

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

RPX CORPORATION
Petitioner

v.

ROTHSCHILD CONNECTED DEVICES INNOVATIONS, LLC
Patent Owner

Case: IPR2016-00443

DECLARATION OF TAL LAVIAN, Ph.D.

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I, Tal Lavian, Ph.D., do hereby declare as follows:

I. INTRODUCTION

1. I have prepared this Declaration to accompany RPX Corporation's ("RPX" or "Petitioner") Petition for *Inter Partes* Review of U.S. Patent No. 8,788,090 (the "'090 patent")¹ (the "Petition"). As part of my work, I was asked to review certain materials and give my opinion about whether claims 1-8 of the '090 patent are valid over certain patents, patent applications, and publications. I was also asked for my opinions regarding the level of ordinary skill in the art to which the '090 patent pertains as of June 2006.

2. I have been retained by RPX as an expert in the field of network devices control systems. I am being compensated at my normal consulting rate of \$400 per hour for my time. My compensation is not dependent on the outcome of this proceeding, the results of my analysis, or on the substance of my opinions and testimony. I have no interest in the outcome of this matter.

3. I have no financial interest in RPX. I similarly have no financial interest in the '090 patent or the owner of the '090 patent, and I have had no contact with the named inventor of the '090 patent.

¹ I have been informed that the '090 patent is attached to RPX's Petition as Exhibit 1001. I am informed that a complete listing of exhibits and their accompanying numbers appears at the table of exhibits to my declaration.

II. EXECUTIVE SUMMARY

4. Based on my analysis of the '090 patent and the materials discussed herein, it is my opinion that claims 1-8 of the '090 patent are invalid for obviousness. I provide a detailed explanation of my conclusions below.

5. At a high level, the '090 patent relates to a system for customizing products according to user preferences over a network. *See, e.g.*, Ex. 1001 at Abst.; 1:16-19. The '090 patent describes a terminal that communicates over a network, like the Internet, with a remote server. *Id.* at 2:59-62. The remote server can receive data identifying the user and, for example, the “make and model” of a product. *Id.* at 5:5-26. Based on this information, the server may retrieve product preference data from a database and transmit it to the product to personalize it. *Id.* at 5:26-62. Certain information can be stored, such as a formulation for a beverage or a shampoo. *Id.* at 2:55-58.

6. As described in more detail below, the concepts of configuring products according to user preferences based on user preferences obtained from a remote server were ubiquitous before the earliest claimed priority date of the '090 patent. Configuration of products by obtaining preference data from a remote server had been described in numerous patents, patent application publications, and articles years before the '090 patent was filed.

7. As set forth in detail below, it is my opinion that each of claims 1-8 would have been obvious to a person of ordinary skill in the art based on the teachings of various references. My opinions in this regard are summarized below:

- Claim 1 would have been obvious over Zimmerman in view of Lggulden and DeBourke;
- Claims 2-7 would have been obvious over Zimmerman in view of Lggulden and DeBourke and further in view of Gutwein;
- Claim 8 would have been obvious over Zimmerman in view of Lggulden, DeBourke and Gutwein, and further in view of Webb;
- Claim 1 would have been obvious over Omnisphere I in view of Omnisphere II and Isomura;
- Claims 2-7 would have been obvious over Omnisphere I in view of Omnisphere II and Isomura and further in view of Gutwein; and
- Claim 8 would have been obvious over Omnisphere I in view of Omnisphere II, Gutwein, and Isomura and further in view of Webb.

III. MY BACKGROUND AND QUALIFICATIONS

A. Educational Background

8. In 1987, I obtained a Bachelor of Science (“B.Sc.”) in Mathematics and Computer Science from Tel Aviv University, Israel.

9. I obtained a Master’s of Science (“M.Sc.”) degree in Electrical Engineering from Tel Aviv University, Israel, in 1996.

10. I received a Ph.D. in Computer Science from the University of California at Berkeley in 2006.

B. Professional Experience

11. I have more than 25 years of experience in the networking, telecommunications, Internet, and software fields.

12. I am currently employed by the University of California at Berkeley, as a lecturer and Industry Fellow in the Center of Entrepreneurship and Technology (“CET”), which is part of UC Berkeley College of Engineering. I have been with the University of California at Berkeley since 2000, where I served, at various times, as Berkeley Industry Fellow, Lecturer, Visiting Scientist, Ph.D. Candidate, and Nortel’s Scientist Liaison.

13. I have more than 25 years of experience as a scientist, educator and technologist, and much of my experience relates to computer networking technologies. From 1996 to 2007, I worked for Bay Networks and Nortel Networks. Bay Networks was in the business of making and selling computer

network hardware and software. Nortel Networks acquired Bay Networks in 1998, and I continued to work at Nortel after the acquisition.

14. Throughout my tenure at Bay and Nortel, I held positions including Principal Scientist, Principal Architect, Principal Engineer, Senior Software Engineer, and led development and research involving a number of networking technologies. I also led efforts relating to Java technologies at Bay Networks and, later, at Nortel Networks. In addition, during 1999-2001, I served as the President of the Silicon Valley Java User Group. The Group had over 800 active members from many companies in the Silicon Valley.

15. Before joining Bay Networks, from 1994 to 1995, I worked as a software engineer and team leader for Aptel Communications, designing and developing mobile wireless communications and network communications products.

16. From 1990 to 1993, I worked as a software engineer and team leader at Scitex Ltd., where I developed system and network communications tools (mostly in C and C++).

17. I have extensive experience in the area of network communications and Internet technologies including design and implementation of computer-based systems for managing communications networks, including the ability to monitor and provision networks.

18. While at Nortel Networks and Bay Networks my work involved the research and development of these technologies. For example, I wrote software for Bay Networks' and Nortel Networks' Web-based network management for Bay Networks' switches. I developed Simple Network Management Protocol (SNMP) software for Bay Networks' switches and software interfaces for Bay Networks' Optivity Network Management System. I wrote software for Java-based device management including the software interfaces to device management and network management for the Accelar routing switch family network management system.

19. I also have extensive experience in network communications, including control and management of routing and switching architectures and protocols in layers 1-7 of the OSI model. Much of my work for Nortel Networks involved the research and development of network communications technologies. For example, I wrote software for Bay Networks and Nortel Networks switches and routers, developed network technologies for the Accelar 8600 family of switches and routers, the OPTera 3500 SONET switches, the OPTera 5000 DWDM family, and the Alteon L4-7 switching product family. In my lab, I installed, configured, managed and tested the network communications equipment of Nortel Networks' competitors such as Cisco Systems, Juniper Networks, Extreme Networks, Lucent and Alcatel.

20. I am a named co-inventor on more than 80 issued patents, and I have co-authored more than 25 scientific publications, journal articles, and peer-reviewed papers. I am also a Senior Member of the Institute of Electrical and Electronics Engineers (“IEEE”).

21. I currently serve as a Principal Scientist at my company Telecomm Net Consulting Inc., where I develop network communication technologies and provide research and consulting in advanced technologies, mainly in computer networking and Internet technologies. In addition, I serve as a Co-Founder and Chief Technology Officer (CTO) of VisuMenu, Inc., where I design and develop architecture of visual IVR technologies for smartphones and wireless mobile devices in the area of network communications. The system is based on cloud networking and cloud computing utilizing Amazon Web Services.

22. A list of the cases (including trials before the Patent Trial and Appeal Board) in which I have testified within the last four years is found following my CV, which is Exhibit 1003.

C. Patents and Publications

23. A listing of my patents and publications is found in my curriculum vitae. *See* Ex. 1003.

D. Materials Considered

- **Ex. 1001** – U.S. Patent No. 8,788,090 to Rothschild (“the ’090 patent”);
- **Ex. 1004** – U.S. Patent No. 7,933,968 to Zimmerman (“Zimmerman”);
- **Ex. 1005** – U.S. Patent No. 7,477,950 to DeBourke (“DeBourke”);
- **Ex. 1006** – International Application No. WO 01/12038 to The Procter & Gamble Company (“Gutwein”);
- **Ex. 1007** – Justinian Oprescu, Franck Rousseau, Laurentiu-Sorin Paun, and Andrzej Duda, *Push Driven Service Composition in Personal Communication Environments*, IFIP International Federation for Information Processing (2003) (“Omnisphere I”);
- **Ex. 1008** – Franck Rousseau, Justinian Oprescu, Laurentiu-Sorin Paun, and Andrzej Duda, *Omnisphere: a Personal Communication Environment*, Institute of Electrical and Electronics Engineers (2003) (“Omnisphere II”);
- **Ex. 1009** – U.S. Patent Application Publication US 2002/0083342 to Webb et al. (“Webb”);
- **Ex. 1010** – U.S. Patent Application Publication US 2001/0043686 to Lggulden (“Lggulden”);

- **Ex. 1011** – MCGRAW-HILL DICTIONARY OF COMPUTING & COMMUNICATIONS 340 (2003) (definition of “server”);
- **Ex. 1012** – U.S. Patent Application Publication US 2002/0052966 to Isomura et al. (“Isomura”);
- **Ex. 1013** – MERRIAM-WEBSTER’S DELUXE DICTIONARY, TENTH COLLEGIATE® EDITION 1459 (Reader’s Digest 1998) (definition of “product”);
- **Ex. 1014** – THE NEW OXFORD AMERICAN DICTIONARY 1359 (2001) (definition of “product”); and
- **Ex. 1015** – THE AMERICAN HERITAGE® DICTIONARY OF THE ENGLISH LANGUAGE 1399 (4th Ed. 2000) (definition of “product”).

I have also reviewed and considered the ’090 patent’s file history, as well as the file histories for U.S. Patent Application No. 11/471,323 (now Patent No. 7,899,713) and U.S. Patent Application No. 12/854,451 (now Patent No. 8,417,377) since the ’090 patent claims entitlement to the filing dates of these earlier applications.

IV. BRIEF OVERVIEW OF THE ’090 PATENT

24. The ’090 patent relates to a system and method for creating a personalized product using a data processing system. *See, e.g.*, Ex. 1001 at Abst., 1:16-19. An example of such a system is shown in Figure 1, which reflects “[a]

diagram of a system for creating a personalized consumer product in accordance with an embodiment of the present disclosure.” *Id.* at 2:3-5.

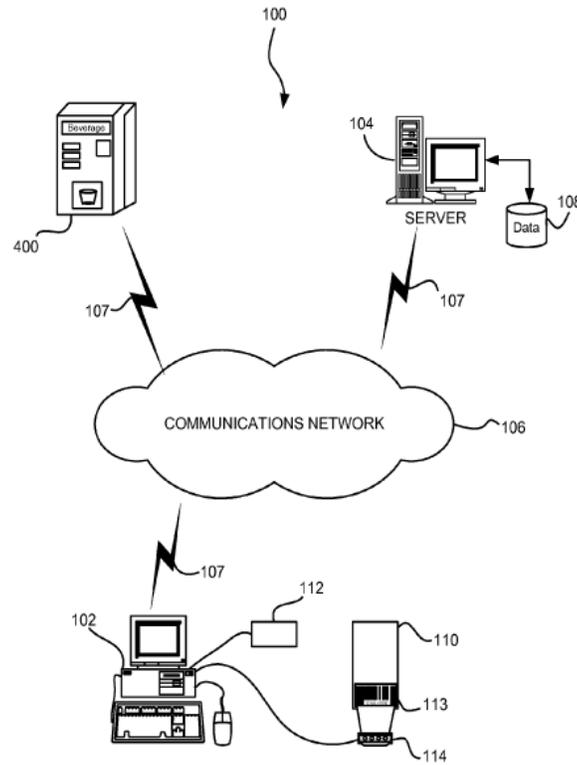


FIG. 1

25. As shown in this figure, the system can include a terminal (102) coupled to a network via link (107). A product (110) is also included, and can be coupled to the terminal. A communication network (106) connects the terminal to a remote server (104), which, in turn is coupled to a database (108).

26. A personalized product can be created “according to a user’s preferences over a network” through a series of steps. *Id.* at Abst. The product is first identified to “a server over the network.” *Id.* at Abst., 5:5-24. According to

an embodiment described in the '090 patent, the user may take the product to a “computer/terminal 102.” *Id.* at 5:5-6. The product can then be identified in any number of ways including (1) typing a barcode into a website, (2) scanning a barcode, or (3) allowing the product to communicate with a communication module on the computer/terminal via WiFi, Bluetooth, RFID, USB, or Firewire. *Id.* at 5:6-24.

27. The user’s identity may then be transmitted to the server. Ex. 1001, at 5:25-26. According to one embodiment, the “user’s computer will tell the product website residing on the server the user’s identity through a standard Internet cookie stored on the computer.” *Id.* at 5:25-29. If the user is recognized, “standard lookup database software” and “standard computer processing power” are used to locate the “user’s product preferences.” *Id.* at 5:29-34. “These preferences will be stored in the server database 108 cross-referenced by the user’s identity.” *Id.* at 5:34-35.

28. If the user is not identified or the “user’s product preferences” cannot be located in the database “because the user is unknown to the database . . . the web site and corresponding server 104 will communicate with the user’s computer and transmit a questionnaire to the user for the user to fill out to register the user” *Id.* at 5:36-41. “The questionnaire will prompt the user with questions to determine the user’s product preferences.” *Id.* at 5:41-43. Based on the user’s

answers to the questions, “the server will use a software algorithm and standard computer processing power to determine the user’s product preferences” *Id.* at 5:43-46. These are then stored “in a standard database software program.” *Id.* at 5:46-50. The server can then “issue and identity code, e.g., and alphanumeric code, to the user to facilitate retrieval of the user’s product preferences for a subsequent purchase.” *Id.* at 5:50-53.

29. After the product and the user have been identified, the server can retrieve the user’s product preferences, and can “transmit this information to the user’s terminal” and, ultimately, to the product. Ex. 1001 at 5:54-62. According to certain embodiments, the product may include “microvalves” and certain fluids and solids that may then be mixed to make a customized “consumer product” or a beverage. *Id.* at 5:63-6:6, 8:43-48.

V. LEVEL OF ORDINARY SKILL IN THE ART

30. I have been informed and understand that certain issues like claim interpretation and obviousness are viewed from the perspective of a person of ordinary skill in the art in question at the time of the alleged invention. I have been asked to assume, for the purpose of this Petition, that the time of the alleged invention is the June 20, 2006 time-frame.

31. The '090 patent describes the field as “data processing systems and consumer products, and more particularly to a system and method for creating a

personalized consumer product.” Ex. 1001 at 1:16-19. Looking at claim 1, the field of the invention includes communication between a product having a communication unit and a remote server including a database, and using that server to locate and return user preferences associated with the user and the product. *See, e.g.,* Ex. 1001 at 8:64-9:11.

32. The ’090 patent summary describes “[a] system and method to enable users to control mix parameters of a product from the global computer network to obtain a personalized consumer product.” More specifically, the system and method “will enable a user to customize products containing solids and fluids by allowing a server on the global computer network, e.g., the Internet, to instruct the hardware mixing the solids and fluids of the user’s preferences for the final mix.” Ex. 1001 at 1:55-62 (Summary).

33. Based on my education and experience, I am familiar with the level of knowledge that a person of ordinary skill would have possessed during the relevant time period. In my opinion, a person of “ordinary skill in the art” would have had at least a bachelor’s degree in computer science, electrical engineering, computer engineering, or equivalent, and at least two years of experience with network control systems, or an equivalent amount of relevant work or research experience. Such experience would have led to familiarity designing systems that allowed users to access and control devices over a network.

34. In reaching this opinion as to the qualifications of the hypothetical person of ordinary skill in the art, I have considered the types of problems encountered in the art, the prior art solutions to those problems, the rapidity with which innovations are made, the sophistication of the technology, and the educational level of active developers, engineers, and workers in the field. In addition, I have taken into account my own personal experience as a developer, a scientist, and an engineer and an entrepreneur in technology companies, and having worked with persons of ordinary skill in the art, as well as an educator teaching relevant subject matter.

35. By the critical date of the '090 patent in June 2006, I had more than ordinary skill in the art. For the purposes of my work in conducting my analysis of the issues in this proceeding, I have considered the knowledge that would have been available to a person of ordinary skill in the art as of June 2006.

VI. BACKGROUND OF RELEVANT PRIOR ART

36. For the purposes of my analysis in this Declaration, I have relied on the following references: (1) U.S. Patent No. 7,933,968 to Zimmerman (“Zimmerman”) (Ex. 1004); (2) U.S. Patent Application Publication US 2001/0043686 to Lggulden (“Lggulden”) (Ex. 1010); (3) U.S. Patent No. 7,477,950 to DeBourke (“DeBourke”) (Ex. 1005); (4) International Application No. WO 01/12038 to The Procter & Gamble Company (“Gutwein”) (Ex. 1006);

(5) Justinian Oprescu, Franck Rousseau, Laurentiu-Sorin Paun, and Andrzej Duda, *Push Driven Service Composition in Personal Communication Environments*, IFIP International Federation for Information Processing (2003) (“Omnisphere I”) (Ex. 1007); (6) Franck Rousseau, Justinian Oprescu, Laurentiu-Sorin Paun, and Andrzej Duda, *Omnisphere: a Personal Communication Environment*, Institute of Electrical and Electronics Engineers (2003) (“Omnisphere II”) (Ex. 1008); (7) U.S. Patent Application Publication US 2002/0083342 to Webb et al. (“Webb”) (Ex. 1009); and (8) U.S. Patent Application Publication US 2002/0052966 to Isomura (“Isomura”).

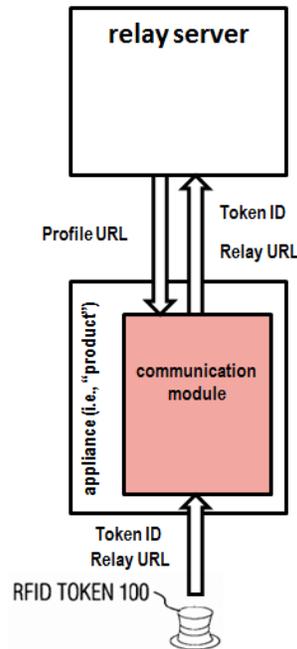
37. A short background for each of these prior art references is discussed below.

