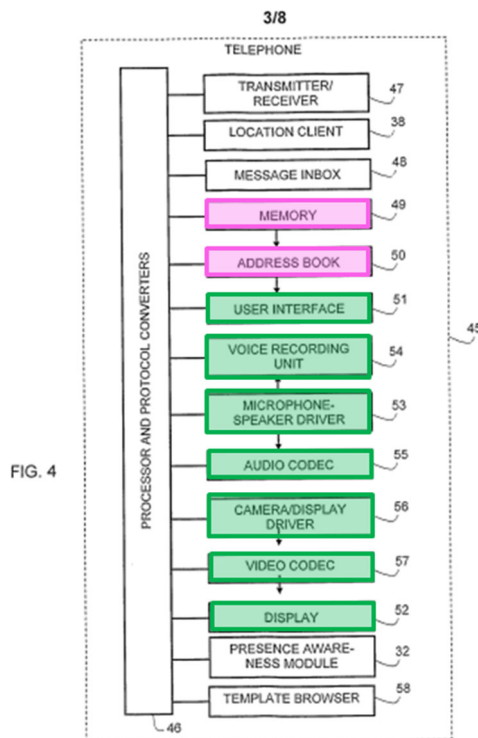
Your device supports the sending of text messages beyond the character limit for a single message. Longer messages are sent as a series of two or more messages. Your service provider may charge accordingly. Characters that use accents or other marks, and characters from some language options like Chinese, take up more space limiting the number of characters that can be sent in a single message.

Before you can send and receive an SMS message, a multimedia message, or an e-mail, or connect to your remote mailbox, you must have the correct connection settings in place. See "Messaging settings," p. 41.

1. To create a message, select **Menu** > **Messag.** > **New message** and from the following options:
  - Text message** — to create a text message
  - Multimedia message** — to create a multimedia message (MMS)
  - E-mail** — to create an e-mail message. If you have not set up your e-mail account, you are asked if you want to do so.
2. Press the joystick to select the recipients or groups from **Contacts** or enter the phone number or e-mail address of the recipient in the **To** field. To add a semicolon (;) to separate each recipient, press \*.

157. Roujinsky also teaches a memory storage means on the mobile device for storing a list of addresses of recipients. Roujinsky states with Figure 4, that its system includes cellular telephone 45 that comprises memory 49 for "stor[ing] data" such as sender/recipient profiles and address book 50 (pink), which allows the phone or the system's server to use the "phone's contact list or contacts and groups managed by the system." Ex-1006, 9:10-15; *see also id.* at 14:1-5 (a user interface (green) "allows the sender to choose recipients by list selection, by alphabet, by categories (e.g. family, friends, work), by phone number, and private number and

allows a voice tag to be attached to the message” (pink)). A POSITA would have understood that Roujinsky’s memory 49 meets the claimed “memory storage means” because its function is to “stor[e] a list of addresses of recipients” (Ex-1006, 9:10-11) and its structure can be a memory, including any medium from which a computer can read for storing data such as addresses, such as “a machine-readable memory tangibly embodying a program of instructions executable by the machine.” Ex-1006, 20:1-3. This is consistent with commercially available mobile phones of the period such as many that I had used, all of which had memory storage on the mobile device that stored a list of addresses of recipients. That includes the iPhone, which as announced on January 9, 2007, included contacts stored on the device and were used to send messages as well as calls as described in Apple’s press release at the time.



158. A POSITA would have been motivated to implement Roujinsky's teachings of a memory storage means for storing a list of recipient addresses (e.g., an address book) on the sender's device into Bengtsson's mobile terminal, if it is not already included, for the reasons I discuss in Section XI.C.2.b, ¶¶154-155, namely, to improve and ease the user's interactive experience of creating a multimedia message. Moreover, a POSITA would have understood that an address book feature is a familiar element to be included in mobile terminals, as disclosed by Roujinsky. Ex-1006, 3:12-19. Without the use of such common techniques, a user may have instead needed to remember and manually enter the phone number of the recipient. Or even if they had a separate address book on their mobile device that was connected to the messaging application, they would have had copy the phone number from the address book and enter or paste it into the messaging application which would have introduced extra steps that would have been inconvenient, slow, and error-prone.

159. A POSITA would have had a reasonable expectation of success in combining Bengtsson-Roujinsky for the reasons I discuss in Section XI.C.2.b, ¶¶154-155, namely, because these references disclose interrelated teachings based on routine technologies that would have been amenable to various well-understood and predictable combinations. For example, both Bengtsson and Roujinsky describe their inventions to include cellular phones. Ex-1005, 6:21-22, 9:22-27; Ex-1006

5:26-28. Neither describe any specialized hardware or software configurations. Rather, they both describe straightforward applications of well-known technologies using standard hardware and software systems. As such, it would have been well within the skills of a POSITA to implement Roujinsky's memory and addressing technologies within Bengtsson.

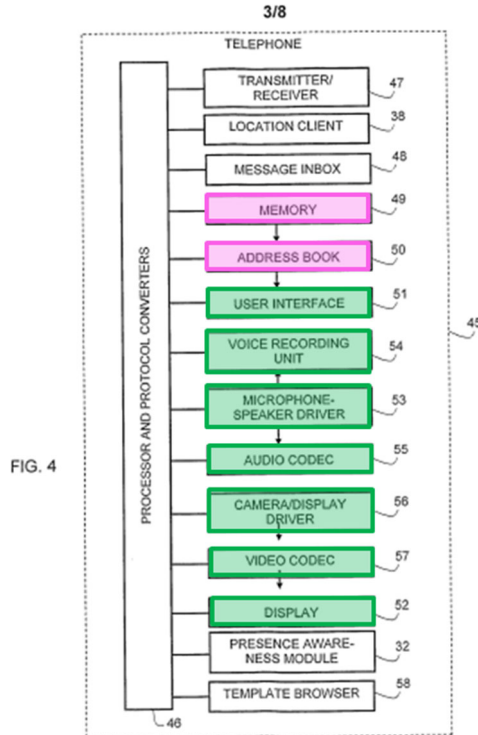
**d. Element 10[c]: a user interface on the mobile device for said user to input voice messages and text messages; and**