A. U.S. Patent No. 7,933,968 to Zimmerman

38. U.S. Patent No. 7,933,968 to Zimmerman (“Zimmerman”) was filed on June 20, 2000 and issued on April 26, 2011.

39. Zimmerman describes the use of a radio frequency identification (RFID) token linked to an appliance to access profile data to personalize the appliance for a user. *See, e.g.*, Ex. 1004 at 2:25-27 (“[A] radio frequency identification (RFID) token is used with appliances to access profile data to personalize the appliance.”). The RFID token has a pointer that points to a relay server located on a network. *See, e.g., id.* at Abst. (“Each [RFID] token contains a

pointer to a relay location on a network’). This is reflected in the demonstrative image below.

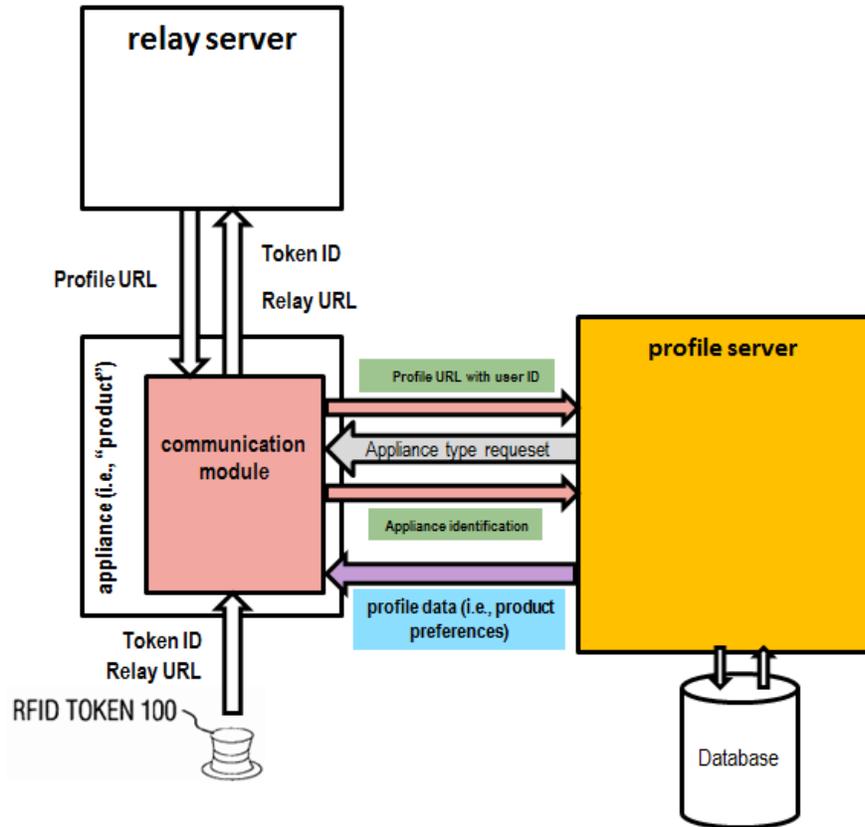


Thus the token sends its identifier and the relay URL to the appliance. *Id.* at 2:15-16 (“When the token establishes a link with a smart appliance, it conveys the relay URL and an identifier of the token.”). Then, as shown in the demonstrative image above, the appliance will access “the relay URL, which responds by transmitting the profile URL.” *Id.* 3:16-18. This transaction between the appliance and the relay server may also include an exchange of authentication information. *Id.* at 7:28-32.

40. As reflected by the return arrow in the demonstrative image above, the relay server may “authenticate the request and then look up and transmit, back to the appliance 340, the location of the profile data.” *Id.* at 7:32-33. One example of

a relay server URL is “http://123.123.123.123/tokens/<token ID>.” *Id.* at 9:50. An example of a profile URL is “http://www.funpage.com/myhomepage/~joesmith/<password>/profile.dat.” *Id.* at 9:55-57. Instead of URLs, “the location data can be provided in the form of IP addresses or any other suitable addressing mechanism permitting the location of data or processes on a network.” *Id.* at 7:43-45.

41. After receiving the profile URL from the relay server, “[t]he appliance may then generate a request to be sent to the profile server.” *Id.* at 7:34-37. The profile server may then return profile data. *Id.* at 7:37. “[P]rofile data may be obtained in a multistep process whereby the appliance interrogates the profile database to determine the data that is available or alternatively, the appliance 340 may indicate to the profile server 305 the type of data required or the nature of the appliance, and the profile server 305 will transmit the relevant data.” *Id.* at 7:38-43. “[T]he appliance 340 could obtain all the information in the profile database or just the information it requires.” Ex. 1001 at 7:54-56. This could be done, for example, by a “dynamic site” that “prompts an exchange” by requesting “data identifying the type of appliance” thereby allowing the profile server to transmit only the data relevant to the appliance. *Id.* at 9:60-65. These exchanges, along with the exchanges between the appliance and the relay server, are shown in the demonstrative image below.



42. There are many types of data that may be stored in the database including, for example, “data relating to various appliances and contexts,” such as “software workstation environment preferences, telephone speed dial lists, PDA address and phone book entries, recipes, oven temperature settings, refrigerator settings, dishwasher washing modes, Internet site favorites, etc.” Ex. 1004 at 12:10-20. While the Zimmerman invention can be used with “any device that can be customized,” several examples are given. *Id.* at 8:9-13. These include “telephones, televisions, computers, kitchen appliances, PDAs, movie boxes in hotel rooms, [and] VCRs.” *Id.*

B. U.S. Patent No. 7,477,950 to DeBourke

43. U.S. Patent No. 7,477,950 to DeBourke (“DeBourke”) was filed on June 2, 2005 and issued on January 13, 2009.

44. DeBourke describes an appliance control system for controlling a number of networked appliances. *See, e.g.*, Ex. 1005 at Abst. The system includes a “control station” having a “control unit” for controlling the various appliances. *Id.* The control station is located remote from the appliances. *Id.* There is at least one client station that is associated with at least one of the plurality of appliances. The client station allows a user to make requests to the control station for using the at least one appliance. *See* Ex. 1005 at Abst.

45. One embodiment described by DeBourke relates to the control of “water appliances,” such as sinks or showers. *Id.* at 4:65-67. The various users of the water appliance would be allowed to use the water appliance according to their own personal preferences. *See* Ex. 1005 at 1:51-55. Examples of different settings for the water appliances that can be set by the user according to their own personal preferences include “water pressure, water temperature, water run time, and the like.” *Id.* at 2:16-21.

46. The appliance control system includes a control station with a control unit, a control interface, a switch unit, a memory unit, and other components, as shown, for example, in Figure 1 (reproduced below). Ex. 1005, Fig. 1; 4:46-57.

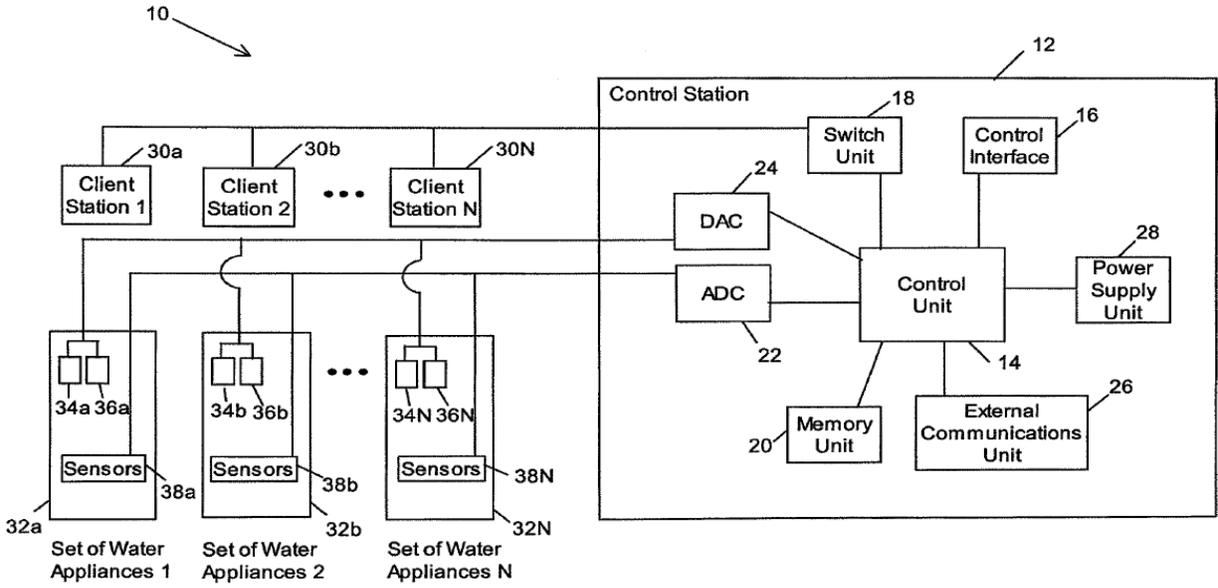


Figure 1

47. As shown in Figure 1, the control station (12) is connected to a number of client stations (30a, 30b, 30N) through the switch unit (18). *Id.* at 4:53-54. The client stations are associated with the water appliances that are controlled by the appliance control station. *Id.* at 4:54-57. The control unit of the control station may be “a server or the like.” *Id.* at 5:5:7-8. “The control unit monitors and controls all inputs and outputs of the control system.” *Id.* at 5:8-10. Switch unit (18) routes signals from the client stations to the control unit. *Id.* at 5:13-16. Client specific data from the various client stations may be accepted by the control unit and stored in the memory unit. *See Ex. 1005* at 5:21-23. “The stored data may include water settings, administration data, calibration data, passwords, and the like.” *See Ex. 1005* at 5:7-25. For scaling the number of client stations in the appliance control system, IP addresses are used to keep track of the client stations.

“When a client station is added to the network, an IP address is coded into the client station.” *See* Ex. 1005 at 10:24-28.

48. According to one embodiment each of the client stations and the control station are given unique IP addresses. *See* Ex. 1005 at 10:24-32.

49. DeBourke is not limited to “water appliances,” but “may be applicable to other household appliances for which control settings may be applied, possibly in a remote fashion, such as a furnace, air conditioner, lights and the like.” *Id.* at 4:41-45.

C. International Application No. WO 01/12038 (“Gutwein”)

50. International Application No. WO 01/12038 naming Gutwein as an inventor was published on February 22, 2001. *See* Ex. 1006.

51. Gutwein describes a system for brewing individually-customized coffee on demand for users. *See, e.g.,* Ex. 1006 at Abst. (“An improved system for providing an individually customized fresh brewed coffee beverage on demand by a consumer”); 1:12-15 (“The present invention is directed to methods and systems to provide consumers (at home or away from home) quantities of ready-to-drink fresh brewed coffee. The consumer may customize a selection of coffee based upon his/her taste preferences and the serving of fresh-brewed coffee will be provided almost immediately to the consumer.”); 4:17-20 (“It is therefore, desirable to provide a coffee-brewing system which will allow a consumer to

customize their preferred variety of coffee from a virtually endless selection of possibilities; the system of the present invention will provide an individually customized serving of coffee delivered hot and ready to drink, on demand by the consumer.”). According to one embodiment, “the system comprises a user interface; a customization director in communication with a customization data store, wherein the customization director comprises executable instructions for determining a user’s customized formulation; and a beverage delivery system in communication with the customization directory comprising executable instructions for delivering a customized beverage.” *Id.* at 5:15-19. The various components of the system may be located “at different physical locations,” as shown, for example, in Figure 5 (reproduced below). *See* Ex. 1006 at Fig. 5; 6:9-11.

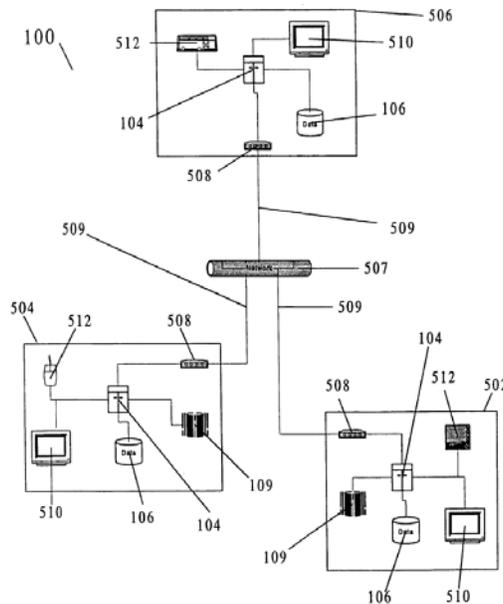


Fig. 5

52. As reflected in the example of Figure 5, “components of the system 100 are each connected by a network 507” *Id.* at 6:17-18. Gutwein further discloses that “it is within the skill of those in the art to design and build systems that share system resources and reduce the redundancy of system components. In such systems, for example, network 507 could employ a single data storage device 106 that may, or may not, be located in physical proximity to the system component at which the user is currently located. Additionally system 100 could employ a single data [sic] director 104 to which all devices are connected over a network.” *Id.* at 7:14-19. “[T]he system is configured to communicate with a remote data store. This ability allows the customization director to identify individual customers who have not previously interacted with the system at the present location and to retrieve the consumer’s centrally-stored profile.” *Id.* at 24:34-25:1; *see also id.* at 26:9-11 (“The profile is maintained in a central database accessed by the system via wireless, local area network (LAN) or telephony communication devices wherever the consumer is.”).

53. When a user first registers to use the system, a personal profile is established. Ex. 1006 at 26:6-7. The consumer “answers a few simple questions around beverage and related preferences. These questions help deliver the product with the right profile, and may allow the system to make suggestions and/or formulation modifications appropriate for the use during the instant or future

transaction.” *Id.* at 26:6-9. The responses to the questions are “analyzed by the customization director to formulate and deliver the product with the right profile.” *Id.* at 26:20-23. The registration to use the system is discussed further in “Example 6” provided by Gutwein. *See id.* at 28:26-29:10. In this example, the user, named “Alice,” indicates to the system that she is a new user by selecting “NEW” on a touch screen of the user interface. *Id.* at 28:27-30. A registration option may be presented to Alice, and this allows her to input her preference data. *Id.* at 28:34-35. When she enters her preferences, “[t]he customization director then creates a new record for [her] in the data store and associates the record with a new user identification (number, password, and the like). This new identification is then displayed to the user and preferably is sent to the user through an additional means.” *Id.* at 28:35-36.

54. “Example 5” provides an example in which a user, called “Frank,” has already been registered to use the system and has a “beverage card.” Ex. 1006 at 28:5-23; *see also id.* at 23:17-24:3. Frank may swipe his card through a card reader and may enter a password. *Id.* at 28:10-13. The customization director of this embodiment “transmits the identification number and password to the data store to determine if they matched an existing record. Finding a match, the customization director retrieves Frank’s customization profile and analyzes the profile to determine the beverage options to display to Frank.” *Id.* at 28:13-17. In

addition to using a “beverage card” to identify themselves to the system, Gutwein discloses using RFID tags, credit cards, or PIN numbers. *See, e.g.*, Ex. 1006 at 26:11-14 (“The consumer is recognized via personal identification number (PIN) stored in radio frequency identification tags RFID, matrix cards, or their credit card.”); *see also id.* at 15:17-19 (discussing retinal scan, thumbprints, or RFID tags as ways to identify the user).

55. The system can also seek feedback from the user, by, for example, performing a survey, such as how the user would rate his or her last beverage on a scale of 1 to 10, *id.* at 24:4-7, or the user can access the system to manually change his or her personal profile, *id.* at 26:20-21. Such data can be used to develop improved product recommendations and preferences (*id.* at 25:13-15), and may be used by neural networks to automatically improve the decisions and algorithms of the customization director. *Id.* at 22:2-7.

56. The preference information stored in the data store 106 includes information regarding formulations for coffee beverages. Beverage formulations may include beverage strength, temperature, additional flavors, or addition of milk, cream, sugar, sweeteners, etc. *Id.* at 18:34-36. The formulation may also include a dilution ratio for a predetermined amount of coffee to water. *Id.* at 13:8-10.

D. Omnisphere Publications

57. The Omnisphere architecture is described in the following publications: *Push Driven Service Composition in Personal Communication Environments*, by Justinian Oprescu, Franck Rousseau, Laurentiu-Sorin Paun, and Andrzej Duda, IFIP International Federation for Information Processing, dated 2003 (“Omnisphere I”); *Omnisphere: a Personal Communication Environment*, by Franck Rousseau, Justinian Oprescu, Laurentiu-Sorin Paun, and Andrzej Duda, Institute of Electrical and Electronics Engineers, dated 2003 (“Omnisphere II”). As I discuss below, a person of ordinary skill in the art would have looked to both of these references to gain an understanding of Omnisphere, and combining the teachings of these two references would have been obvious.

58. The Omnisphere references describe a personal communication and information environment for wireless appliances. *See* Ex. 1007 at 505; Ex. 1008 at 3. The wireless appliances may include a number of different devices such as PDAs, notebooks, and mobile phones. *See, e.g.*, Ex. 1008 at 9 & Fig. 7.

59. Based on user preferences, device capabilities, and context, Omnisphere makes use of existing discovery protocols, such as SLP, Jini, UPnP, or DNS-SD, to discover relevant services (also referred to as “ambient services”) for the user. Ex. 1008 at 4 (referring to “traditional service discovery protocols such as SLP, Jini, or UPnP”); *id.* (“Based on the User ID and Appliance ID, Omnisphere

retrieves the information that restricts the set of possible services: User Preferences, Device Capabilities, and Context.”). The user preference, device capabilities, and context information are used to configure services and user applications to allow the user to benefit from complex communication applications composed on demand for specific appliances and contexts. *See* Ex. 1007 at 505; Ex. 1008 at 1. “User Preferences define . . . the most common needs of the user in terms of ambient services and different types of data.” Ex. 1008 at 4. “Device Capabilities provide information about the characteristics of appliances (screen resolution, processor speed, network interface) [and] Context adds some location specific information such as the geographic information, available devices, type of environment—public or private, and all other information related to the close neighborhood of an appliance.” *Id.* at 4-5.

60. The authors of Omnisphere recognized the importance of offloading some of the service discovery tasks from appliances to the network infrastructure. *See, e.g.*, Ex. 1007 at 1 (“We believe that a personal communication environment should behave according to the *push* model in which a source of data or the network infrastructure takes care of preparing communications and proposing them to the user.”); Ex. 1008 at 4 (“Our approach to the discovery of ambient services is to delegate most of the operations to the network infrastructure and to automate them as much as possible.”).

61. The Omnisphere References discuss some components of the Omnisphere system. For one, the “Omnisphere service” (shown below running on what a person of ordinary skill in the art would understand to be a server), “runs in the fixed network infrastructure and is used for discovery of component services” Ex. 1008 at 4. This Omnisphere service “integrates traditional service discovery protocols such as SLP, Jini, or UPnP” and “matches discovered component services with user preferences, device capabilities, and the current context.” *Id.* Omnisphere I refers to these same functionalities being performed by a “user avatar,” which “represents the user in Omnisphere.” Ex. 1007 at 507. The role of the avatar “is to mediate event notifications concerning different data flows,” to receive “events from ambient services and acts according to the information on user preferences, the current context, and device capabilities to either notify the user or set up communications.” *Id.* The avatar “monitors the presence of user devices, manages services available at the given Omnisphere, and discovers services required for the user.” *Id.* A person of ordinary skill in the art would have understood the user avatar to have been instantiated on a server running on the Omnisphere service, since the service would have been understood as supporting the functionality of all user avatars in a given Omnisphere, while the depiction of a single avatar in Omnisphere I is from the perspective of a single user rather than a multi-user network. This is reflected in the demonstrative image

below, which reflects that a person of ordinary skill in the art would have understood the avatar to be instantiated on a server in the network infrastructure based on the combined teachings of Omnisphere I and Omnisphere II.

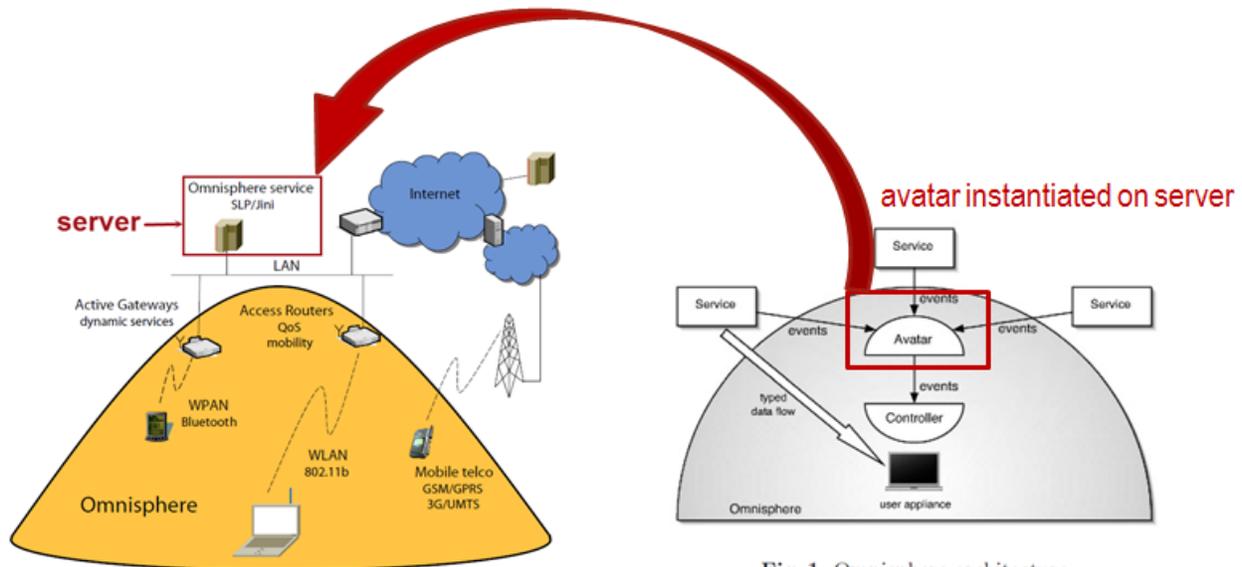


Figure 7. Sketch of the implementation platform.

Fig. 1. Omnisphere architecture

Ex. 1008 at 9 & Ex. 1007 at 506 (red annotations and red text added). Once the Omnisphere system discovers required services, it configures them, and composes them into more complex communication applications. *See* Ex. 1007 at 506.

62. Moreover, an “Omnisphere controller,” takes care of events sent to the user, and runs on the user appliance that enters Omnisphere. *See, e.g.,* Ex. 1007 at 506 (Fig. 1); Ex. 1008 at 4 (describing the “controller service” as a service that “runs on the appliance”). When a user appliance enters Omnisphere, the Omnisphere controller registers the device within the given Omnisphere and authenticates the user. *See* Ex. 1007 at 506; Ex. 1008 at 4. For a user appliance to

register with Omnisphere, the appliance sends the User ID and Appliance ID for authentication. *See* Ex. 1008 at 8. These interactions between the appliance and the Omnisphere network infrastructure take place according to the “Omnisphere control protocol,” which is described in the Omnisphere II reference as follows:

- BEACON - Omnisphere advertises itself for nearby appliances.
- REGISTER - the appliance sends the User ID and Appliance ID for authentication.
- SERVICE - if needed, Omnisphere can provide a service by downloading the code using a data channel.
- ACTIVATE - used by Omnisphere to pass all the parameters needed to establish data flows and activate a service.
- REBIND - when the state of an appliance changes, it can ask Omnisphere to find new best matching services.
- QUERY - appliance can issue an explicit request for discovering other services (not those that are proposed based on the user preferences).

See Ex. 1008 at 8.

63. Once a user appliance is registered, the services available in the given Omnisphere may be provided to the user appliance based on user preferences, device capabilities, and context. Thus, Omnisphere’s network infrastructure provides a user with only the specific services that are needed by the user and the user appliance. *See* Ex. 1008 at 9.

64. Omnisphere I provides an example of how the Omnisphere network may be used to configure appliances according to user preferences concerning the receipt of email on different devices and in different contexts. *See generally* Ex. 1007 at 508-10. Omnisphere II provides an example of how a user can receive video on different devices in different contexts according to his preferences. Ex. 1008 at 6-7.

E. U.S. Patent Application Publication US 2002/0083342 to Webb *et al.*

65. U.S. Patent Application Publication US 2002/0083342 to Webb *et al.* (“Webb”) was filed on June 5, 2001 and published on June 27, 2002.

66. Webb describes systems, methods, and computer program products for allowing users to access one or more devices on a private network, using clients on a public network. Ex. 1009 at Abst. To do this, a gateway on a private network is used to accept a user login request from a client on a public network. *Id.* The gateway determines the access rights of the user to one or more devices on the private network. *Id.* A Web page is served to the client that identifies each device on the private network that the user has access rights to. *Id.* Upon receiving a request from the client to access a Web server of a device on the private network, the gateway redirects the received client request to the Web server. *Id.*

67. The invention in Webb is intended to be applied to home networks that are being used to network “smart” devices. *See, e.g.,* Ex. 1009 at ¶ [0001]

(“The present invention relates generally to computer networks and, more particularly, to systems, methods and computer program products for accessing devices connected to computer networks.”); *id.* at ¶ [0043] (“In the illustrated embodiment, the following devices are connected to the private network 16: a gateway 14; a smart appliance 18; a heating, ventilating, and air conditioning (HVAC) system 19; a security system 20; a video system 21; an audio system 22; a personal computer (PC) 23; and a printer 24. These devices may be connected to the private network 16 via various technologies including, but not limited to, Ethernet, wireless, phone-line networking, and power-line networking.”). These “smart” devices include stereos, kitchen appliances, energy management systems, and security systems. *Id.* at ¶ [0004]. Many of these smart devices are administered via small on-board Web servers. *Id.*

68. Webb addresses the need to remotely access these “smart” devices in a person’s home in a secure manner by having remote users interact with a gateway that is connected to the private network and configured to accept user login requests from users using clients on the public network. *See* Ex. 1009 at ¶¶ [0005]-[0008]. Of particular relevance to my analysis, Webb describes the use of Internet cookies for authenticating users: A “cookie may allow the user to access the Web server of any device that the user is authorized to access, but only for a specific time period. Each time the user accesses a device on the private network,

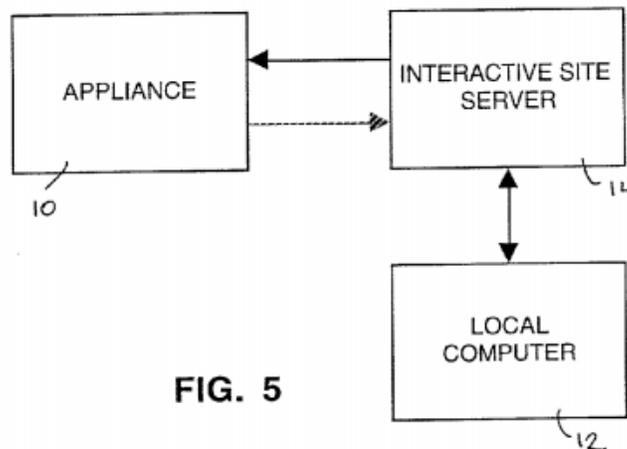
the user's client sends the cookie to the gateway and the gateway determines whether the user is authorized to access the particular device. Upon expiration of the specified time period, the user would be required to log-in with the gateway. It is understood that embodiments of the present invention are not limited to the use of cookies. Alternatively, user log-in and/or session information may be encoded within a URL.” *Id.* at ¶ [0048].

F. U.S. Patent Application Publication No. 2001/0043686 to Lggulden

69. U.S. Patent Application Publication No. 2001/0043686 to Lggulden was filed on January 22, 1999 and published on November 22, 2001.

70. Lggulden describes “[a]n interactive interface” that “facilitates the setting of preferences and other programmable parameters of an appliance.” Ex. 1010 at Abst; *id.* at ¶ [0014] (“The present invention provides method and apparatus for setting preferences and other parameters of an appliance.”). An interface is “hosted by a server on a global computer network.” *Id.* at Abst. “The appliance owner initiates a connection to the server and is presented with a” graphical user interface” (GUI) “for setting preferences and features of the appliance.” *Id.*; *see also id.* at ¶ [0014]. (“In preferred embodiments of the invention, a user initiates a connection to an interactive site on a global computer network.”). These settings may be downloaded to the appliance “directly from the server or the appliance owner’s computer.” *Id.* at Abst.

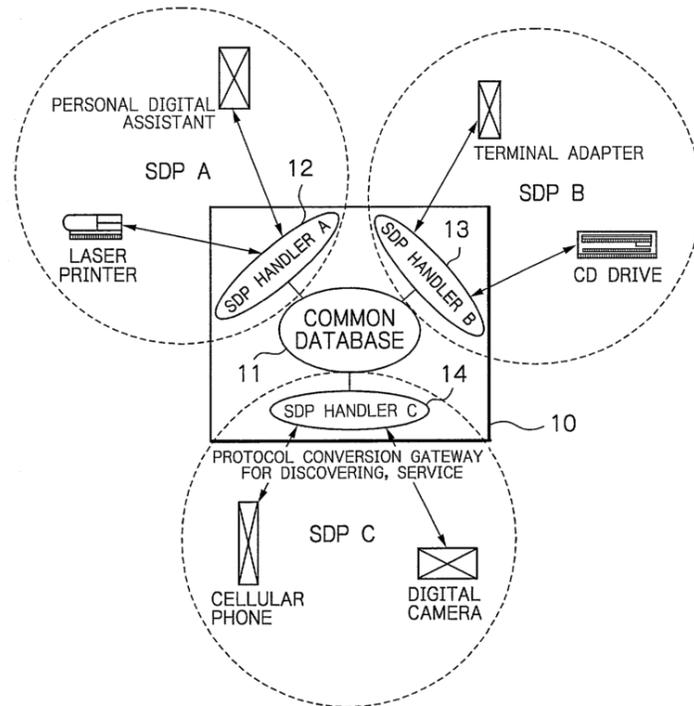
71. Figure 5 shows an embodiment in which “data for appliance 10 is received directly from server 14 rather than local computer 12.” Ex. 1010 at ¶ [0035]. “Communication between server 14 and appliance may be telephonic. Appliance 10 may incorporate a conventional modem, in which case communications may be two-way, or may simply have a data demodulator for one-way communications.” *Id.* Alternatively, the communication may be wireless and the “appliance 10 may incorporate a cordless telephone module for communicating with a separate base station,” or may be “implemented with radio signals.” *Id.* Figure 5 is reproduced below.



G. U.S. Patent Application Publication 2002/0052966 to Isomura *et al.*

72. U.S. Patent Application Publication No. 2002/052966 to Isomura *et al.* was filed on December 26, 2001 and was published on May 2, 2002.

73. Isomura relates to a “service discovery protocol server for discovering a service provided by an apparatus using a service discovery protocol from another apparatus using a service discovery protocol different from the service discovery protocol.” Ex. 1012 at Abst. Isomura discloses the use of various Service Discovery Protocols (SDPs) and more specifically a SDP server that can translate between various discovered services that are discovered using different protocols such as JINI, UPnP, Bluetooth®, and SLP. Ex. 1012, ¶ [0003]. A “common database 11 stores service information for service attributes provided by the SDP handler 12 to 14. The service information stored in the common database 11 is written in a common format that can be understood by all SDP handlers.” *Id.* at ¶ [0021]. An example of the system of Isomura is reflected in Figure 1.



VII. LEGAL PRINCIPLES USED IN ANALYSIS

74. I am not a patent attorney, nor have I independently researched the law of patent validity. Attorneys have explained certain legal principles to me that I have relied on in forming my opinions set forth in this Declaration.

A. Prior Art

75. I have been informed that the law provides certain categories of information (known as prior art) that may be used to anticipate or render obvious patent claims. I have been asked to presume that the reference materials I opine on below are prior art, and have not formed an opinion whether these references are, in fact, prior art as applied against the '090 patent.

B. Anticipation

76. I have been informed that a claim is not patentable when a single prior art reference describes every element of the claim, either expressly or inherently to a person of ordinary skill in the art. I understand that this is referred to as “anticipation.” I have also been informed that, to anticipate a patent claim, the prior art reference need not use the same words as the claim, but it must describe the requirements of the claim with sufficient clarity that a person of ordinary skill in the art would be able to make and use the claimed invention based on the single prior art reference. The claim elements must be arranged in the same way in the prior art as they are in the claim.

77. In addition, I was informed and understand that, in order to establish that an element of a claim is “inherent” in the disclosure of a prior art reference, it must be clear to a person skilled in the art that the missing element is an inevitable part of what is explicitly described in the prior art, and that it would be recognized as necessarily present by a person of ordinary skill in the art.

C. Obviousness

78. I have been informed that, even if every element of a claim is not found explicitly or implicitly in a single prior art reference, the claim may still be unpatentable if the differences between the claimed elements and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person of ordinary skill in the art. That is, the invention may be obvious to a person having ordinary skill in the art when seen in light of one or more prior art references. I understand that a patent is obvious when it is only a combination of old and known elements, with no change in their respective functions, and that these familiar elements are combined according to known methods to obtain predictable results.

79. I have been informed that the following four factors are considered when determining whether a patent claim is obvious: (1) the scope and content of the prior art; (2) the differences between the prior art and the claim; (3) the level of ordinary skill in the art; and (4) secondary considerations tending to prove

obviousness or nonobviousness. I have also been informed that the courts have established a collection of secondary factors of nonobviousness, which include: unexpected, surprising, or unusual results; non-analogous art; teachings away from the invention; substantially superior results; synergistic results; long-standing need; commercial success; and copying by others. I have also been informed that there must be a connection between these secondary factors and the scope of the claim language.

80. Obviousness does not require actual physical substitution of elements, and an obviousness analysis can take into account not only specific teachings of the references but also inferences which one skilled in the art would reasonably expect to draw therefrom.

81. I have also been informed that some examples of rationales that may support a conclusion of obviousness include:

(A) combining prior art elements according to known methods to yield predictable results;

(B) simply substituting one known element for another to obtain predictable results;

(C) using known techniques to improve similar devices (methods, or products) in the same way;

(D) applying a known technique to a known device (method, or product) ready for improvement to yield predictable results;

(E) choosing from a finite number of identified, predictable solutions, with a reasonable expectation of success—in other words, whether something is “obvious to try”;

(F) using work in one field of endeavor to prompt variations of that work for use in either the same field or a different one based on design incentives or other market forces if the variations are predictable to a person of ordinary skill in the art; and

(G) arriving at a claimed invention as a result of some teaching, suggestion, or motivation in the prior art that would have led a person of ordinary skill to modify the prior art reference or to combine prior art reference teachings.

82. I have also been informed that other rationales to support a conclusion of obviousness may be relied upon, for instance, that the common sense (where substantiated) of the person of skill in the art may be a reason to combine or modify prior art to achieve the claimed invention.

VIII. CLAIM CONSTRUCTION

83. I have been informed that in an *inter partes* review, a claim of an unexpired patent is given its broadest reasonable interpretation in light of the specification. For the purposes of rendering my opinions, I have considered the

claim terms to take on their broadest reasonable interpretation in light of the specification of the '090 patent. The broadest reasonable interpretation of the claims is consistent with the plain meaning of the terms of the '090 patent in light of the specification as would have been understood by a person of ordinary skill in the art as of June 20, 2006 (under the assumption that the claimed earliest effective date is appropriate). Where applicable, I may cite certain dictionaries and other materials as providing evidence of the plain meaning of the terms used in the claims.