160. In my opinion, Bengtsson-Roujinsky teaches Element 10[c]. Bengtsson teaches a user interface on the mobile device for the user to input voice messages and text messages. Bengtsson states that the user's mobile terminal may be provided "an audio recorder for recording ... voice" and "captur[ing] and send[ing] audio information to the terminal for storage." Ex-1005, 7:7-10. Moreover, Bengtsson states that in the user's terminal, the "user first creates a conventional SMS message." Ex-1005, 7:23-25. Before the SMS message is sent by the user the advanced messaging application at "the terminal can ask whether an attachment file should be included." Ex-1005, 7:25-27.

161. A POSITA would have understood that the user's voice and SMS message creation at Bengtsson's mobile terminal is done using a user interface because "asking" the user what to do is a disclosure of a user interface no matter what the form takes (e.g., whether is a graphical, textual, or audio user interface).

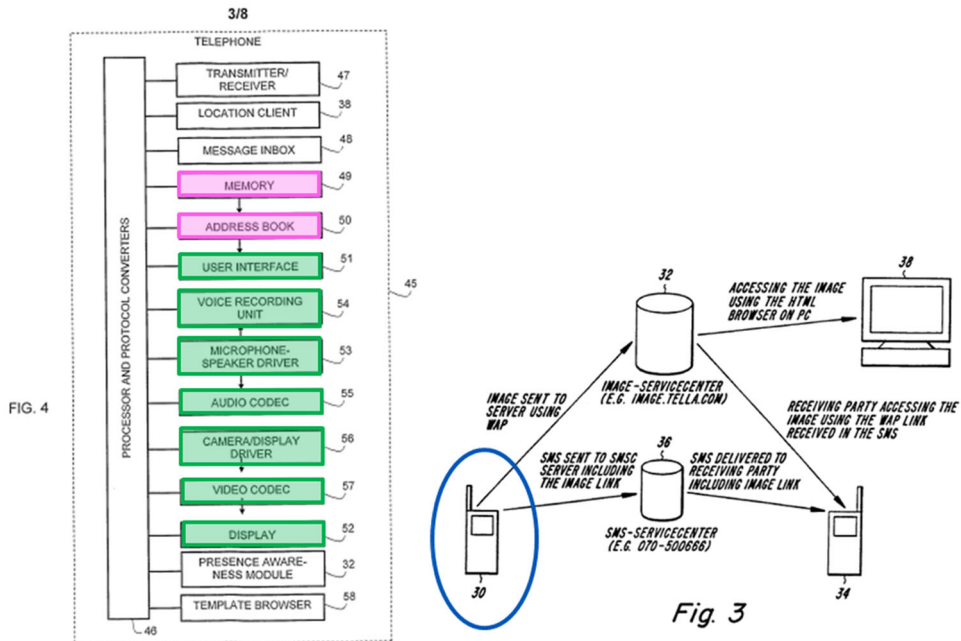
Additionally, this feature was well-known in the art by 2007, as disclosed by Roujinsky.

162. Roujinsky discloses a user interface on the mobile device for the user to input voice messages and text messages. Roujinsky discloses with Figure 4, that telephone 45 includes “user interface” 51 (green) that allows telephone numbers corresponding to “one or more recipient addresses to be” chosen (pink) “for conveying voice and/or video streaming.” Ex-1006, 9:11-13. Moreover, user interface 51 typically has “a keypad and scrolling keys for typing text messages and selecting options displayed on a display 52.” Ex-1006, 9:15-16. Telephone 45 also includes microphone/speaker driver 53 (green) that enables “speech to be converted to electrical signals for recording using a voice recording unit 54” (green), which also has “a conventional user interface.” Ex-1006, 9:17-24.



163. A POSITA would have been motivated to implement Roujinsky's detailed user interface teachings on the sender's device for inputting voice and text messages (Fig. 4, green) into Bengtsson's mobile terminal (Fig. 3, blue), if not already included, as a routine way to create a text message and record a voice message on their mobile device, as Bengtsson teaches. A POSITA would have understood that this familiar element would have been implemented in mobile terminals, as disclosed by Roujinsky. Roujinsky's straightforward and fulsome user interface teachings would enable the user to create both text and voice messages. Without the use of such common techniques, a user may have instead needed to remember and manually enter the phone number of the recipient. Or even if they had a separate address book on their mobile device that was connected to the messaging

application, they would have had copy the phone number from the address book and enter or paste it into the messaging application which would have introduced extra steps that would have been inconvenient, slow, and error-prone.



164. A POSITA would have had a reasonable expectation of success in combining Bengtsson-Roujinsky because these references disclose interrelated teachings based on routine technologies that would have been amenable to various well-understood and predictable combinations. For example, both Bengtsson and Roujinsky describe their inventions to include cellular phones. Ex-1005, 6:21-22, 9:22-27; Ex-1006 5:26-28. Neither describe any specialized hardware or software configurations. Rather, they both describe straightforward applications of well-known technologies using standard hardware and software systems such as mobile devices, SMS messaging, and user interfaces. As such, it would have been well

within the skills of a POSITA to implement Roujinsky's user interface into Bengtsson's mobile terminal. Ex-1005, 7:23-8:3; Ex-1006, 3:12-19.