84. I have been asked to presume that the term “predetermined product” as used in the '090 patent should be given a broadest reasonable interpretation of “a type of product determined before use of the system to obtain preferences for that product.” I have applied this definition in my analysis of the '090 patent. However, to the extent that a narrower meaning is given to the claim language (namely that the “predetermined product” must be a specific, unique product), I have addressed that possibility too in my analysis.

85. I agree that the meaning of “predetermined product” that I have been asked to apply is consistent with the specification and claims of the '090 patent, as would have been understood by a person of ordinary skill in the art at the time of the alleged invention. For example, phrases, such as “preference of a predetermined product” and “identity of the predetermined product,” in claim 1 of

the '090 patent are not referring to one and only one unique “product,” but rather, are referring to a type of product. The '090 patent explains that one way of identifying the product to the server is to use “communication module 214 of product 110” to “identify the product make and model” Ex. 1001 at 5:21-24. A person is not identifying a unique product when the product is identified by make and model. Rather, this way of identifying products identifies a type of product by certain classification—*i.e.*, by manufacturer and model. In addition, the '090 patent explains that the “server also stores the specific consumer’s product preferences, so that future shampoo purchases of the same brand can also be mixed according to the consumer’s stored preferences.” *Id.* at 2:50-53. A person of ordinary skill in the art would have understood that the '090 patent says that “preference[s] of a predetermined product” can be for a type of product like “the same brand” of shampoo. *Id.* Thus, consistent with the specification of the '090 patent, the term “predetermined product” refers to a “type of product,” and the predetermination of the product requires the product to be “determined before use of the system to obtain preferences for that product.”

IX. INVALIDITY ANALYSIS

86. As I discuss below, the subject matter of claims 1-8 of the '090 patent was disclosed in prior art patents, patent applications, and printed publications. The various claims recite subject matter that presents only minor variations of

well-known features that address identified problems with known and predictable solutions as would have been appreciated by a person of ordinary skill in the art as of June 2006. Thus, as discussed below in detail, it is my opinion that claims 1-8 are invalid.

A. The Claims of the '090 Patent

87. I have been asked to opine on the validity of claims 1-8 of the '090 patent. While I have reviewed and considered the language used in the other claims of the '090 patent, I have not formulated any opinions regarding the validity of those claims.

88. **Claim 1** provides:

A system for customizing a product according to a user's preferences comprising:

a remote server including a database configured to store a product preference of a predetermined product for at least one user; and

a first communication module within the product and in communication with the remote server;

wherein the remote server is configured to receive the identity of the predetermined product and the identity of the at least one user, retrieve the product preference from the database based on the identity of the predetermined product and the identity of the least one user and transmit the product preference to the first communication module.

Ex. 1001 at 8:66-9:11.

89. **Claim 2** provides: “*The system as in claim 1, wherein the transmitted product preference is a formulation including a predetermined amount of at least one element.*” *Id.* at 9:12-14.

90. **Claim 3** provides: “*The system as in claim 2, wherein the at least one element is a fluid, a solid or any combination thereof.*” *Id.* at 9:15-16.

91. **Claim 4** provides:

The system as in claim 2, wherein the server is configured to communicate at least one question to a terminal of the at least one user for prompting the user with the at least one question relating to the predetermined product and the server is further configured for determining the formulation based on at least one response of the user.

Id. at 9:17-22.

92. **Claim 5** provides: “*The system as in claim 4, wherein the server is further configured for issuing an identity code for the user and cross-referencing the identity code to the formulation.*” *Id.* at 9:23-25.

93. **Claim 6** provides: “*The system as in claim 5, wherein the server is configured for storing the identity code and cross-referenced formulation in the database.*” *Id.* at 9:26-28.

94. **Claim 7** provides: “*The system as in claim 6, wherein the terminal is configured to transmit the identity code to the server.*” *Id.* at 9:29-30.

95. **Claim 8** provides: “*The system as in claim 7, wherein the identity code is stored as an Internet cookie on the terminal.*” *Id.* at 9:31-32.

B. Claim 1 would have been obvious over Zimmerman in view of Lggulden and DeBourke

96. Based on my analysis of the '090 patent and the Zimmerman, Lggulden, and DeBourke references, a person of ordinary skill in the art would have found claim 1 to be obvious over Zimmerman in view of Lggulden and DeBourke.

97. It is my opinion that Zimmerman discloses all aspects of claim 1. Zimmerman discloses a system for customizing products based on user preferences. Zimmerman’s appliances are “products,” as a person of ordinary skill in the art would have understood that term at the time of the alleged invention. In Zimmerman, a user uses an RFID token with the smart appliances to access profile data to personalize the appliance. The profile data is stored in a remote profile server, including a private profile database, that communicates with different appliances associated with an RFID token. The profile data in the profile server includes user preference data related to the various appliances.

98. The smart appliances disclosed in Zimmerman communicate with the remote profile server using a communication module within it. For example, Zimmerman teaches that an appliance communicates with a remote profile server using a “profile URL.” The remote server is configured to receive the identity of

the predetermined product because the profile server interacts with the appliance to request the identification of the type of appliance such that only relevant data for that type of appliance is transmitted. It is configured to receive the identity of the user because when a user uses his/her RFID token with an appliance, a profile URL is transmitted to the appliance that includes a “secret directory name,” which identifies the user. Then the profile server accesses a profile URL that has the user’s preferences for the appliance, which allows the profile server to identify the profile data for the user. After the profile data with the user’s preferences for the appliance is retrieved, the profile data is transmitted to the appliance.

99. Certain features of claim 1 would also have been obvious over Zimmerman. For example, while Zimmerman is not explicit about where a communication module is located vis-à-vis the appliances, Lggulden teaches a modem in an appliance. Zimmerman does not specifically state that specific products are identified by a unique identifier. Even if the term “predetermined product” required a unique and specific identification of a singular product, it would have been obvious to use unique identifiers to specify a product based on, for example, the unique identifiers for various appliances disclosed in DeBourke.

1. Claim 1 would have been obvious over Zimmerman in view of Lggulden and DeBourke

- a. “A system for customizing a product according to a user's preferences comprising”*

100. I have not been asked to render an opinion about whether the preamble of claim 1 is a limitation. Instead, for the purposes of my analysis, I assume that the preamble is a limitation for the sake of completeness. Based on my analysis, Zimmerman discloses a “system for customizing a product according to a user’s preferences” as set forth in the preamble of claim 1. Ex. 1001 at 8:66-67.

101. As I discuss above in section V.A, Zimmerman’s system is capable of personalizing appliances based on stored user preferences. *See* Ex. 1004, Abst. Zimmerman’s customizable appliances include set-top boxes, telephones, PDAs, workstations, ovens, dishwashers, refrigerators, “etc.” *Id.* at 6:7-11, 12:11-18. A person of ordinary skill in the art would have understood that Zimmerman’s appliances constitute “products” under the plain and ordinary meaning of the term “product.” I first note that the ’090 patent does not appear to provide a definition of the term “product.” And, the term “product” is not a term of art. Moreover, I do not believe a person of ordinary skill in the art would have understood the ’090 patent specification as disclaiming any particular meaning of the term “product.” The plain meaning of the term “product” refers to “something produced,” Ex. 1013

at 1459 (definition 2(a)), “an article or substance that is manufactured or refined for sale,” Ex. 1014 at 1359 (definition 1), or “[s]omething produced by human or mechanical effort or by a natural process,” Ex. 1015 at 1399 (definition 1).

102. Zimmerman discusses use of “a radio frequency identification (RFID) token” that “is used with appliances to access profile data to personalize the appliance.” Ex. 1004 at 2:25-27. As I have already discussed, the RFID token points to a “relay location on a network,” which, if the token is properly authenticated, returns a pointer to a profile server “where user-profile data is stored.” *Id.* at 2:27-29. “[T]he profile data is transmitted to and received by, respectively, the appliance 340.” *Id.* at 9:46-48.

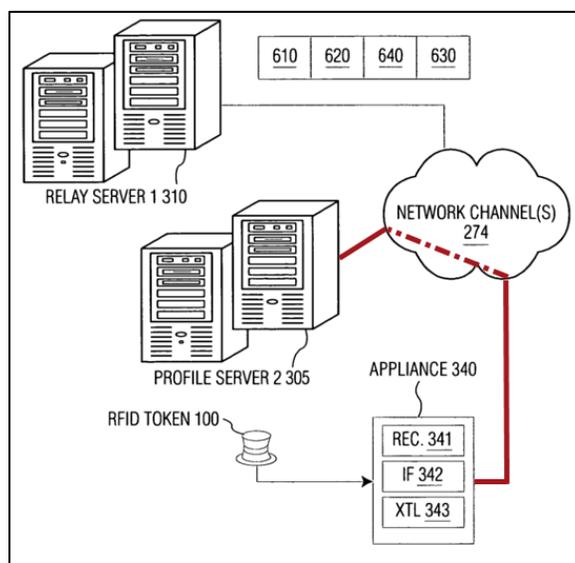
103. Thus, Zimmerman discloses a system for customization of a product according to a user’s preferences.

b. “a remote server including a database configured to store a product preference of a predetermined product for at least one user”

104. Based on my analysis of Zimmerman, it is my opinion that Zimmerman discloses “a remote server including a database configured to store a product preference of a predetermined product for at least one user,” as required by claim 1. Ex. 1001 at 8:67-9:2.

105. Zimmerman’s remote server is referred to as the “profile server,” or in some instances, the “profile location,” since it stores user profile data for

appliances and may be identified by an IP address or a URL. *See, e.g.*, Ex. 1004 at 2:25-29, 51-53, 7:32-37, 9:33-39, 60-65. A person of ordinary skill in the art would have understood that Zimmerman's profile server is remote from the product based on, for example, Figure 3 since the product communicates through a network (depicted by a cloud) to the profile server. When communications pass through a network, such as the Internet, those skilled in the art typically represent the interconnection of components leading from one device to another using a cloud just as Zimmerman does.



See Ex. 1004 at Fig. 3 (annotations in red added); *see also id.* at 7:19-45. Communications pass from the appliance 340 to the relay server, and once the relay server provides information regarding the location of the profile server, the appliance can communicate with the profile server. This latter communication is reflected by the red line through the network cloud shown in the image above.

106. Zimmerman’s profile server includes a database, referred to as a “private profile database.” Ex. 1004 at 4:54-56. This profile database is “configured to store a product preference of a predetermined product for at least one user.” Ex. 1001 at 9:1-2. The “private profile database” compiles data from different appliances associated with an RFID token. *See* Ex. 1004 at 4:54-56 (“The invention contemplates a private profile database. . . . [E]ach appliance may contribute information to this database.”); *see also id.* at 11:16-18. The RFID token is associated with a user. Ex. 1004 at 2:45-49 (“Each RFID device contains a unique Internet uniform resource locator {URL} called the relay location. The relay location URL stores a profile URL that is owned and maintained by and/or for the user.”).

107. The profile data in the private profile database “may be uploaded by the appliance to the user’s personal profile server.” Ex. 1004 at 4:61-63; *see also id.* at 11:23-25. This data includes “variegated preference data that includes data relating to various appliances and contexts.” Ex. 1004 at 12:10-20. Zimmerman further states that “[t]he profile location may contain many different types of data such as speed dial lists, media preferences, preferred product classifications, etc.” *Id.* at 7:52-54.

108. A person of ordinary skill in the art would have understood from these teachings that Zimmerman discloses a remote server including a “private profile

database” that stores a user’s product preference data for a predetermined product. More specifically, Zimmerman describes identifying the “type of appliance” to the profile server, and having the profile server “transmit only the relevant data for the type of appliance.” Ex. 1004 at 9:60-65. This would have been known to a person of ordinary skill in the art to constitute a “predetermined product” because the server would be aware of the “type” of product such as its make, model, or brand, and thus identify the appropriate data for that product. Indeed, different categories of products, such as, for example, ovens or refrigerators have different capabilities. For example, some refrigerators have the ability to dispense ice and water. Thus, a person of ordinary skill in the art would have understood that it would have been important to provide preferences from the profile database that corresponded to the capabilities of the product. Regarding the requirement of the claims that the products be “predetermined,” a person of ordinary skill in the art would have understood that each product has predetermined preference data stored in the profile server’s database (which includes data associated with a user) so that the preference data can be retrieved and sent to the appliance.

109. Therefore, it is my opinion that (1) Zimmerman’s “remote server” is called a “profile server,” (2) the profile server includes a database, which is referred to as the “private profile database,” and (3) the database is “configured to store a product preference of a predetermined product for at least one user” in that

preference data is associated with a user's RFID token and one or more appliances for which profile information is stored in the private profile database. Therefore, a person of ordinary skill in the art would have understood Zimmerman to disclose the claimed "remote server including a database configured to store a product preference of a predetermined product for at least one user." Ex. 1001 at 8:67-9:2.

110. As I have already discussed above, Zimmerman discloses that "the remote server is configured to receive the identity of the predetermined product" as required by claim 1. Nevertheless, I have been asked to consider whether a person of ordinary skill in the art would have found it obvious to identify a unique product from a class of products (e.g., a single product based on a specific, unique identifier) in the context of Zimmerman as of June 2006 should the "predetermined product" term be construed in such a way as to require a specific, unique product. Based on my review of the prior art and the knowledge that would have been available to a person of ordinary skill in the art as of June 2006, it would have been obvious to provide a unique identifier for identifying a specific product to the system of Zimmerman.

111. As I have discussed elsewhere, Zimmerman teaches that different user preferences may be applied to different appliances. *See* Ex. 1004 at 12:10-20. For example, an oven or dishwasher would have little use for phone numbers, and a phone would have little use for baking or dishwashing settings. Thus, Zimmerman

teaches that “[a] profile server process could use this information to transmit only the relevant data for the type of appliance.” Ex. 1004 at 9:61-65. This has many advantages, including eliminating transmitting data irrelevant to certain appliances when it is not needed and reducing communication overhead.

112. DeBourke, like Zimmerman, describes an appliance control system for controlling a plurality of networked appliances using user preferences. *See* Ex. 1005 at 4:41-44. DeBourke teaches that his invention is applicable to many different types of appliances. Ex. 1005 at 4:38-45. Using an Ethernet network, DeBourke assigns appliances a unique IP address to monitor communications and increase efficiency in the network. *See, e.g.*, Ex. 1005 at 10:39-49 (“In the exemplary [E]thernet network implementation of the invention, each of the client stations 30 may be provided with a unique IP address and the control station 12 is also given a unique IP address.”). Such unique device identifiers used within networks, such as unique IP addresses, or MAC-addresses, were well-known and commonly used by persons of ordinary skill in the art at the time of the alleged invention to identify devices on a network. This allowed data transmissions to be sent to specific devices on a network without having to broadcast the data throughout the network.

113. Indeed, DeBourke is not alone in teaching the use of IP addresses to identify locations in a network. Zimmerman says that “location data can be

provided in the form of IP addresses or any other suitable addressing” Ex. 1004 at 7:49-51. It would have been obvious to modify the networked appliances of Zimmerman such that each appliance has a unique identifier as taught by DeBourke. This modification would have allowed the remote server to identify which devices communications came from and would have allowed the server to direct communications to individual appliances in the network so that the preferences are provided to an appropriate device. This would also have allowed for more efficient communications using a readily-understood protocol for addressing individual networked devices and would have ensured that the correct preferences would have been delivered to the proper appliances in situations in which two identical appliances are on the network. Both Zimmerman and DeBourke encompass multiple appliances, have multiple users, and users have their own settings and thus solve related problems. *See, e.g.*, Ex. 1004 at 7:52-56; 12:10-20; Ex. 1005 at 1:50-54, 12:50-57. It would not have required any inventive activity in order to incorporate unique identifiers for addressing individual products on a network such as the smart appliances of Zimmerman. Indeed, using, for example, static IP addressing to allow the routing of packets to each appliance on Zimmerman’s network would yield predictable results (*e.g.*, the ability to address each appliance on the network) and would have employed only

known technology for a known purpose (e.g., routing information through a network).

114. Therefore, even if “predetermined product” is construed in a manner such that Zimmerman does not disclose the claimed “predetermined product,” it would have been obvious to store preferences for unique predetermined products as well.

c. “a first communication module within the product and in communication with the remote server”

115. Based on my review and analysis of Zimmerman, a person of ordinary skill in the art would have read Zimmerman as disclosing “a first communication module within the product and in communication with the remote server.” Ex. 1001 at 9:3-4.

116. Zimmerman’s appliance communicates with a remote profile server using a “profile URL.” Ex. 1004 at 2:47-49, 3:18-19 (“The smart appliance then attempts to link with the profile URL.”), 7:28-37 (appliance 340 accesses a relay URL and, once a profile URL is received, can request from the profile server for profile data), 9:41-65 (describing a process for accessing profile data using relay server and profile server URLs). Thus, a person of ordinary skill in the art would have understood that Zimmerman’s smart appliance communicates with the remote server. This is reflected, again, in Figure 3, which is annotated above. If there was no communication module, there would be no ability to send data from the

appliance over to the profile server, or for the appliance to receive data from the profile server.

117. Thus, based on the foregoing, a person of ordinary skill in the art would have understood that for the appliance to communicate with the profile server to retrieve profile data, the appliance would necessarily have a “first communication module within the product.” A person of ordinary skill in the art would have reached this conclusion based on the fact that there is no module shown outside of the product in the figures, and even if such a module existed outside of the appliance, there would still need to be a module within the appliance to receive and decipher communications received from the network and to format data to be transmitted outside of the appliance. For example, by June 2006, well known examples of such communication modules are network interface cards and modems. *See, e.g.*, Ex. 1004, Fig. 3. Thus, the “communication module” within Zimmerman’s smart appliance is responsible for the various data exchanges with the profile server.

118. Even if it could be argued that Zimmerman is insufficient to show a communication module within the appliance (a proposition that I disagree with for the reasons I have discussed above), it would have been obvious to include such a module based on, for example, the teachings of Lggulden.