- e. **Element 10[d]: a server for remotely recording and storing said voice messages of the user, wherein said server is configured to provide access to said recipient for listening to said recorded voice message; and**

165. In my opinion, Bengtsson-Roujinsky teaches Element 10[d]. Bengtsson teaches a server for storing the text and voice messages of the user. First, Bengtsson states that a *text* (SMS) message typically originates from a mobile unit that "transmits the SMS message to a service center." Ex-1005, 1:24-26. Bengtsson further states that "[s]ervice centers [SCs] are 'store and forward' devices" that are configured to "receive and store SMS messages" and deliver them to mobile units. Ex-1005, 2:21-25.

166. Bengtsson also teaches that the server stores voice messages and "is configured to provide access to [the] recipient for listening to [the] recorded voice message." Bengtsson explains with Figure 3 that the attached image or audio file (e.g., voice message attached to a text message) is not sent directly from mobile terminal 30 to receiving party 34; instead, the text part of the message is sent to receiving party 34 via SMS server 36 (red) and "the attachment is transmitted to a different server 32" (purple). Ex-1005, 8:10-14; *see also id.* at 8:5-7 (terminal 30 sends the attached image or audio file from terminal 30 to server 32). That is, terminal 30 includes as part of the SMS message that is sent to receiving party 34

“the URL address (e.g., image.telia.com/sending-phone-number/image-number).”

Ex-1005, 8:21-24. Therefore, receiving party 34 “receives a message containing the text message” and “the link to the server 32 *where the* image (or other *attached file*) *is stored*” and can be downloaded. Ex-1005, 8:25-28.

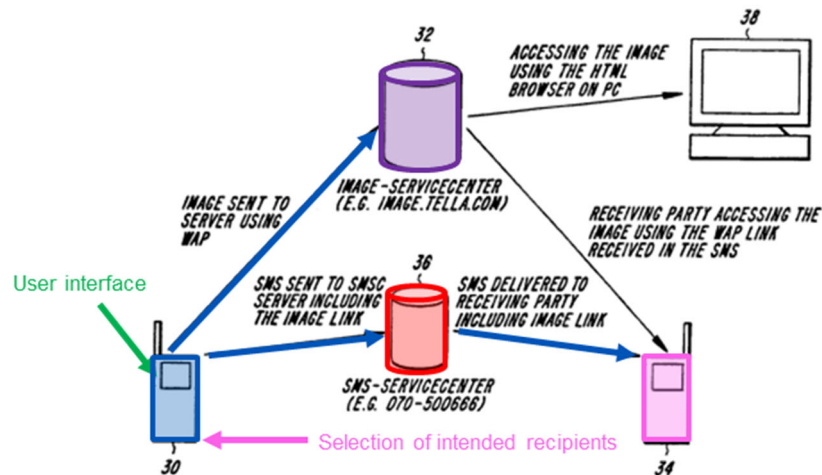


Fig. 3

167. A POSITA would have understood that the ability of conventional service centers to “customize delivery of SMS messages” using “service profiles” and “convert[] the SMS message to a desired delivery media,” as described by Bengtsson (Ex-1005, 2:21-3:1), could include the ability to remotely record the message. In particular, if Bengtsson does not expressly disclose a *server* for remotely recording voice messages of the user (as opposed to recording being done on the mobile terminal), Bengtsson already teaches sending recorded audio to the server where it is stored (Ex-1005, 7:7-10, 8:17-24). Recording audio on a server was well-known to a POSITA as I explain in my technical background section. *See* Section

VII.C, ¶46. As an alternative, recording audio from a mobile terminal on a remote server was also well-known to a POSITA. Moreover, the particular device that performs the actual recording would have been a routine design choice. For example, whether the recording ability occurs at the mobile terminal and it is then sent to the server, or it is recorded remotely at the server is a matter of design choice and both options would have been within the knowledge and capabilities of a POSITA. For example, voicemail stored at a server as I explain in Section VII.C, ¶46, is a good example of this.

168. Specifically, it was common by 2007 to have mobile phone voicemail stored on a server. I remember before 2007 calling a special voicemail number (often by pressing a special key on the mobile phone) to retrieve the voicemail, which worked because the voicemail was stored on the server. Apple built on this server based voicemail by providing an access method they called Visual Voicemail in their January 9, 2007 iPhone announcement (Ex-1033). Visual Voicemail worked by downloading the voicemail from the server to the phone and then provided access to each message in a list so they could be listened to in any order. “iPhone’s pioneering Visual Voicemail, an industry first, lets users look at a listing of their voicemails, decide which messages to listen to, then go directly to those messages without listening to the prior messages. Just like email, iPhone’s Visual Voicemail enables users to immediately randomly access those messages that interest them most.” *Id.*

169. Roujinsky also teaches a server for remotely recording and storing voice messages of the user. Roujinsky's system includes voice recording unit 54, which has a conventional user interface that may be used to "play/record and forward/backward rewind" and voice recording unit 39, which "is used to record and play a message." Ex-1006, 13:3-5. Roujinsky additionally states that messages may be "recorded by the sender at his or her sending device," as Bengtsson does, or "the sender can establish streaming or voice communication with the messaging server and *dictate messages for direct storage by the messaging server.*" Ex-1006, 18:8-12. A POSITA would have understood this as a routine alternative to recording the voice messages at the server, as I discuss above.

170. The Bengtsson-Roujinsky combination further teaches that the "server is configured to provide access to said recipient for listening to said recorded voice message," as claimed. First, Roujinsky describes "operating the service to receive a voice message sent by a sender, [and] to convey the voice message to one or more recipients." Ex-1006, 4:10-16. Roujinsky states that messaging server 35 includes memory 64 for "stor[ing] message data." *Id.* at 10:23-24. The recipient can listen to the voice message. *Id.* at 4:18-20 ("the advantages of the invention derive not only from the ease of recording voice messages ... but also from the greater convenience of listening to a message for many users").

171. Moreover, Roujinsky states that “the sender records a message,” “selects recipients and options,” and the “message is then sent to the messaging server using HTTP/TCP.” Ex-1006, 16:26-27. The messaging server “stores the message together with the identities of the recipients in the message database and conveys to each recipient notification that a message has arrived.” *Id.* at 16:27-29. “Upon receiving notification of an awaiting message, the recipient may retrieve the message from the server by sending a request using HTTP/TCP, whereupon the server conveys the message to the recipient also using HTTP/TCP.” *Id.* at 17:3-5. Streaming voice or audio over an HTTP/TCP connection from a server was well-known and commercially available by at least 2000. For example, the RealPlayer 8 Plus Manual<sup>19</sup> explained in detail this concept of linking to a server to stream media to a player. Specifically, the RealPlayer Manual’s “Specify Transports dialog” section, describes Transport Settings dialog with options to “Use TCP to Connect to Server,” “Attempt to use TCP for all content,” and “Use HTTP Only.” Ex-1038, 67-68. For instance, the RealPlayer Manual’s “Use TCP to Connect to Server” option may be selected “if you want RealPlayer to use TCP for the initial connection to RealServer”; the “Attempt to use TCP for all content” option may be selected “if you want RealPlayer to use TCP for all content”; and the “Use HTTP Only” option

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<sup>19</sup> RealPlayer 8 Plus User Manual (Rev. 1.0) (2000), available at: <https://www.itya.unam.mx/computo/sites/manuales/realplayer/rp8manualfull.pdf> (Ex-1038).

may be selected “if you are behind a firewall and cannot receive data through TCP,” in which case “[a]ll data will be streamed through HTTP.” Ex-1038, 67-68 (“Note You may not be able to receive some content if you select the HTTP Only option”). A POSITA would thus have understood that the user in Bengtsson could listen to the message from the server directly rather than having to download it and listen remotely. Bengtsson also teaches providing such access. For example, in Bengtsson the recipient therefore receives “the link to the server 32 where the image (or other attached file) is stored and optionally, a file type associated with the attachment. The receiving party may choose to download the image from server 32 using, e.g., WAP, to his or her terminal 34.” Ex-1005, 8:25-29. Of course, instead of an image, Bengtsson teaches audio or voice file types as well. *Id.* at 7:7-10, 8:23-24 (audio or image file types).

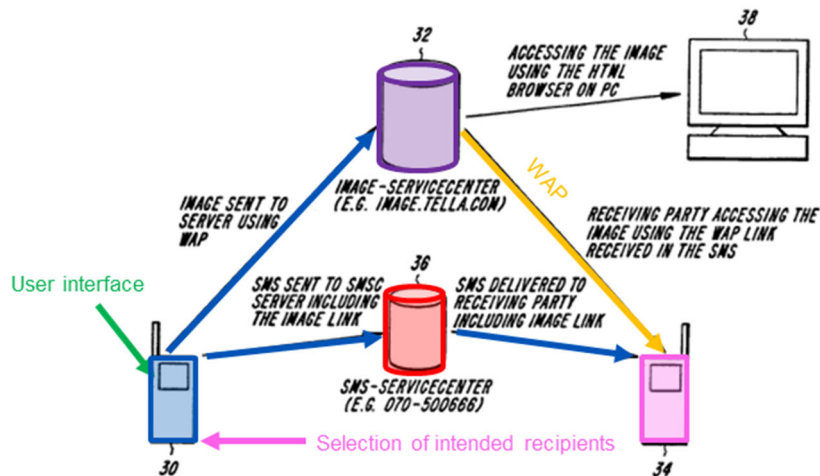


Fig. 3

172. A POSITA would have been motivated to implement Roujinsky's remote server recording capabilities into Bengtsson's system to conserve the resources of the sender's device and save the sender time. Recording on a server would take advantage of the more significant resources on a server which would reduce the likelihood, for example, of running out of storage on the mobile device if all the voice messages were stored on the client device. Furthermore, as the recording was made directly on the server, the sender would not have to wait for an additional step after recording on the mobile phone to transmit the recording to the server. A POSITA would have understood that the Bengtsson-Roujinsky combination with Roujinsky's remote recording capabilities implemented with Bengtsson's server would result in a more resource-efficient system. Recording the voice messages remotely on a server would conserve the storage resources of the user's device and would provide more convenience for the user, allowing them to skip a step by recording on the device before transmitting to the server and to record and send messages when they are offline by using a server.

173. A POSITA would have had a reasonable expectation of success in combining Bengtsson-Roujinsky because these references disclose interrelated teachings based on routine technologies that would have been amenable to various well-understood and predictable combinations. Neither describe any specialized hardware or software configurations. Rather, they both describe straightforward

applications of well-known technologies using standard hardware and software systems such as mobile devices, SMS messaging, and servers. A POSITA would have known how to modify Bengtsson's client application to establish a voice streaming connection between the client and server 32 to allow the user to dictate the voice message to the server, as taught by Roujinsky, instead of using a file transfer protocol to upload a locally-recorded voice file. As I explain in my technical background section, both were well-known ways of sending voice at the time of the '978 Patent. *See* Section VII.C, ¶46; *see also* Ex-1038 (Streaming voice or audio over an HTTP/TCP connection from a server was well-known and commercially available by at least 2000 with RealPlayer Plus). As such, it would have been well within the skills of a POSITA to implement Roujinsky's remote recording capabilities within Bengtsson's server. Ex-1005, 7:23-8:3; Ex-1006, 3:12-19.