119. While it is my opinion that a person of ordinary skill in the art would have understood that Zimmerman’s “smart appliance” to include a “communication module within the product,” Ex. 1001 at 9:3-4, I have been asked to further consider whether, in the event that it might be shown that Zimmerman’s appliance does not include such a communication module, whether adding a communication module within the product would have been obvious to a person of ordinary skill in the art as of June 2006. It is my opinion that it would have been obvious to do so at that time.

1. Motivation to Combine Zimmerman With Lggulden

120. It is my opinion that a person of ordinary skill in the art would have found such a configuration obvious before the earliest possible effective filing date of the '090 patent based on, for example, the teachings of Lggulden. I have provided a summary of the Lggulden reference above in section V.F. As I have discussed, Lggulden discloses “[a]n interactive interface” that “facilitates the setting of preferences and other programmable parameters of an appliance.” Ex. 1010, Abst. “[A] user initiates a connection to an interactive site on a global computer network,” and can set various parameters via the website. *Id.*, ¶ [0014]. Once input, parameters can be downloaded “directly to the appliance.” *Id.* In this embodiment, the appliance “may incorporate a conventional modem, in which case communications may be two-way” *Id.*, ¶ [0035]. A person of ordinary skill

in the art would have understood that a “modem” is a “communication module.” Modems were well known to engage in communication, and, as recognized by Lggulden itself, two-way communication like that disclosed by Zimmerman. Since Lggulden discloses that the modem is incorporated into the appliance 10, a person of ordinary skill in the art would have read Lggulden as disclosing a “communication module within the product.”

121. I further believe that it would have been trivial, and obvious to combine the teachings of Zimmerman and Lggulden for several reasons. For example, both Zimmerman and Lggulden relate to appliances that communicate with remote servers to obtain user preference data associated with those appliances. Ex. 1004, Abst., 9:40-65; Ex. 1010, ¶ [0035]. A person of ordinary skill in the art would have understood that incorporating a modem, such as the two-way modem of Lggulden, into Zimmerman’s products would have allowed Zimmerman’s products to communicate with the profile server and be able to perform the various networked tasks identified in Zimmerman (*e.g.*, authentication, obtaining user-profile data for an appliance). *See, e.g.*, Ex. 1004 at 7:34-37. The incorporation of a modem into the appliance is but one well known way to implement bi-directional communications as of June 2006. And, incorporating a modem in devices was commonplace before 2006, as evident from the use of

modems in mobile devices such as laptops, cell phones, and other communication devices.

122. It is also my opinion that a person of ordinary skill in the art would also have understood that incorporating a modem into an appliance was a known way to allow data communications between products and remote servers, thus providing a routine solution to data communications issues yielding only predictable results. A person of ordinary skill in the art would have been motivated to place a communications module within a smart appliance because it would permit the appliance to be sold without needing a separate modem. This would have provided an economic benefit for the manufacturer and the consumer (by adding value to the product for the manufacturer and consumer), and would have made the appliance of Zimmerman easier to set up and use.

123. Based on the foregoing, should it be determined that Zimmerman is insufficient to show a communication module within the appliance (a proposition that I disagree with for the reasons I have discussed above), the subject matter of claim 1 would have been obvious over Zimmerman in view of Lggulden.

- a. *“wherein the remote server is configured to receive the identity of the predetermined product and the identity of the least one user”*

124. Zimmerman discloses that “the remote server is configured to receive the identity of the predetermined product and the identity of the at least one user.”

Ex. 1001 at 9:5-7. According to Zimmerman, the user chooses an appliance by associating his RFID token with the appliance; this may be done, for example, by placing the RFID token close to the appliance. *See* Ex. 1004 at 7:21-23. “Each token contains a pointer to a relay location where user-profile data is stored. When a user wants to use an appliance, he/she places the token near the appliance and the appliance accesses the data from the site indicated (pointed to) by the relay location.” Ex. 1004 at 2:27-32. If the token is authorized at the relay server, the profile URL is transmitted to the smart appliance. *See id.* at 9:41-45. As I have already discussed in section V.A, above, one example of “a profile URL is: <http://www.funpage.com/my-homepage/~joesmith/<password>/profile.dat>.” *Id.* at 9:55-57.

125. A person of ordinary skill in the art would have understood that “joesmith” in the URL identifies the user and is included as part of the profile URL. Ex. 1004 at 9:55-57.

126. The server is configured to receive the identity of the predetermined product because the profile server interacts with the appliance to “request data identifying the type of appliance” such that “[a] profile server process could use this information to transmit only the relevant data for the type of appliance.” Ex. 1004 at 9:61-65. A person of ordinary skill in the art would have understood “data identifying the type of appliance” constitutes the “identity of the predetermined

product” as recited in claim 1 of the ’090 patent. This constitutes “a type of product determined before use of the system to obtain preferences for that product,” since Zimmerman specifies that the “type” of product is communicated and preference data is stored regarding that product in the profile database before the appliance attempts to retrieve the user’s preference data. Even if this identity of the “predetermined product” must identify a specific, unique product, a person of ordinary skill in the art would have found such a feature to be obvious over, for example, DeBourke, for the reasons I discussed above.

b. *“the remote server is configured to . . . retrieve the product preference from the database based on the identity of the predetermined product and the identity of the at least one user”*

127. Zimmerman’s profile server is configured to “retrieve the product preference from the database based on the identity of the predetermined product and the identity of the least one user.” Ex. 1001 at 7-9. The profile server accesses a profile URL that has the user’s preferences for the appliance. “An example of a profile URL is: <http://www.funpage.com/my-homepage/~joesmith/<password>/profile.dat>. The latter URL contains a secret directory name which acts as a password.” Ex. 1004 at 9:55-59. This allows the profile server to identify the user and their “private profile database.” See Ex. 1004 at 4:54. Thus, the “profile server” can “retrieve the product preference from the database based on the . . . identity of the at least one user,” as would have been

understood by a person of ordinary skill in the art. In other words, the user's preferences are identified, in part, based on the "private profile database" that is unique to the user based on, for example, the "secret directory name." *Id.*

128. Zimmerman's profile server runs a "profile server process" using "data identifying the type of appliance" to "transmit only the relevant data for the type of appliance" to the appliance. Ex. 1004 at 9:60-65. "[T]he appliance 340 may indicate to the profile server 305 the type of data required or the nature of the appliance, and the profile server 305 will transmit the relevant data." *Id.* at 7:40-43. A person of ordinary skill in the art would have understood from these passages from Zimmerman that the profile server retrieves the product preferences, *i.e.*, "relevant data" for the appliance based on the identified user and appliance type. The identification of the appliance type to the profile server is like the example of the type of product identification information disclosed in the '090 patent. *See* Ex. 1001 at 5:18-24 (describing product identification information as being "make and model" information). Make and model of a product would identify the appliance type to the profile server, as would have been appreciated by a person of ordinary skill in the art.

- c. *“wherein the remote server is configured to . . . transmit the product preference to the first communication module.”*

129. After the profile data with the user’s preferences for the appliance is retrieved, Zimmerman’s profile server “transmit[s] the product preference to the first communication module.” Ex. 1001 at 9:9-11. After retrieval of relevant profile data from the database, the data is transmitted to the appliance. *See* Ex. 1004 at 7:37-43 (“the profile data is returned” and “the profile server 305 will transmit the relevant data”); *see also id.* at Fig. 9 (item 230 “Appliance Receives Data From Profile URL”), 9:46-48 (“Then in steps S225 and S230, the profile data is transmitted to and received by, respectively, the appliance 340.”).

130. Therefore, based on these teachings from Zimmerman, a person of ordinary skill in the art would have read Zimmerman as disclosing a profile server that “transmit[s] the product preference to the first communication module,” as required by claim 1 of the ’090 patent.

C. Claims 2-7 would have been obvious over Zimmerman in view of Lggulden and DeBourke, as applied to claim 1, and further in view of Gutwein

131. Based on my review and analysis of the prior art, as well as my assessment of the knowledge held by a person of ordinary skill in the art as of June 2006, it is my opinion that claims 2-7 would have been obvious over Zimmerman in view of Lggulden and DeBourke and further in view of Gutwein would have

rendered claims 2-7 obvious. These four references all relate to networks for customizing smart appliances according to user preferences and show certain features known to be used in such systems.

1. Motivation to Combine Zimmerman With Gutwein

132. A person of ordinary skill in the art would have readily combined Zimmerman with Gutwein given the respective disclosures of the references and the knowledge held by a person of ordinary skill in the art.

133. Zimmerman discloses a smart appliance network that can be used to manage appliances ranging from set-top boxes to refrigerators to PDAs to ovens, and dishwashers, “kitchen appliances,” or “any device that can be customized.” Ex. 1004 at 8:10:13, 12:10-20. But, Zimmerman does not disclose the specific preferences associated with the appliances in the private preference database (save for specific examples applied to a set top box example). Rather, Zimmerman leaves these preferences open for a person of ordinary skill in the art to configure specific networks of various appliances. Nevertheless, Zimmerman expressly states that the system can be used with “any device that can be customized.” Ex. 1004 at 8:10-13. Reading this, a person of ordinary skill in the art would have known that it would have been possible, and even desirable, to add any number of different appliances to the network.

134. One such device known to be customizable over a network was a coffee maker for making coffee beverages according to user preferences as disclosed by Gutwein. *See* Ex. 1006 at Abst., 6:9-26 (discussing how a coffee brewing system can be networked). Gutwein's system includes a component called a "customization director 104" (also once referred to as a "data director") that can be centralized and connected over a network to multiple coffee makers. *See, e.g.,* Ex. 1006, 6:35-36, 7:14-19, 18:15-18. A user's preferred beverage formulations "may be located on a remote data storage device that is accessed by system 100." Ex. 1006 at 8:27-29. A user's coffee is customized according to the "beverage formulation," which is "the information . . . providing a customized selection corresponding to . . . characteristics or beverage products that has been processed by the customization director to be relevant to the individual consumer or consumer preference(s)." *Id.* at 16:4-7. Product customization preferences "include but are not limited to strength, flavor, type of bean (coffee), temperature, and finishing options (cream, milk, etc.)." Ex. 1006 at 23:30-31; *see also id.* at 18:31-36.

135. It would have been obvious to modify Zimmerman's disclosed network such that Gutwein's coffee maker is on Zimmerman's smart appliance network and the user's preferences for various coffee beverages are stored in product profiles on the profile server. In this way, Zimmerman's network could

have used Gutwein's coffee maker and been able to configure it to brew the user's desired beverage based on the user's preferences. A person of ordinary skill in the art would have understood that this would have increased the functionality and usability of Zimmerman's smart appliance network by having an additional appliance type on the network.

136. A person of ordinary skill in the art would have recognized the significant similarities between both Zimmerman and Gutwein. For example, both references describe a system that is configured to identify users by RFID tokens. *See* Ex. 1004 at 7:19-23 & Ex. 1006 at 17:31-33. Moreover, while Gutwein discloses a specific appliance, Zimmerman contemplates using "any device that can be customized" on the network, Ex. 1004 at 8:10-13, including "kitchen appliances," and discloses maintaining "recipes" in the profile database, which are akin to the beverage formulations maintained by Gutwein, Ex. 1004 at 12:10-20, Ex. 1006 at 18:31-36, 23:30-31.

137. A person of ordinary skill in the art would have understood that adding Gutwein's coffee maker to Zimmerman's network would have required routine skill and would have added an appliance that would have performed its intended operations in a predictable manner to achieve only predictable results. Indeed, the appliance of Gutwein is intended to be used in a network that has similar goals to that of Zimmerman. Based on the foregoing, it would have been

obvious to combine, or further combine, the teachings of Zimmerman with Gutwein.

2. Claim 2: “The system as in claim 1, wherein the transmitted product preference is a formulation including a predetermined amount of at least one element.”

138. Claim 2 incorporates all aspects of claim 1. Therefore, I incorporate my analysis above with respect to claim 1. Namely, claim 1 would have been obvious over Zimmerman in view of Lggulden and DeBourke, for the reasons I already discussed in section VII.B.I, including: (1) incorporation of a communication unit within the product would have made the product easier to set up and use, (2) incorporating a communication unit within the product would have prevented the need to sell or purchase a separate modem, (3) and incorporation of a communication unit into an appliance was a well known way to implement bidirectional communications and one of a very limited number of ways to do so, (4) using a unique product identifier (should such be required by the claims) would have permitted easy identification of specific appliances on the network, and (5) using a unique product identifier (should such be required by the claims) would have permitted efficient communications between the appliance and server and vice versa using known communication protocols to achieve predictable results.

139. Claim 2 requires that “the transmitted product preference is a formulation including a predetermined amount of at least one element.” Ex. 1001

at 9:12-14. Based on my review of the '090 patent, these terms are not given any special meaning by the '090 patent, and thus I have applied the plain meaning of the terms when evaluating the prior art.

140. Although Zimmerman discloses that “any device that can be customized” can use the disclosed system, and that preferences can include those for “kitchen appliances” and may include “recipes,” *see* Ex. 1004 at 8:10-13, 12:10-20, Zimmerman does not expressly say that the transmitted product preference is a formulation including a predetermined amount of at least one element; although a “recipe” is a formulation, and must include various elements (solids and liquids). Gutwein discloses that a data store is accessed by the customization director; the data in the data store includes can include “data of beverage formulations.” Ex. 1006 at 7:4-5. These beverage formulations include elements like cream, sugar, sweeteners, how much water and coffee (for darkness and size), *Id.* at 18:34-36. The formulation information “may be located on a remote data storage device” that is accessed by the system. *Id.* at 8:27-29. Based on this, a person of ordinary skill in the art would have understood that Gutwein’s “product preference is a formulation” (*i.e.*, a coffee beverage formulation), and includes “a predetermined amount of at least one element,” specifically, “cream, milk, sugar, sweetener, water, *etc.*”

141. In light of the foregoing, it would have been obvious to further modify Zimmerman such that transmitted product preference data from Zimmerman's profile server includes a formulation including at least one element as disclosed in Gutwein for the reasons I have discussed above. Therefore, a person of ordinary skill in the art would have found the subject matter of claim 2 obvious.

3. Claim 3: "The system as in claim 2, wherein the at least one element is a fluid, a solid or any combination thereof."

142. Claim 3 depends from claim 2, which in turn depends from claim 1. Thus, claim 3 includes all of the requirements of claims 1 and 2. As I have discussed already, it is my opinion that claim 2 would have been obvious over Zimmerman in view of Lggulden and DeBourke and further in view of Gutwein for the reasons I have discussed and/or summarized, for example, in paragraphs 132-138 and elsewhere in this Declaration.

143. Claim 3 requires that "the at least one element is a fluid, a solid or any combination thereof." Ex. 1001 at 9:15-16. While Zimmerman mentions "recipes," Ex. 1004 at 12:16, Zimmerman is silent as to any specific formulations for customizing the appliances. Gutwein describes a networked coffee maker that uses stored user-specific formulations including liquids such as cream, milk, or water, or solids such as ground coffee or sugar. Ex. 1006 at 12:9-11, 18:34-36, 23:30-31.

144. It would have been obvious to further modify Zimmerman such that transmitted product preference data from Zimmerman's profile server includes a formulation including solid or liquid elements as disclosed in Gutwein for the reasons I discuss above regarding the reasons a person of ordinary skill in the art would have combined Gutwein's coffee personalization system with Zimmerman's smart appliance network. These reasons would have included, among other things, (1) that Zimmerman discloses that any type of customizable appliance can be used on its smart appliance network and Gutwein discloses a customizable coffee maker for making coffee beverages based on user preferences retrieved from a network, (2) adding Gutwein's coffee maker to Zimmerman's network would have expanded the types of appliances on Zimmerman's network, thus increasing the functionality and usefulness of the network to consumers, and (3) doing so would have used known components in a known manner to yield only predictable results. Thus, a person of ordinary skill in the art would have found the subject matter of claim 3 obvious.

4. **Claim 4: “The system as in claim 2, wherein the server is configured to communicate at least one question to a terminal of the at least one user for prompting the user with the at least one question relating to the predetermined product and the server is further configured for determining the formulation based on at least one response of the user.”**

145. Claim 4 depends from claim 2, which in turn depends from claim 1. Thus, claim 4 includes all of the requirements of claims 1 and 2. As I have discussed already, it is my opinion that claim 2 would have been obvious over Zimmerman in view of Lggulden and DeBourke and further in view of Gutwein.

146. Claim 4 includes the requirement that “the server is configured to communicate at least one question to a terminal of the at least one user for prompting the user with the at least one question relating to the predetermined product and the server is further configured for determining the formulation based on at least one response of the user.” Ex. 1001 at 9:17-22. Zimmerman’s appliances are configured according to user preferences. But, Zimmerman does not say that those preferences are determined based on questions supplied to “a terminal of the at least one user for prompting the user with the at least one question relating to the predetermined product and the server is further configured for determining the formulation based on at least one response of the user,” as required by claim 4. Ex. 1001 at 9:7-22.