**f. Element 10[e]: said client application for transmitting a voice message notification with an addressed text message to said recipients.**

174. In my opinion, Bengtsson-Roujinsky teaches Element 10[e]. Bengtsson teaches a client application on the mobile device for the same reasons I describe in Section XI.A.2.b, ¶¶81-90 and Section XI.C.2.b, ¶¶144-146. Ex-1005, 6:9-12 (Bengtsson's terminal is a mobile terminal), 5:2-10 (Bengtsson's invention is described in terms of a client-server architecture: "According to exemplary embodiments of the present invention, these and other drawbacks, problems and

limitations of conventional radiocommunication systems are overcome by providing methods and mechanisms for transmitting attachments to text messages without turning terminals into e-mail clients. When an attachment is to be transmitted, an address of an attachment server is appended to the text message. The text message is then forwarded to the intended recipient, e.g., via an SMS server, while the attachment is sent to the attachment server. Upon receipt of the text message, the recipient can download the attachment from the attachment server using the address included in the text message.”).

175. As I explain in my technical background section, client-server computing including key components and functionality of the same were well-known by as early as 1992. *See* Section VII.C, ¶¶39-40. Computer systems have been architected for decades with a wide range of structures. Historically, computers were big and expensive and they provided “time shared” access to multiple terminals. Sometimes those terminals (a.k.a. “clients”) were “dumb” or “thin”, and provided primarily input and output capabilities while most of the computation was provided at the “server”. Other times, those clients had greater computation capability, and in the early 1980s with the introduction of “personal computers”, those clients (while still often connected to servers) had sufficient computational capabilities to run independently.

176. Back in 1992, client-server computing was significant enough that it was described in an article in Communications of the ACM – the broad interest magazine of the main professional international computer society. Ex-1025. That article characterized some of the key elements of client-server computing, including that the client typically communicates with the server, transmitting queries or commands, performs data analysis on query or command results from the server and presents the Graphical User Interface (GUI). On the other side, servers typically provide a service to the client, responding to the queries or commands – and do so in a way that hides much of the details of its implementation so that clients with various kinds of software and hardware can work with it. This article also explains that as far back as 1992, it was common to have the GUI of an application displayed on a computer remote from the application. It describes the X Window System that commonly ran on Unix environments which “provides network transparency so that an application displaying a chart on a screen could be running on a local machine or a remote machine thousands of miles away.” Ex-1025, 91.

177. Bengtsson’s system includes “an advanced messaging application” that enables the system to attach an image or audio file to an SMS message created by the user in their terminal for transmission to another mobile terminal. Ex-1005, 7:21-25. Just as with the ’978 Patent, Bengtsson’s client application can rely on the underlying mobile phone platform—“The network interface 309 of the mobile

device 201 transmits and receives text messages, voice messages, voice calls, etc. over the wireless network 313.” Ex-1001, 6:7-9.

178. Moreover, Bengtsson teaches that the client application transmits a voice message notification with an addressed text message to the recipients for the same reasons I discuss in Ground 1 (*see* Section XI.A.2.f, ¶¶109-116). *See, e.g.*, Ex-1005, 8:21-24 (mobile terminal 30 “includes the URL address (e.g., [image.telia.com/sending-phone-number/image-number](http://image.telia.com/sending-phone-number/image-number)) as part of the text that is sent” as an SMS message to receiving party 34), 8:25-29 (recipient therefore receives “the link to the server 32 where the image (or other attached file) is stored,” and “[t]he receiving party may choose to download the image from server 32 using, e.g., WAP, to his or her terminal 34”). A POSITA would have understood that the “link to the server 32 where the image (or other attached file) is stored” is a voice message notification because the link notifies the recipient of the existence of the voice message, and the ’978 Patent itself discloses using links in the voice message notification. Ex-1001, 5:7-16 (“The server 314 adds a voice message notification, ‘You have received a new Voice message’ in the addressed text message and sends the message to Bob and Mary. Bob and Mary, upon receiving the text SMS message may click on a ‘Listen to Voice message’ link included in the voice message notification. On clicking the link, Bob and Mary may directly listen to Alice's voice message.”).

**3. Dependent Claim 11: The system of claim 10, wherein said server comprises a first server for storing the voice messages of the user.**

179. In my opinion, Bengtsson-Roujinsky teaches Claim 11. Bengtsson teaches a server for the same reasons I describe in Section XI.C.2.e, ¶¶165-168. *See, e.g.,* Ex-1005, 1:24-26 (mobile unit “transmits the SMS message to a service center”), 2:21-25 (“[s]ervice centers are ‘store and forward’ devices” that are configured to “receive and store SMS messages,” and deliver them to mobile units).

180. Bengtsson further discloses a first server for storing the voice messages of the user. Bengtsson discloses with Figure 3 that the image or audio file attached to the text message is not sent directly from terminal 30 to receiving party 34; instead, the text part of the message is sent to receiving party 34 via SMS server 36 (red) and “the attachment is transmitted to a different server 32” (purple). Ex-1005, 8:10-14; *see also id.* at 8:5-7 (terminal 30 sends the attached image or audio file from terminal 30 to server 32). That is, terminal 30 includes as part of the SMS message that is sent to receiving party 34 “the URL address (e.g., image.telia.com/sending-phone-number/image-number).” Ex-1005, 8:21-24. Therefore, receiving party 34 “receives a message containing the text message” and “the link to the server 32 where the image (or other attached file) is stored” and can be downloaded. Ex-1005, 8:25-28. A POSITA would have understood that Bengtsson’s first server 32 stores the voice message until the recipient’s terminal requests it, thus meeting this claim.

For example, Bengtsson's Claim 1 recites "sending said attachment to said second [first] server; transmitting a message from said intended recipient's terminal to said [first] second server using said address received in said text message; and receiving, from said second [first] server, said attachment." Ex-1005, Cl. 1.