147. Gutwein teaches a system in which the system can deliver beverages to consumers based on their preferred tastes by asking “certain key questions” to determine consumer preferences. Ex. 1006 at 16:26-28. As I have already explained, Gutwein discloses a customization director 104 that “might be hosted on a remote device,” such as “an external server located . . . on the Internet.” *Id.* at 18:15-18; *see also id.* at 7:18-19 (“[S]ystem 100 could employ a single data director 104 [*i.e.*, a “customization director”] to which all devices are connected over network 507.”). This customization director is responsible for gathering user preference data from consumers. This may be done by way of the customization director (hosted on the remote server) communicating questions to a terminal of the at least one user. With respect to the “terminal,” Gutwein discloses that “[t]he consumer may access the user interface from a remote location, e.g. by phone, Internet, wireless connection, or the like.” *Id.* at 15:31-32. “[T]he user interface 104 [sic 102] may comprise a computer system comprising a CPU, memory, a visual display device and an input means. . . . [T]he user interface 104 [sic 102] might comprise a computer connected to the Internet through a communication link 120 and running a web browser” *Id.* at 18:24-31. “[T]he consumer is prompted to enter consumer preference data through the user interface.” *Id.* at 21:10-11. “[T]he consumer can access the user interface to present his/her beverage preferences in advance from a remote location,” by using a

“communication device,” like a computer, to access a web server that comprises “the user interface of the interactive system of the present invention.” *Id.* at 24:14-22; *see also id.* at 26:6-25 (describing how a user can “establish[] a personal profile over the Internet”). Thus, Gutwein’s “terminal,” which can be a user’s computer executing a web browser, includes a user interface, or “customization interface,” which “transmits the information (e.g., consumer information, customization information, and customization recommendation) between the consumer and the beverage delivery system. This interface can be embodied in many ways, and the consumer may access the customization interface from a remote location.” *Id.* at 15:5-9. Using this computer and user interface, a consumer may “establish[] a personal profile over the Internet . . . and answers a few simple questions around beverage and related preferences. These questions help deliver the product with the right profile, and may allow the system to make suggestions and/or formulation modifications appropriate for the user during the instant or future transaction.” *Ex.* 1006 at 26:6-9. Questions may also be posed to the user seeking “feedback data for the last interaction and beverage delivery with the system” or may include a survey regarding past interactions. *Id.* at 23:26-28, 24:4-13. “The responses to these questions are analyzed by the customization director.” *Id.* at 26:21-23. The questions are posed by the customization director since that is what seeks feedback from the consumer, for, for example, past purchases and can then update the user’s

profile accordingly. *See, e.g.*, Ex. 1006 at 23:26-28. Moreover, as I have already explained, the “product” of Gutwein is the coffee maker, which is referred to as a “beverage delivery system” in Gutwein. *See, e.g.*, Ex. 1006 at 15:1-4, 10-12. The customization director sends commands to the “beverage delivery system” based on user preferences, which, as I have just explained, are determined when the customization director poses questions to the user and the user answers those questions. *See, e.g., id.* at 23:35-24:1, 28:20-21. Thus, the questions posed by Gutwein’s customization director running on a remote server relate to a predetermined product, *i.e.*, Gutwein’s coffee maker.

148. The “customization director” includes “executable instructions for delivering a customized beverage product” to the user. *Id.* at 5:15-19. The “beverage formulation” is “determined by the customization director . . . corresponding to characteristics . . . that [have] been processed by the customization director to be relevant to the individual consumer . . .” *Id.* at 16:4-8; *see also id.* at 18:8-10 (“The customization director 104, might comprise a set of executable instructions such as in the form of software, routines, programs, algorithms, code, logic and the like, which would, inter alia, facilitate the determination of customized beverage formulations.”). One way that the customization director may determine proper beverage formulations (and thus the proper configuration information to pass to the coffee maker) uses a decision tree.

Gutwein says that “consumer preference data inputted through the user interface or retrieved from the data store might be matched against one or more decision trees. . . . Preferably, the decisions trees are converted to mathematical algorithms which then process the decision tree comparisons or ‘decisions’ electronically to quickly ascertain the appropriate optimized beverage formulation for the beverage delivery system.” Ex. 1006 at 21:11-24. Based on the text of Gutwein, we know that the decision tree algorithms are executed by the customization director. *See id.* at 21:26-27 (referring to “the decision trees or algorithms of the customization director 104”); *id.* at 22:4-6 (same). Moreover, Gutwein’s system may be adaptive, in that a neural network can analyze data in the data store 106 to “automatically make changes to the customization director’s . . . decision trees . . . based upon . . . user feedback data.” *Id.* at 22:4-6. Thus, a person of ordinary skill in the art reading the Gutwein reference would have understood that the remote server running Gutwein’s customization director poses questions to the user via the Internet relating to the coffee maker and which beverage(s) it should create. Furthermore, a person of ordinary skill in the art would have understood that the server running the customization director is also configured to determine the formulation based on the responses to the questions, including survey questions.

149. Based on these teachings, it is my opinion that a person of ordinary skill in the art would have found it would obvious to modify the “profile server”

disclosed by Zimmerman such that questions are posed to a user to establish or enhance a user profile for a particular appliance, such as a coffee maker of Gutwein. It would have also been obvious to present these questions to a user's terminal, such as a user's computer executing a web browser, as disclosed in Gutwein, because such an interface allows a user an intuitive way to interact with the remote server from a convenient location using software that is already understood by computer users. *See* Ex. 1006, at 22:16-28, 28:5-23. As I have already discussed above, it would have been obvious to combine Gutwein's networked coffee customization system with the appliance customization system disclosed by Zimmerman. Doing so would have led a person of ordinary skill in the art to a server that is "further configured for determining the formulation based on at least one response of the user" based on Zimmerman's disclosure of the profile server, and Gutwein's disclosure of a customization director and remote storage that can be stored on an "external server located somewhere on the Internet," Ex. 1006 at 18:15-18.

150. In light of the foregoing, a person of ordinary skill in the art would have found the subject matter of claim 4 obvious.

5. Claim 5: “The system as in claim 4, wherein the server is further configured for issuing an identity code for the user and cross-referencing the identity code to the formulation.”

151. Claim 5 requires that “the server is further configured for issuing an identity code for the user and cross-referencing the identity code to the formulation.” Ex. 1001 at 9:23-25.

152. Zimmerman describes a user’s name and a “secret directory name which acts as a password” to allow access to a user’s profile data. *See, e.g.*, Ex. 1004 at 9:55-59. I do not believe that Zimmerman explicitly describes an example in which the server issues “an identity code and cross-referencing the identity code to a formulation,” as required by claim 5. But, a person of ordinary skill in the art would have found this feature to be an obvious addition to the network of smart appliances disclosed by Zimmerman in view of Gutwein’s teachings.

153. Gutwein discloses that when a new customer uses the system for the first time, the system prompts the user “to . . . select ‘NEW’ if the consumer is new.” Ex. 1006 at 28:28-30. When the customization director receives the “NEW” selection, options are presented to the user, including formulation options and a registration option. “The registration option contains various input areas for the consumer to enter his/her preference data,” and “[t]he customization director then creates a new record for the consumer in the data store and associates the record with a new user identification.” Ex. 1006 at 28:30-36, 7:4-5 (describing the

storage of “beverage formulations” and “user identification” in data storage device). This record creation process and association with the user identification results in the issuance of an identity code for the user, which can be “displayed to the user.” Ex. 1006 at 29:1-2. The user identification issued by Gutwein’s server constitutes an “identity code.” Given that the customization director on the server associates a “new user identification” with the record, a person of ordinary skill in the art would have understood that one way of implementing this—and indeed, an obvious way of implementing this—would have been to permit the server itself to issue the “new user identification” to avoid potential conflicts with other user identification numbers assigned by the system.

154. A person of ordinary skill in the art would have found it obvious to further modify Zimmerman such that the profile server is configured to issue an identity code, such as Gutwein’s user identification, that is cross-referenced to a formulation such that various formulations can be accessed based on the identification of the user to the profile server. I have discussed additional reasons why a person of ordinary skill in the art would have been led to add the coffee maker to the smart appliance network of Zimmerman, above, for example in paragraphs 132-138.

155. Given the foregoing, it is my opinion that a person of ordinary skill in the art would have found the subject matter of claim 5 obvious.

6. Claim 6: “The system as in claim 5, wherein the server is configured for storing the identity code and cross-referenced formulation in the database.”

156. Claim 6 depends directly from claim 5, and indirectly from claims 1, 2, and 4. Therefore, claim 6 includes all features recited in claims 1, 2, 4, and 5. As I discuss above, claim 4 would have been obvious over Zimmerman in view Luggulden and DeBourke and further in view of Gutwein. Claim 6 requires that “the server is configured for storing the identity code and cross-referenced formulation in the database.” Ex. 1001 at 9:26-28. When the user is later identified by the system based on the identification number and the identification number and password match “an existing record,” the “customization director retrieves [the user’s] customization profile and analyzes the profile to determine the beverage options to display to [the user],” such as “coffee bean type, temperature, strength, and finishing options as well as a few express options such as your last coffee purchase” Ex. 1006 at 28:13-19. According to Gutwein, “the individual customer’s identification and associated preferences” can be “universally recognized by all” coffee brewing systems on the network. *Id.* at 17:33-36. Thus, Gutwein discloses that an “identity code for the user” is cross-referenced to the formulation. Gutwein also discloses that this identifier is cross-referenced with the customization options for the beverage in a customer’s record,

and stored in a data store. Ex. 1006 at 24:1-3 (referring to the customization director storing “the selected customization options in the data store in a record corresponding to the customer identifier”), 7:4-5. Thus, the customization options and the customer identifier are cross-referenced and stored in a database in a record in accordance with the requirements of claim 6 of the '090 patent.

157. It would have been obvious to further modify Zimmerman such that “the server is further configured for issuing an identity code for the user and cross-referencing the identity code to the formulation” based on, for example, the teachings of Gutwein. A person of ordinary skill in the art would have found it obvious to program the server to issue identity codes and store them in a manner such that they are cross-referenced with user preferences because doing so would have allowed for system control and assignment of user IDs to be associated with the various profiles in the profile database. It also would have allowed for more orderly control over system configuration and management by providing centralized logic for managing associations between user identifying information, such as “identity code,” and the user’s preferences, such as Gutwein’s coffee formulation preferences.

158. Therefore, it is my opinion that a person of ordinary skill in the art would have found the subject matter of claim 6 obvious.

7. Claim 7: “The system as in claim 6, wherein the terminal is configured to transmit the identity code to the server.”

159. Claim 7 depends from claim 6, and indirectly from claims 1, 2, 4, and 5. Therefore, claim 7 includes all of the features recited in claims 1, 2, 4, 5, and 6. I have already explained why claims 1, 2, 4, 5, and 6 are invalid above. Specifically, claim 6 would have been obvious over Zimmerman in view of Lggulden and DeBourke and further in view of Gutwein. Claim 7 indicates that “the terminal is configured to transmit the identity code to the server.” Ex. 1001 at 9:29-30. Zimmerman describes a profile URL that “is owned and maintained by and/or for the user.” Ex. 1004 at 2:48-49. The profile URL is used, in part, to transmit a user name, such as “~joesmithto the profile server. Ex. 1004 at 9:55-57. To the extent that transmitting this user name is not transmitting an identity code from a “terminal,” I have also been asked to consider whether transmitting an identity code to the server from a terminal would have been an obvious modification to Zimmerman’s smart appliance network. It is my opinion that it would have been obvious to do so over, for example, Gutwein.

160. As I have explained with respect to claim 4, Gutwein discloses a terminal that can be, for example, a computer running a web browser. For example, Gutwein teaches that “[t]he consumer may access the user interface from a remote location, e.g. by phone, Internet, wireless connection, or the like.” *Id.* at

15:31-32. “[T]he user interface 104 [sic 102] may comprise a computer system comprising a CPU, memory, a visual display device and an input means. . . . [T]he user interface 104 [sic 102] might comprise a computer connected to the Internet through a communication link 120 and running a web browser” *Id.* at 18:24-31. “[T]he consumer is prompted to enter consumer preference data through the user interface.” *Id.* at 21:10-11. “[T]he consumer can access the user interface to present his/her beverage preferences in advance from a remote location,” by using a “communication device,” like a computer, to access a web server that comprises “the user interface of the interactive system of the present invention.” *Id.* at 24:14-22; *see also id.* at 26:6-25 (describing how a user can “establish[] a personal profile over the Internet”). This “terminal” includes a user interface, or “customization interface,” which “transmits the information (e.g., consumer information, customization information, and customization recommendation) between the consumer and the beverage delivery system. This interface can be embodied in many ways, and the consumer may access the customization interface from a remote location.” *Id.* at 15:5-9. Gutwein also discloses that “consumers desiring a customized beverage are provided an identifier 110 such as . . . [a] password or number which comprises any available identification device or protocol known to one skilled in the art.” *Ex. 1006* at 19:6-8; *see also id.* at 25:7-12 (describing “identifying the consumer” with a “personal identification number (PIN),” among

other ways). “The system of the present invention can have a means for the customization interface to identify, i.e. recognize,[] individual consumers,” such as through “personal identification number (PIN) either communicated to the system via a keypad” Ex. 1006 at 17:23-36. In one example, “the user interface prompts [the consumer] to input his password.” *Id.* at 28:16-18. Gutwein discloses that after the identification information for the user, i.e., the “identity code,” is input, that information is transmitted “between the consumer and the beverage delivery system.” *Id.* at 15:5-9. Since the customization director is what provides information to configure the “beverage delivery system” to deliver the customized beverage according to the user preferences, a person of ordinary skill in the art would have understood that to “transmit the information” including “consumer identification” to the “beverage delivery system,” that information needs to be transmitted to the customization director hosted by the remote server. *Id.* at 15:5-9 (describing how user identification information is transmitted between the consumer and the beverage delivery system), 23:35-24:1 (describing how the customization director sends instructions or commands to the “beverage delivery system”), 28:20-21 (same). Gutwein thus discloses that “the terminal,” *i.e.*, Gutwein’s computer, “is configured to transmit the identity code,” *i.e.*, the consumer’s identification or PIN, “to the server,” *i.e.*, the server hosting the customization director, as required by claim 7.

161. Based on the foregoing, a person of ordinary skill in the art would have found it obvious to combine the features of Gutwein's coffee brewing system with Zimmerman's smart appliance network for the reasons that I have discussed above, including expanding the type of smart appliances that can be used with Zimmerman's network of smart appliances, thereby increasing consumer appeal and marketability, as well as overall usability of the smart appliance network. Therefore, the subject matter of claim 7 would have been obvious to a person of ordinary skill in the art.

D. Claim 8 would have been obvious over Zimmerman in view of Lggulden, DeBourke, and Gutwein, as applied to claims 2 and 4-7, and further in view of Webb

162. Claim 8 depends from claim 7, and indirectly from claims 1, 2, 4, 5, 6, and 7. Claim 8, therefore, incorporates all of the requirements of claims 1, 2, 4, 5, 6, and 7. As I have explained above, a person of ordinary skill in the art would have found the subject matter of claim 7 obvious over Zimmerman in view of Lggulden and DeBourke and further in view of Gutwein. Claim 8 recites that "the identity code is stored as an Internet cookie on the terminal." Ex. 1001 at 9:31-32.

163. Zimmerman discloses "mechanisms by which profile data may be obtained from a store accessible via a network." Ex. 1004 at 1:11-12. Zimmerman allows a user appliance to access a "private profile database" using a profile URL and an RFID token. *See, e.g.*, Ex. 1004 at 4:54, 9:40-65. None of the Zimmerman,

Lggulden, DeBourke, or Gutwein references disclose the use of an Internet cookie to identify the user to the remote servers. However, a person of ordinary skill in the art would have been aware that the use of Internet cookies was commonplace. Indeed, as reflected by the Webb reference, the use of Internet cookies in the context of smart appliance networks was also known to those of ordinary skill in the art.

164. As I have already explained, Webb relates to smart appliance networks and discloses “[s]ystems . . . that can allow users to access one or more devices on a private network, via clients on a public network.” Ex. 1009 at Abst.; *see also id.* at ¶ [0011] (“Embodiments of the present invention can allow remotely located users to securely access devices on a private network via the Internet.”). The networking techniques disclosed in Webb are used to access networked smart appliances. *See, e.g.*, Ex. 1009 at ¶ [0004] (“Home networks are increasingly being used to network ‘smart’ devices such as stereos, kitchen appliances, energy management systems, and security systems. . .”). Webb states:

As is known to those skilled in the art, a cookie is an object used to store various types of information on a client. Conventionally, a cookie is a special text file that a server (e.g., a Web server) places on a client device (e.g., on the hard disk of a client device) so that the server can remember something about the user at a later time. A cookie can record a user's preferences when using a particular site, and can be used to authenticate a user.

Ex. 1009 at 4, ¶ [0039]. Webb also explains how Internet cookies permit “the user to access the Web server of any device that the user is authorized to access, but only for a specific time period.” *Id.* at ¶ [0048]. Storing an identity code as an Internet cookie on the terminal, *i.e.*, client device, was known to those skilled in the art well before June 2006. Those skilled in the art would have appreciated that storing an Internet cookie on a terminal where that cookie includes an identity code that can be used to authenticate a user would have been an obvious further modification to Zimmerman using conventional techniques for authenticating terminals and their users, thus using known solutions to recognized problems in ways that yielded only predictable results.

165. Based on the foregoing teachings, a person of ordinary skill in the art would have found the subject matter of claim 8 obvious.

E. Claim 1 would have been obvious over Omnisphere I in view of Omnisphere II and Isomura

166. Based on my analysis of the '090 patent, claim 1 would have been obvious over Omnisphere I in view of Omnisphere II² and Isomura.

167. Omnisphere is a personal communication environment for wireless appliances that is described in the two publications, Omnisphere I and Omnisphere II. It is my opinion that the Omnisphere system discloses each and every limitation of claim 1. I explain the reasons why a person of ordinary skill in the art would

² Omnisphere I and II are collectively called “the Omnisphere References.”

combine Omnisphere I and Omnisphere II further below. Omnisphere discloses a personal communication system for wireless appliances. The services that are available to a user's wireless appliances are customized based on User ID and Appliance ID. Based on those IDs, Omnisphere retrieves the set of possible services for the wireless appliance.

168. When a user's wireless appliance enters the Omnisphere network, Omnisphere uses service discovery protocols to communicate with a server to discover the relevant services for the appliance. Omnisphere also establishes a user avatar for every user that enters Omnisphere. A person of ordinary skill in the art would have understood that the "user avatar" is instantiated on a server. The server includes a database because Omnisphere discloses that the user preferences, device capabilities, and context information are encoded and stored in a multidimensional tabular form, and these tables are populated for each user and their various products to define their various product preferences.

169. The wireless appliances described by the Omnisphere References include communication modules within the product for communication with the remote server on which the avatar is instantiated. For example, a notebook can use 802.11b WLAN for communication within Omnisphere, and that would require the use of internal modems in the notebook. The notebook can communicate with routers and cellular towers, which connect through the Internet and LAN leading to

the remote server running the Omnisphere service. For a user to have an instance of an avatar in Omnisphere, the appliance must first register with the Omnisphere service on the remote server by sending the User ID and Appliance ID to the server. Once registered within Omnisphere, an instance of the user's avatar is created, and Omnisphere retrieves the set of possible services for the wireless appliance. Once the set of available services is determined by Omnisphere, services applicable to the user's specific appliance and context are provided to the communication module of the user appliance.

170. While it is my opinion that Omnisphere I in view of Omnisphere II teach each aspect of claim 1, there is one feature of claim 1 that would have been obvious if it is determined that it is not disclosed by the Omnisphere References. To the extent that it can be contended that the collection of data describing the services for a user's devices is not included in a database, a person of ordinary skill in the art would have found it obvious to store parameters defining various available services in a database to be provided to the communication unit in a product depending on the context, preferences, and device based on, for example, the teachings of Isomura.

1. Motivation to Combine Omnisphere I and Omnisphere II

171. A person of ordinary skill in the art would have readily combined the teachings of Omnisphere I with Omnisphere II given the respective disclosures of the references and the knowledge held by a person of ordinary skill in the art.

172. Omnisphere I and Omnisphere II both have the same authors, with both publications describing the same system—Omnisphere—which is “a personal communication environment for wireless appliances.” Ex. 1007 at 505. Similarly, Omnisphere II describes that “*Omnisphere* is a communication and information universe surrounding wireless appliances.” Ex. 1008 at 3. Both have similar descriptions of the functionality of the Omnisphere system. For example, Omnisphere I describes that Omnisphere “mediates various communication flows to relieve the user from any cumbersome details of finding the right service components, configuring, and composing them based on user preferences, device capabilities, and the current context.” Ex. 1007 at 506. And Omnisphere II explains that “[b]ased on the User ID and Appliance ID, Omnisphere retrieves the information that restricts the set of possible services: User Preferences, Device Capabilities, and Context.” Ex. 1008 at 4. Thus, it is my opinion that a person of ordinary skill in the art would have been motivated to combine the teachings of Omnisphere I and Omnisphere II because they are closely related in that they describe the same system and are written by the same authors.

173. Furthermore, Omnisphere I explicitly refers to Omnisphere II. *See* Ex. 1007 at 505, 510. A person of ordinary skill in the art related to the subject matter of the '090 patent would have been aware of the work related to the Omnisphere system, and would have looked to various works related to that system to gain a more complete understanding of the system's features and capabilities.

2. Claim 1 would have been obvious over Omnisphere I in view of Omnisphere II and Isomura.

a. "A system for customizing a product according to a user's preferences comprising"

174. I have not been asked to render an opinion about whether the preamble of claim 1 is a limitation. Instead, for the purposes of my analysis, I assume that the preamble is a limitation for the sake of completeness. Based on my analysis, the Omnisphere References disclose a "system for customizing a product according to a user's preferences" as set forth in the preamble of claim 1. Ex. 1001 at 8:66-67.

175. In Omnisphere I, Omnisphere is described as "a personal communication environment for wireless appliances." Ex. 1007 at 505. A person of ordinary skill in the art would have understood a personal communication environment for wireless appliances to be describing a "system" that includes wireless products. *See, e.g.*, Ex. 1013 at 1459 (definition 2(a)), Ex. 1014 at 1359 (definition 1), Ex. 1015 at 1399 (definition 1). Omnisphere II teaches that services

available to a user's wireless appliance are customized "[b]ased on the User ID and Appliance ID," which allows "Omnisphere [to] retrieve[] the information that restricts the set of possible services: User Preferences, Device Capabilities, and Context." Ex. 1008 at 4. A person of ordinary skill in the art would have understood that this allows Omnisphere to determine which product the user prefers to receive certain content on (*e.g.*, PDA, phone, TV-screen, etc.). *See* Ex. 1007 at 508-10 (email example); Ex. 1008 at 7 (video example). Thus, it is my opinion that a person of ordinary skill in the art would have found it obvious to combine the Omnisphere References, as I described earlier, and that the references disclose a "system for customizing a product according to a user's preferences" Ex. 1001 at 8:66-67.

176. Thus, it is my opinion that the Omnisphere References describe a system for customization of a product according to a user's preferences.

b. "a remote server including a database configured to store a product preference of a predetermined product for at least one user"

177. From my analysis of the Omnisphere References, it is my opinion that they disclose "a remote server including a database configured to store a product preference of a predetermined product for at least one user," as required by claim 1. Ex. 1001 at 8:67-9:2.

178. Omnisphere I describes “a personal communication environment for wireless appliances.” Ex. 1007 at 505. When a user’s wireless appliance enters the Omnisphere network “Omnisphere makes use of existing discovery protocols such as SLP, Jini, UPnP, or DNS-SD to discover relevant services.” *Id.* A person of ordinary skill in the art would have understood that these discovery protocols are used for communication with a server in order for “Omnisphere to configure services and user applications so that the user can benefit from complex communication applications composed on demand.” *Id.*

179. Omnisphere I further discloses that every user that enters the Omnisphere network will have a “user avatar.” Ex. 1007 at 507. “An avatar represents the user in Omnisphere.” *Id.* When the Omnisphere References are read together, it is my opinion that a person of ordinary skill in the art would have understood that the “user avatar” is instantiated on a server—as part of the network infrastructure implementing Omnisphere. The role of the user avatar is described in Omnisphere I as follows:

[The avatar’s] role is to mediate event notifications concerning different data flows. It receives events from ambient services and acts according to the information on user preferences, the current context, and device capabilities, to either notify the user or set up communications. It monitors the presence of user devices, manages services available at the given Omnisphere, and discovers services required for the user.

Id. A person of ordinary skill in the art would have understood that these functions were routinely performed by servers. A server on a network may receive network events, notify users, set up communications, and discover and manage services to allow the provision of shared services over a network. The Omnisphere service would have been understood to be run on a computer and constitute a software package, and a person of ordinary skill in the art would also have also considered that to be a server. *See, e.g.*, Ex. 1011 at 340 (defining “server” as “[a] computer or software package that sends requested information to a client or clients in a network”).

180. Further support that Omnisphere’s avatar would have been instantiated on a server is from the Omnisphere References’ discussion of the importance of performing the avatar’s functionality (*e.g.*, discovery and proposal of services) within the network infrastructure. Omnisphere I describes that “a personal communication environment should behave according to the *push* model in which a source of data or the network infrastructure takes care of preparing communications and proposing them to the user.” *See* Ex. 1007 at 505. Omnisphere’s “approach to the discovery of ambient services is to delegate most of the operations to the network infrastructure” *See* Ex. 1008 at 4. Based on these disclosures that the functionalities of the avatar are performed within the

network infrastructure, a person of ordinary skill in the art would have understood the Omnisphere’s avatar to be instantiated on a remote server.

181. Moreover, in Omnisphere II, the “Omnisphere service” is shown to be a service “through which an appliance delegates service discovery to the fixed infrastructure” running on a server that is shown in Figure 7. From a more functional perspective, Figure 1 of Omnisphere I depicts the instantiation of the “user avatar” in the Omnisphere architecture and the various communications and functionalities that it may perform. An annotated figure depicting the relationship between Figure 7 and Figure 1 is shown below.

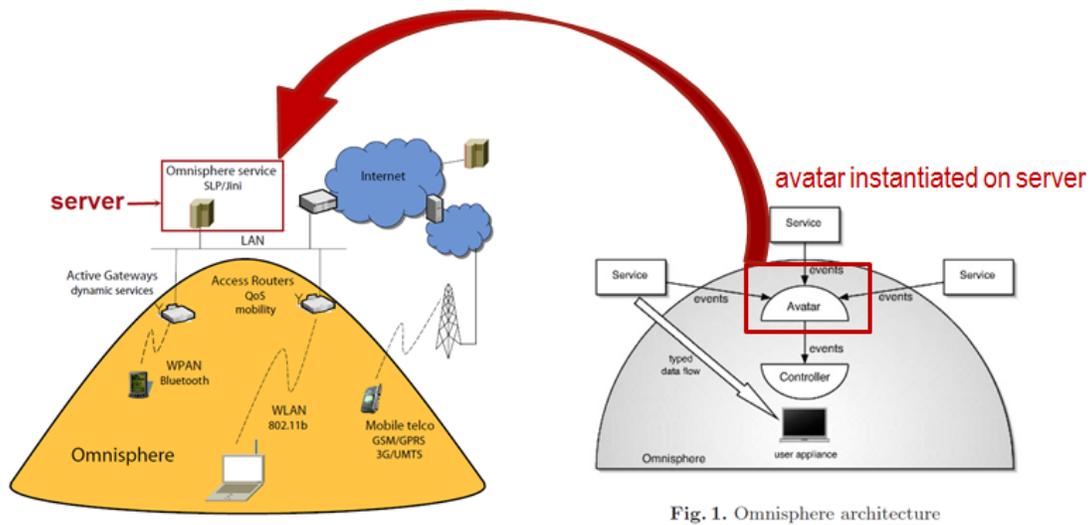


Figure 7. Sketch of the implementation platform.

Fig. 1. Omnisphere architecture

Ex. 1008 at 9 & Ex. 1007 at 506 (red annotations and red text added). Based on the foregoing, it is my opinion that a person of ordinary skill in the art would have understood that the “user avatar” in Omnisphere I is instantiated on a server

running the “Omnisphere service” as shown in Omnisphere II. The server is remote from the appliances, making it a “remote server.”

182. The server with the instance of a “user avatar” includes “a database configured to store a product preference of a predetermined product for at least one user,” as required by claim 1 of the ’090 patent. Ex. 1001 at 8:67-9:2. In the Omnisphere References, a person of ordinary skill in the art would have understood that a “predetermined product” is referred to as an “appliance.” *See, e.g.*, Ex. 1007 at 505 (describing Omnisphere as “a personal communication environment for wireless appliances”); Ex. 1008 at 1 (“Omnisphere is a communication and information universe surrounding wireless appliances.”); *see also* Ex. 1013 at 1459 (definition 2(a)), Ex. 1014 at 1359 (definition 1), Ex. 1015 at 1399 (definition 1). These appliances are predetermined products because at the time the avatar is created and ambient services are identified by the Omnisphere service, there already are user preferences and device capabilities that the Omnisphere service can draw upon to identify the correct services. *See, e.g.*, Ex. 1007 at 508-10 (describing an email example using a cellular phone, a PDA, a home PC, and a laptop); Ex. 1008 at 7 (describing video example using PDA, phone, notebook, etc.). In other words, when the appliance registers in the Omnisphere prior to service discovery, the Omnisphere service already has preferences and capabilities for that device and user available to it. Moreover, this

comports with the construction of “predetermined product” that I have been asked to apply because Omnisphere II describes that to “REGISTER,” the appliance sends the User ID and Appliance ID for authentication, and a person of ordinary skill in the art would have understood that the registration of the appliance based, in part, on the Appliance ID would have identified to Omnisphere the type of appliance the User has in order to receive the correct services for that type of appliance. *See, e.g.*, Ex. 1008 at 7 (describing TV-screen, notebook, PDA, phone, headphones, speakers, etc. as various device types).

183. A person of ordinary skill in the art would have understood that the presence of a database is taught by the Omnisphere References because “Omnisphere can retrieve the User Preferences and Device Capabilities.” Ex. 1007 at 508. As discussed in Omnisphere II, in order to discover available ambient services and propose them to the user, “we need to specify . . . the user preferences, the device capabilities, [and] how to” account for “the current context.” Ex. 1008 at 7. User preferences are encoded and stored in a multidimensional tabular form. *Id.* The same is true of “device capabilities” and “context information.” *Id.* A person of ordinary skill in the art would have understood the tables to be populated for each user and their various products to define their various product preferences. These tables would have been understood by a person of ordinary skill in the art to constitute a database.

184. It is my opinion that a person of ordinary skill in the art would have understood that the various tables making up the database for various appliances and Omisphere users is not required by the claim language (“a remote server including a database . . .”) to be physically part of the “remote server.” To require otherwise would be technically incorrect because according to the broadest reasonable interpretation, a “server” includes “software,” Ex. 1011 at 340, and is not necessarily confined to a singular location or box. In any event, should it be argued that the various tables making up the database for various appliances and Omnisphere users is not physically part of the “remote server,” it would have been obvious to include the database as part of the same structure that includes the server processing capabilities.

185. First, there are only three possible configurations for the physical location of a database vis-à-vis a server: (1) it may be part of the server, (2) it may be separate from the server, or (3) it may be distributed between the server and one or more other physical locations. It is my opinion that a person of ordinary skill in the art would have recognized that of these three choices, placing the database so that it is included as part of the server would have been very common because it reduces data acquisition time and improves system performance. Thus, a person of ordinary skill in the art would have found it obvious to include a “remote server

including a database . . . ,” Ex. 1001 at 8:67, to the extent it is not already taught by the Omnisphere References.

186. Based on the foregoing, a person of ordinary skill in the art would have understood the Omnisphere References to disclose the claimed “remote server including a database configured to store a product preference of a predetermined product for at least one user.” Ex. 1001 at 8:67-9:2.

187. Using this preference data, the Omnisphere References teach that Omnisphere obtains service information specific to the user, device, and context and provides the services to the device. Based on context and device information, the different uses of the services can be expressed depending on, for example, whether the user is using a PDA or a cellular phone. Ex. 1008 at 6. It is my opinion that a person of ordinary skill in the art would have understood that the expression of the composition of services which are provided from the server running the Omnisphere service to the product are retrieved from a database describing the compilation of services reflected in section 4.2 of Omnisphere II.

188. Even if the collection of data describing the services available to various user devices was not compiled in a database, it is my opinion that a person of ordinary skill in the art would have found it obvious to store compilations of services in a database to be provided to the communication unit in a product depending on the context, preferences, and device based on, for example, the

teachings of Isomura. Isomura discloses a service discovery protocol server (10) that includes a common database (11) for storing information about various services discovered using various Service Discovery Protocols (SDPs). *See, e.g.*, Ex. 1012, Abst. ¶¶ [0020]-[0021]. Isomura explains that the SDPs include JINI, UPnP, and SLP, which are the same SDPs described in Omnisphere II. *Compare* Ex. 1008 at 7 (Fig. 6 showing SLP, JINI, and UPnP service discovery protocols) *with* Ex. 1012, ¶ [0003] (describing JINI, UPnP, and SLP). Isomura teaches that the common database allows for the storage of service information for service attributes, Ex. 1012, ¶ [0021], and can make that service information available to various appliances, such as a PDA or mobile phone, *id.* at ¶¶ [0002], [0030]. A person of ordinary skill in the art would have been led to combine the teaching of the database in the service discovery protocol server of Isomura with the Omnisphere service server. This is because the database of Isomura is capable of storing service information obtained using multiple service discovery protocols, the same SDPs as those used in Omnisphere, in a common format such that it can be used by a wide variety of devices. This would have provided a known way to translate between services discovered using SDPs for a wide variety of devices discovered using different SDPs on the same network, thereby providing the functionality envisioned by the authors of the Omnisphere references using known technology in a predictable manner to yield predictable results.

189. Thus, it is my opinion that the Omnisphere References disclose “a remote server including a database configured to store a product preference of a predetermined product for at least one user,” or that such would have been obvious to include in light of the teachings of Isomura, as I have just discussed.

c. “a first communication module within the product and in communication with the remote server”

190. Based on my review and analysis of the Omnisphere References, a person of ordinary skill in the art would have read the Omnisphere References as disclosing “a first communication module within the product and in communication with the remote server.” Ex. 1001 at 9:3-4.

191. The Omnisphere References disclose a first communication module within the product, which is the appliance, for communication with the remote server on which the avatar is instantiated. Looking at Omnisphere II, a person of ordinary skill in the art would have understood there to be at least three examples of communications modules within the products. For example, Omnisphere II discloses an example “using a notebook as a mobile appliance” Ex. 1008 at 9. The notebook “uses a 802.11b WLAN for communication with the fixed infrastructure.” *Id.* This is shown, for example, in Figure 7 of Omnisphere II. *Id.* Figure 7 shows three units (1) a desktop PC communicating over a WPAN (Bluetooth®) network, (2) a notebook computer communicating over an 802.11b WLAN, and (3) a mobile phone communicating over a GSM/GPRS/3G/UMTS

network. It is my opinion that a person of ordinary skill in the art would have understood from this figure and its associated text that Omnisphere II is disclosing the use of devices with internal modems including RF communications capabilities.

192. Moreover, a person of ordinary skill in the art would have understood from this teaching that Omnisphere II included several communications modules within the various products, such as a Bluetooth communication chip (for WPAN), a WiFi communication chip (for WLAN), and a cellular baseband and RF chip or chips (for cellular communication using, for example, 3G/UMTS). Ex. 1008 at 9. Therefore, Omnisphere II discloses “a first communication module within the product.” Ex. 1001 at 9:3. Furthermore, it would have been evident to a person of ordinary skill in the art from the dashed lines in Figure 7 between the various products and the “Access Routers” and cellular tower, as well as the various connections through the Internet and LAN leading to the remote server running the Omnisphere service, that these communication modules are “in communication with the remote server,” as required by claim 1. *Id.* at 9:3-4.

193. Based on the foregoing, a person of ordinary skill in the art would have understood the Omnisphere References to disclose the claimed “first communication module within the product and in communication with the remote server.” Ex. 1001 at 9:3-4.

d. *“wherein the remote server is configured to receive the identity of the predetermined product and the identity of the least one user”*

194. The Omnisphere References disclose that “the remote server is configured to receive the identity of the predetermined product and the identity of the at least one user.” Ex 1001 at 9:5-7. A person of ordinary skill in the art would have understood that as part of the defined “control flow” between the “controller,” which is running on the appliance, and the Omnisphere service, which is running on the server, a command called “REGISTER” is defined. *See* Ex. 1008 at 8. This “REGISTER” command results in the appliance sending “the User ID and Appliance ID for authentication.” *Id.* The User ID and Appliance ID are used to discover the appropriate “ambient services” for the user and the specific appliance. *Id.* at 4. This is performed by the “Omnisphere service” that runs on the remote server, as I discussed earlier. *See, e.g.,* Ex. 1008 at 4 (describing the “Omnisphere service”); *id.* at 9 (showing a “sketch of the implementation platform” as Fig. 7).