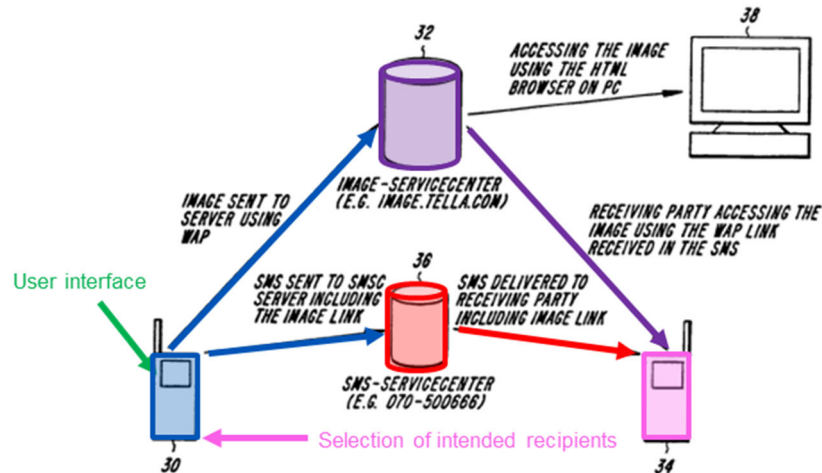
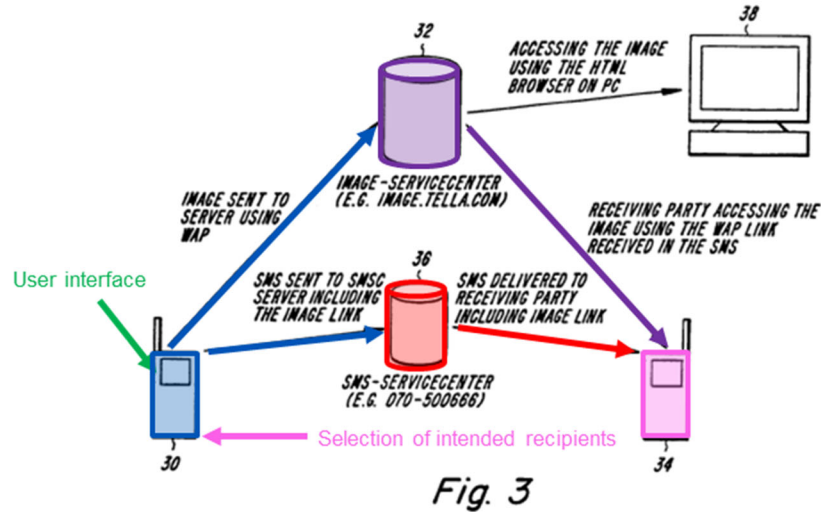


Fig. 3

4. **Dependent Claim 12:** The system of claim 10, wherein said server comprises a second server for transmitting said voice message notification with said addressed text message to the recipients.

181. In my opinion, Bengtsson-Roujinsky teaches Claim 12. Bengtsson teaches a server for the same reasons I describe in Section XI.C.2.e, ¶¶165-168. *See, e.g.,* Ex-1005, 1:24-26 (mobile unit "transmits the SMS message to a service center"), 2:21-25 ("[s]ervice centers are 'store and forward' devices" that are configured to "receive and store SMS messages," and deliver them to mobile units).

182. Bengtsson further discloses a second server for transmitting the attached voice message notification with the addressed text message to the recipients. Bengtsson discloses with Figure 3 that the image or audio file attached to the text message is not sent directly from terminal 30 to receiving party 34; instead, the text part of the message is sent to receiving party 34 via SMS server 36 (red) and “the attachment is transmitted to a different server 32” (purple). Ex-1005, 8:10-14; *see also id.* at 8:5-7 (terminal 30 sends the attached image or audio file from terminal 30 to server 32). Moreover, terminal 30 includes as part of the SMS message that is sent to receiving party 34 “the URL address (e.g., image.telia.com/sending-phone-number/image-number).” Ex-1005, 8:21-24. Therefore, receiving party 34 “receives a message containing the text message” and “the link to the server 32 where the image (or other attached file) is stored” and can be downloaded. Ex-1005, 8:25-28. A POSITA would have understood that Bengtsson’s second SMS server transmits the voice message notification with the addressed text message to the recipients, thus meeting this claim. The voice message is then downloaded from the separate server 32. For example, Bengtsson’s Claim 1 recites “transmitting said text message to an intended recipient’s terminal via a first [second] server, said text message including an address to a second [first] server” that contains the attachment.” Ex-1005, Cl. 1.



**5. Dependent Claim 13: The system of claim 10, wherein the client application transmits one of a text message, a voice message, and a combination thereof.**

183. In my opinion, Bengtsson-Roujinsky teaches Claim 13. Bengtsson teaches a client application on the mobile device for the same reasons I discuss in Section XI.A.2.b, ¶¶81-90 and Section XI.C.2.b, ¶¶144-146. *See, e.g.,* Ex-1005, 7:21-25 (Bengtsson's advanced messaging application enables the system to attach an image or audio file to an SMS message for transmission to another mobile terminal), 6:9-12 (Bengtsson's terminal is a mobile terminal), 5:2-10 (Bengtsson's invention is described in terms of a client-server architecture: "According to exemplary embodiments of the present invention, these and other drawbacks, problems and limitations of conventional radiocommunication systems are overcome by providing methods and mechanisms for transmitting attachments to text messages without turning terminals into e-mail clients. When an attachment is

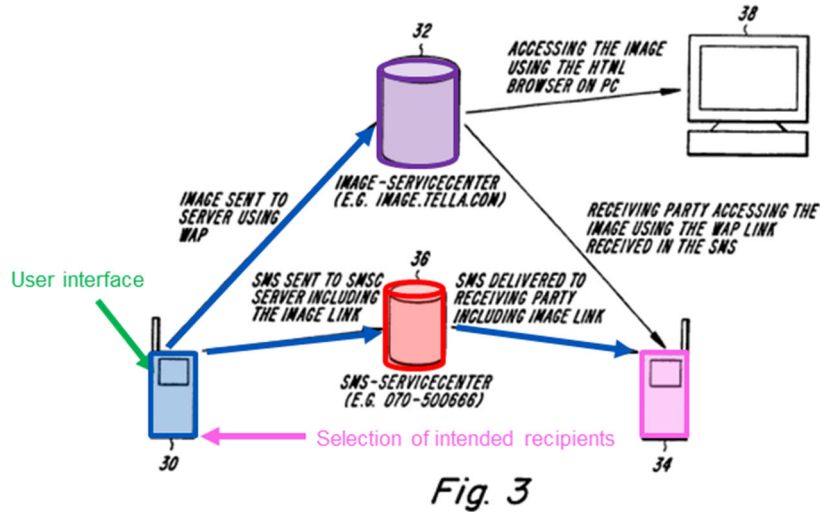
to be transmitted, an address of an attachment server is appended to the text message. The text message is then forwarded to the intended recipient, e.g., via an SMS server, while the attachment is sent to the attachment server. Upon receipt of the text message, the recipient can download the attachment from the attachment server using the address included in the text message.”).

184. As I explain in my technical background section, client-server computing including key components and functionality of the same were well-known by as early as 1992. *See* Section VII.C, ¶¶39-40. Computer systems have been architected for decades with a wide range of structures. Historically, computers were big and expensive and they provided “time shared” access to multiple terminals. Sometimes those terminals (a.k.a. “clients”) were “dumb” or “thin”, and provided primarily input and output capabilities while most of the computation was provided at the “server”. Other times, those clients had greater computation capability, and in the early 1980s with the introduction of “personal computers”, those clients (while still often connected to servers) had sufficient computational capabilities to run independently.

185. Back in 1992, client-server computing was significant enough that it was described in an article in *Communications of the ACM* – the broad interest magazine of the main professional international computer society. Ex-1025. That article characterized some of the key elements of client-server computing, including

that the client typically communicates with the server, transmitting queries or commands, performs data analysis on query or command results from the server and presents the Graphical User Interface (GUI). On the other side, servers typically provide a service to the client, responding to the queries or commands – and do so in a way that hides much of the details of its implementation so that clients with various kinds of software and hardware can work with it. This article also explains that as far back as 1992, it was common to have the GUI of an application displayed on a computer remote from the application. It describes the X Window System that commonly ran on Unix environments which “provides network transparency so that an application displaying a chart on a screen could be running on a local machine or a remote machine thousands of miles away.” Ex-1025, 91.

186. Moreover, Bengtsson teaches that its client application “transmits one of a text message, a voice message, and a combination thereof,” for the same reasons I discuss in Ground 1 (*see* Section XI.A.5, ¶¶123-128). Bengtsson states that in the user’s terminal, the “user first creates a conventional SMS message” (green) and selects the intended recipients (pink). Ex-1005, 7:23-8:3, Fig. 3 (annotated). Before the SMS message is sent by the user, the advanced messaging application at the terminal (blue) prompts the user with a request of “whether an attachment file should be included.” Ex-1005, 7:25-27. If the user chooses “not attach a file to the SMS message,” then it is “transmitted conventionally.” Ex-1005, 7:28-30.



187. If the user chooses to attach a file (or record a voice file at the server as taught by Roujinsky), then “certain information is added to the SMS message,” which is then sent to the recipient, and “the attachment is sent to a special server” for the recipient to retrieve or access. Ex-1005, 7:30-8:3.

188. Bengtsson also states that terminal 30 (where the client application resides) “includes the URL address (e.g., image.telia.com/sending-phone-number/image-number) as part of the text that is sent” as an SMS message to the receiving party. Ex-1005, 8:21-24. A POSITA would have considered this message to be a text message, voice message, or combination thereof as envisioned by the ’978 Patent because it is a combination of a text message and a link to a stored voice message that the recipient can access and listen to by clicking on the link.

**6. Dependent Claim 14: The system of claim 10, wherein the client application is provided on an operating system of the mobile device.**

189. In my opinion, Bengtsson-Roujinsky teaches Claim 14. Bengtsson teaches that the client application is provided on an operating system of the mobile device. For example, Bengtsson teaches a client application on the mobile device for the same reasons I discuss in Section XI.A.2.b, ¶¶81-90 and Section XI.C.2.b, ¶¶144-146. Ex-1005, 7:21-25 (Bengtsson's advanced messaging application enables the system to attach an image or audio file to an SMS message for transmission to another mobile terminal), 6:9-12 (Bengtsson's terminal is a mobile terminal), 5:2-10 (Bengtsson's invention is described in terms of a client-server architecture: "According to exemplary embodiments of the present invention, these and other drawbacks, problems and limitations of conventional radiocommunication systems are overcome by providing methods and mechanisms for transmitting attachments to text messages without turning terminals into e-mail clients. When an attachment is to be transmitted, an address of an attachment server is appended to the text message. The text message is then forwarded to the intended recipient, e.g., via an SMS server, while the attachment is sent to the attachment server. Upon receipt of the text message, the recipient can download the attachment from the attachment server using the address included in the text message.").

190. As I explain in my technical background section, client-server computing including key components and functionality of the same were well-known by as early as 1992. *See* Section VII.C, ¶¶39-40. Computer systems have been architected for decades with a wide range of structures. Historically, computers were big and expensive and they provided “time shared” access to multiple terminals. Sometimes those terminals (a.k.a. “clients”) were “dumb” or “thin”, and provided primarily input and output capabilities while most of the computation was provided at the “server”. Other times, those clients had greater computation capability, and in the early 1980s with the introduction of “personal computers”, those clients (while still often connected to servers) had sufficient computational capabilities to run independently.

191. Back in 1992, client-server computing was significant enough that it was described in an article in Communications of the ACM – the broad interest magazine of the main professional international computer society. Ex-1025. That article characterized some of the key elements of client-server computing, including that the client typically communicates with the server, transmitting queries or commands, performs data analysis on query or command results from the server and presents the Graphical User Interface (GUI). On the other side, servers typically provide a service to the client, responding to the queries or commands – and do so in a way that hides much of the details of its implementation so that clients with

various kinds of software and hardware can work with it. This article also explains that as far back as 1992, it was common to have the GUI of an application displayed on a computer remote from the application. It describes the X Window System that commonly ran on Unix environments which “provides network transparency so that an application displaying a chart on a screen could be running on a local machine or a remote machine thousands of miles away.” Ex-1025, 91.

192. Moreover, Bengtsson states that “a user first creates a conventional SMS message in his or her terminal.” Ex-1005, 7:23-25. A POSITA would have understood that the client application may be provided on the operating system of the mobile terminal because this would have been an obvious design choice for a mobile terminal and within the skill of a POSITA to implement because operating systems were well known to provide stability for users and efficiency for developers because they provide a layer above the hardware, that allows application developers to access the features of the hardware through a set of application program interfaces (APIs).

193. Roujinsky also discloses a client application on the mobile device. Roujinsky’s cellular phone is “enhanced by a software client” (i.e., messaging client 31), Ex-1006, 9:1-2, that is loaded into sending device 45, *id.* at 7:7-9. Moreover, Roujinsky discloses that its client application (i.e., messaging client 31) is provided on an operating system of the mobile terminal. Roujinsky discloses that its

messaging client 31 can “be implemented in a variety of technologies,” such as for example, “Java, J2ME, Brew, Symbian, Linux, Windows, PocketPC, SmartPhone, PalmOS, or others.” Ex-1006, 8:5-8. These are the same operating systems that are disclosed as prior art by the ’978 Patent. Ex-1001, 3:11-20. These are all well-known operating systems to a POSITA. For example, the letters “OS” in “PalmOS” stand for “operating system.” I personally used mobile phones based on the Brew, Symbian, Microsoft’s PocketPC, and PalmOS operating systems as well as others such as Google’s Android, Apple’s iPhone OS, and RIM’s BlackBerry OS. Every one of these operating systems provided a SMS messaging client application built into the mobile phone, so a POSITA would have expected that functionality to exist. Furthermore, a POSITA would have been familiar with all of these widely used commercially available mobile phone operating systems as indicated by the inclusion in a 2010 review article (Ex-1036) describing Symbian, PalmOS, iPhone OS, Android, Microsoft’s mobile phone operating system (unnamed in this article), and RIM’s Blackberry OS.

194. A POSITA would have been motivated to combine Bengtsson-Roujinsky and had a reasonable expectation of success in doing so, for the reasons I discuss in Section XI.C.1, ¶¶138-142. Furthermore, a POSITA would have been motivated to use an operating system such as those disclosed by Roujinsky to house the client application on the mobile device in Bengtsson’s system because operating

systems were well known to provide stability for users and efficiency for developers.

Operating systems provide a layer above the hardware, that allows application developers to access the features of the hardware through a set of application program interfaces (APIs). *See, e.g.*, Microsoft Computer Dictionary 378 (5th ed. 2002) (Ex-1037) (defining “operating system” as “[t]he software that controls the allocation and usage of hardware resources such as memory, central processing unit (CPU) time, disk space, and peripheral devices”; “The operating system is the foundation software on which applications depend. Popular operating systems include Windows 98, Windows NT, Mac OS, and Unix.”); Webster’s New World Computer Dictionary 264-65 (10th ed. 2003) (Ex-1035) (defining “operating system” as “[a] master control program that manages the computer’s internal functions, such as accepting keyboard input, and that provides a means to control the computer’s operations and file system”; “Typically a computer’s operating system is automatically loaded into memory when the computer is powered on. ... Most operating systems are designed to run on a specific hardware platform. Still, it is possible to write operating systems in such a way that they can be ported (translated) so that they run on different hardware platforms. ... Although operating systems vary, almost all of the features that are today regarded as essential to an operating system have their origin in Unix, which was developed at AT&T’s Bell Laboratories ... during the 1970s and 1980s .... By the mid-1980s, Unix had

successfully incorporated preemptive multitasking, multithreading, multiuser capabilities, inter-process communication, application programming interfaces (API), multiprocessing, and other key innovations. ... Today, most leading operating systems emulate Unix's advanced features or directly incorporate Unix code" including MAC OS X, Microsoft Windows NT-derived operating systems, and Linux; "Operating systems vary according to their intended function. ... [O]perating systems, called embedded operating systems, are designed to be installed in small, dedicated devices, including cellular phones and personal digital assistants (PDAs)."). Building applications on top of existing operating systems let developers take advantage of the innumerable technological supports built into those operating systems to reduce the amount of effort that must be spent in building new applications and systems.

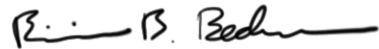
195. A POSITA would have had a reasonable expectation of success in combining Bengtsson and Roujinsky because they both disclose straightforward applications of well-known technologies using standard hardware and software systems such as mobile devices, multimodal messaging, user interfaces, and servers. As such, it would have been well within the skill of a POSITA to implement Roujinsky's operating system into Bengtsson's mobile device. Ex-1005, 7:23-8:3; Ex-1006, 3:12-19.

## **XII. CONCLUSION**

196. For the reasons above, it is my opinion that Claims 10-14 of the '978 Patent are obvious based on each of the grounds specified in my Declaration.

197. I declare that all statements made in my Declaration of my knowledge are true, and that all statements made on information and belief are believed to be true, and 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.

Date: November 30, 2023



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Dr. Benjamin B. Bederson