195. After an appliance is registered within Omnisphere, an instance of the “user’s avatar” is created. The user’s avatar “retrieve[s] the product preference[s] from the database based on the identity of the predetermined product and the identity of the least one user,” as required by claim 1 of the ’090 patent. Ex. 1001 at 9:7-9. Omnisphere II goes on to teach that “[b]ased on the User ID and Appliance ID, Omnisphere retrieves the information that restricts the set of

possible services: User Preferences, Device Capabilities, and Context. User Preferences define what are the most common needs of the user in terms of ambient services and different types of data.” Ex. 1008 at 4. “The *Omnisphere service* matches discovered component services with user preferences, device capabilities and current context. In this way, the services that fit the best are used at a given instant.” *Id.* This allows the user’s products to “evolve in an spontaneous environment created by customized depending on a given appliance, its location, current usage, user preferences, and intentions.” *Id.* at 1. Thus, based on the foregoing, a person of ordinary skill in the art would have understood from *Omnisphere II* that a product’s preferred services are retrieved “based on the identity of the predetermined product [*i.e.*, “Appliance ID”] and the identity of the at least one user [*i.e.*, User ID].” Moreover, this comports with the construction of “predetermined product,” as I have explained above, because the registration of the appliance based, in part, on the Appliance ID would have identified to *Omnisphere* the type of appliance the User has in order to receive the correct services for that appliance. *See, e.g.*, Ex. 1008 at 7 (describing TV-screen, notebook, PDA, phone, headphones, speakers, etc. as various device types).

- e. “the remote server is configured to . . . retrieve the product preference from the database based on the identity of the predetermined product and the identity of the at least one user”

196. Omnisphere II discloses that the service information is retrieved from information including user preferences, device capabilities, and context information. Omnisphere II shows examples of each type of information that would be stored in a database in Omnisphere. See, e.g., Ex. 1008 at 7. As an example, these services can be described as follows:

```
Feed: OUT /video;  
Transcode: IN /video; OUT /video, /text, /audio;  
Excerpt: IN /video;  
          OUT /mixed/MMS, /text/SMS, /mixed/e-mail;  
Play: IN /video, /text, /audio;  
Notify: IN /mixed/MMS, /mixed/e-mail, /text/SMS;
```

Ex. 1008 at 6. And, a specific composition of services can be declared as follows:

```
Feed->Transcode, Excerpt, Play;  
Transcode->Play, Notify;  
Excerpt->Play, Notify;
```

Id. Based on context and device information, the different uses of the services can be expressed depending on, for example, whether the user is using a PDA or a cellular phone. *Id.* As I have explained above, a person of ordinary skill in the art would have understood that the expression of the composition of services which are provided from the server running the Omnisphere service to the product are retrieved from a database describing the compilation of services reflected in the

first pseudocode image above. It is these service-related product preferences that are “retrieved from a database based on the identity of the predetermined product and the identity of the at least one user.”

197. Even if the collection of data describing the services available to various user devices was not compiled in a database, it is my opinion that a person of ordinary skill in the art would have found it obvious to store compilations of services in a database to be provided to the communication unit in a product depending on the context, preferences, and device based on, for example, the teachings of Isomura, as I discuss in detail in paragraph 188, above. That analysis applies equally to this claim language.

f. “wherein the remote server is configured to . . . transmit the product preference to the first communication module.”

198. After Omnisphere determines the set of available services in the network infrastructure, services applicable to the user’s specific appliance and context are provided to the communication module of the user appliance. *See, e.g., Ex. 1008 at Fig. 6.* As shown in Figure 6, composite services, which are obtained from a collection of data constituting various services, are provided from the server to the appliance. Once “the Omnisphere service discovers the best matching services by using existing service discovery protocols,” a person of ordinary skill in the art would have understood that those services may then be provided to the

communication unit on the appliance, thereby permitting the establishment of a dataflow. *See* Ex. 1008 at 8 (describing downloading of services and the ACTIVATE command). A person of ordinary skill in the art would have understood that this constitutes transmitting “the product preference to the first communication module,” as required by claim 1. *See, e.g.*, Ex. 1001 at 9:9-11.

199. Thus, based on the foregoing, claim 1 would have been obvious based on these prior art teachings.

F. Claims 2-7 would have been obvious over Omnisphere I in view of Omnisphere II and Isomura, as applied to claim 1, and further in view of Gutwein

200. Based on my review and analysis of the prior art, as well as my assessment of the knowledge held by a person of ordinary skill in the art as of June 2006, claims 2-7 would have been obvious over Omnisphere I in view of Omnisphere II and Isomura, as applied to claim 1, and further in view of Gutwein.

1. Claim 2: “The system as in claim 1, wherein the transmitted product preference is a formulation including a predetermined amount of at least one element.”

201. Claim 2 incorporates all aspects of claim 1. Therefore, I incorporate my analysis above with respect to claim 1. Namely, claim 1 would have been obvious over Omnisphere I in view of Omnisphere II and Isomura.

202. Claim 2 requires that “the transmitted product preference is a formulation including a predetermined amount of at least one element.” Ex. 1001

at 9:12-14. Based on my review of the '090 patent, these terms are not given any special meaning by the '090 patent, and thus I have applied the plain meaning of the terms when evaluating the prior art.

203. The product preference being communicated in the Omnisphere References is not a “formulation including a predetermined amount of at least one element.” Rather, the preferences relate to certain parameters for establishing specific data flows to receive certain types of messages and data from the network infrastructure. But in my opinion, it would have been obvious to further modify the Omnisphere References to have an appliance that receives product preferences that include a formulation including a predetermined amount of at least one element, such as the coffee-brewing apparatus of Gutwein. And I have already discussed in section IX.C.2, above, Gutwein’s teachings of a “formulation including a predetermined amount of at least one element.”

204. It is my opinion that a person of ordinary skill in the art would have been led to combine the Omnisphere References with Gutwein. This is because Omnisphere II explains that “[s]mall ubiquitous devices connected by wireless networks will become future Internet appliances.” Ex. 1008 at 1. Gutwein also discloses that the customization director and a “central database” that includes a user profile can be accessed by a “wireless” or radio frequency link, making the coffee maker a wireless appliance, as in the Omnisphere References. Ex. 1006 at

18:11-18; 26:9-11. Thus, it would have been obvious to a person of ordinary skill in the art to integrate the coffee maker of Gutwein into the Omnisphere network infrastructure described in the Omnisphere References, such that a coffee maker's wireless services can be set up and permit the provision of user preferences over a wireless data link based on, among other things, the User ID and context, as suggested by Gutwein. *See, e.g.*, Ex. 1006 at 22:24-30, 28:5-23. In this manner, the coffee maker can be used within the "personal communication environment for wireless appliances" described in the Omnisphere References, where Omnisphere can help "mediate notification events according to the user preferences, discover required services, configure them, and compose them into complex communication applications." Ex. 1007 at 506. Therefore, a person of ordinary skill in the art would have been led to use the coffee maker appliance disclosed in Gutwein within the Omnisphere network infrastructure in order to allow Omnisphere provide it with specific services and applications.

205. In light of the foregoing, a person of ordinary skill in the art would have found the subject matter of claim 2 obvious.

2. Claim 3: "The system as in claim 2, wherein the at least one element is a fluid, a solid or any combination thereof."

206. Claim 3 depends from claim 2, which in turn depends from claim 1. Thus, claim 3 includes all of the requirements of claims 1 and 2. As I have discussed already, it is my opinion that claim 2 would have been obvious over

Omnisphere I in view of Omnisphere II and Isomura, and further in view of Gutwein.

207. Claim 3 requires that “the at least one element is a fluid, a solid or any combination thereof.” Ex. 1001 at 9:15-16. Neither of the Omnisphere References disclose that the “at least one element is a fluid, a solid or any combination thereof.” Nevertheless, as I have already discussed in section IX.C.3, above, Gutwein discloses an appliance, which may be wirelessly networked, that includes preferences for a product including a formulation including at least one element, where the at least one element is a fluid (*e.g.*, water, cream, milk), a solid (*e.g.*, ground coffee, sugar, sweetener), or any combination thereof. And it would have been obvious to combine the Omnisphere References with Gutwein for the reasons I have already discussed in section IX.F.1, above.

208. In light of the foregoing, a person of ordinary skill in the art would have found the subject matter of claim 3 obvious.

3. **Claim 4: “The system as in claim 2, wherein the server is configured to communicate at least one question to a terminal of the at least one user for prompting the user with the at least one question relating to the predetermined product and the server is further configured for determining the formulation based on at least one response of the user.”**

209. Claim 4 depends from claim 2, which in turn depends from claim 1. Thus, claim 4 includes all of the requirements of claims 1 and 2. As I have

discussed already, it is my opinion that claim 2 would have been obvious over Omnisphere I in view of Omnisphere II and Isomura, and further in view of Gutwein.

210. Claim 4 includes the requirement that “the server is configured to communicate at least one question to a terminal of the at least one user for prompting the user with the at least one question relating to the predetermined product and the server is further configured for determining the formulation based on at least one response of the user.” Ex. 1001 at 9:17-22. The Omnisphere References do not disclose exactly how the user preferences are input into the system. However, Omnisphere I teaches that user preferences are based on a user’s desires. For example, Omnisphere I explains how “Alice wants to use a mailer . . . at the office” and “wants to receive e-mail notifications as SMS messages on her cellular phone”. Ex. 1007 at 508. It is my opinion that a person of ordinary skill in the art would have understood that one way to ascertain a user’s desires (*i.e.*, preferences) regarding their products was to provide “at least one question to a terminal [*e.g.*, a PDA, mobile phone, or notebook] of the at least one user for prompting the user with the at least one question relating to the predetermined product.” Ex. 1001 at 9:17-22. In addition, the Omnisphere References do not determine “the formulation based on the at least one response of the user.” Ex. 1001 at 9:21-22.

211. In my opinion, it would have been obvious to further modify the Omnisphere References such that the server in the networked smart appliance system was “configured to communicate at least one question to a terminal of the at least one user for prompting the user with the at least one question relating to the predetermined product and the server is further configured for determining the formulation based on at least one response of the user,” as required by claim 1, Ex. 1001 at 9:17-22, in view of the teachings of Gutwein. I have already discussed in section IX.C.4, above, the teachings of Gutwein relevant to claim 4. And I have also already discussed why a person of ordinary skill in the art would have been led to combine the Omnisphere References with Gutwein in section IX.F.1, above.

212. Therefore, in light of the foregoing, a person of ordinary skill in the art would have found the subject matter of claim 4 obvious.

4. Claim 5: “The system as in claim 4, wherein the server is further configured for issuing an identity code for the user and cross-referencing the identity code to the formulation.”

213. Claim 5 depends from Claim 4. Claim 4 depends from claim 2, which in turn depends from claim 1. Thus, claim 5 includes all of the requirements of claims 1, 2, and 4. As I have discussed already, it is my opinion that claim 4 would have been obvious over Omnisphere I in view of Omnisphere II and Isomura, and further in view of Gutwein.

214. Claim 5 requires that “the server is further configured for issuing an identity code for the user and cross-referencing the identity code to the formulation.” Ex. 1001 at 9:23-25. In the Omnisphere References, the presence and use of a “User ID” is described as being, for example, provided in response to a “REGISTER” command and used in the process of “authentication.” Ex. 1008 at 8. A person of ordinary skill in the art would have understood that the User ID is a form of “identity code” and is “for the user” as specified by claim 5. Moreover, the User ID is associated with a series of preferences that are provided to the product. For example, Omnisphere II describes that “[b]ased on the User ID and Appliance ID, Omnisphere retrieves the information that restricts the set of possible services: User Preferences, Device Capabilities, and Context.” Ex. 1008 at 4. However, the Omnisphere References do not disclose that the server issues the User ID, nor do they disclose that the User ID is cross-referenced to a formulation. Nevertheless, these features would have been obvious in light of the teachings of Gutwein.

215. I have already discussed in section IX.C.5, above, the teachings of the Gutwein reference relevant to claim 5. It is my opinion that a person of ordinary skill in the art would have been motivated to combine the teachings of Gutwein with the teachings of the Omnisphere References such that the server running the Omnisphere service issued the User ID. In this manner, the server running the

Omnisphere service could manage the assigned User IDs in a central location, rather than, for example, having them determined by the individual appliances where there may be conflicts. In addition, cross-referencing the User IDs with formulations would have been obvious in light of Gutwein since certain beverage formulations provided by the coffee-maker appliance of Gutwein may be unique to certain users. By cross-referencing the User ID, *i.e.*, the “identity code” with the formulation, the Omnisphere service can obtain the correct formulation for the user using the coffee-maker appliance.

216. Therefore, given the foregoing, it is my opinion that a person of ordinary skill in the art would have found the subject matter of claim 5 obvious.

5. Claim 6: “The system as in claim 5, wherein the server is configured for storing the identity code and cross-referenced formulation in the database.”

217. Claim 6 depends directly from claim 5, and indirectly from claims 1, 2, and 4. Therefore, claim 6 includes all features recited in claims 1, 2, 4, and 5. As I discuss above, claim 4 would have been obvious over Omnisphere I in view of Omnisphere II and Isomura, and further in view of Gutwein.

218. Claim 6 requires that “the server is configured for storing the identity code and cross-referenced formulation in the database.” Ex. 1001 at 9:26-28. The Omnisphere References disclose that the provided User ID (along with the Appliance ID) are used for “authentication.” *See* Ex. 1008 at 8. Figure 3 of the

Omnisphere II reference shows that the “User ID” and “Appliance ID” are provided from the Omnisphere service to a “AAA” service. *Id.* at 5. A person of ordinary skill in the art would have understood the “AAA” service to be an authentication, authorization, and accounting service. But the Omnisphere References do not indicate that the “server is configured for storing the identity code and the cross-referenced formulation in the database.” Ex. 1001 at 9:26-28.

219. A person of ordinary skill in the art reading Gutwein would have understood that Gutwein discloses that when a new customer uses the system for the first time, the system “prompts” the user “to . . . select ‘NEW’ if the consumer is new.” Ex. 1006 at 28:28-30. When the customization director receives the “NEW” selection, options are presented to the user, including formulation options and a registration option. “The registration option contains various input areas for the consumer to enter his/her preference data,” and “[t]he customization director then creates a new record for the consumer in the data store and associates the record with a new user identification.” Ex. 1006 at 28:30-36, 7:4-5 (describing the storage of “beverage formulations” and “user identification” in data storage device). A person of ordinary skill in the art would have understood that this record creation process and association with the user identification results in the issuance of an identity code for the user, and storage of that identity code in the database, as required by claim 6.

220. Gutwein further teaches that when the user is later identified by the system based on the identification number and the identification number and password match “an existing record,” the “customization director retrieves [the user’s] customization profile and analyzes the profile to determine the beverage options to display to [the user],” such as “coffee bean type, temperature, strength, and finishing options as well as a few express options such as your last coffee purchase” Ex. 1006 at 28:13-19. When the system is networked according to certain embodiments of Gutwein, “the individual customer’s identification and associated preferences” can be “universally recognized by all” coffee brewing systems on the network. *Id.* at 17:33-36. Thus, a person of ordinary skill in the art would have understood that Gutwein discloses that an “identity code for the user” is cross-referenced to the formulation as required by claim 5 of the ’090 patent. Moreover, Gutwein also discloses that this identifier is associated with the customization options for the beverage in a customer’s record. Ex. 1006 at 24:1-3 (referring to the customization director storing “the selected customization options in the data store in a record corresponding to the customer identifier”); 7:4-5. Thus, this data is all stored in the database as required by claim 6.

221. It would have been obvious to modify the Omnisphere References such that “the server is further configured for issuing an identity code for the user and cross-referencing the identity code to the formulation” based on the teachings

of Gutwein for the reasons I already described in section IX.F.1, above. Moreover, the ability for the server to issue and store identity codes allows for system control and assignment of user IDs to be associated with the various profiles in the profile databases. This, in turn, allows for more orderly control over the system configuration and management. Storage of identity codes cross-referenced to formulations would have allowed the system to identify formulations specific to individual users, thus providing the product with preferences unique to the specific user of the product.

222. Therefore, it is my opinion that a person of ordinary skill in the art would have found the subject matter of claim 6 obvious.

6. Claim 7: “The system as in claim 6, wherein the terminal is configured to transmit the identity code to the server.”

223. Claim 7 depends from claim 6, and indirectly from claims 1, 2, 4, and 5. Therefore, claim 7 includes all of the features recited in claims 1, 2, 4, 5, and 6. I have already explained why claims 1, 2, 4, 5, and 6 are invalid above. Specifically, claim 6 would have been obvious over Omnisphere I in view of Omnisphere II and Isomura, and further in view of Gutwein. Claim 7 indicates that “the terminal is configured to transmit the identity code to the server.” Ex. 1001 at 9:29-30. In my opinion, a person of ordinary skill in the art would have understood that this is disclosed by the Omnisphere References. Specifically,

Omnisphere II discloses that the “User ID,” *i.e.*, the claimed “identity code” is transmitted from the terminal (*e.g.*, a PDA, notebook, cellular phone, etc.) appliance to the server running the Omnisphere service in response to a “REGISTER” command. *See* Ex. 1008 at 5 (Fig. 3), 8.

224. Therefore, the subject matter of claim 7 would have been obvious to a person of ordinary skill in the art.

G. Claim 8 would have been obvious over Omnisphere I in view of Omnisphere II, Isomura, and Gutwein, as applied to claims 2 and 4-7, and further in view of Webb

225. Claim 8 depends from claim 7, and indirectly from claims 1, 2, 4, 5, 6, and 7. Claim 8, therefore, incorporates all of the requirements of claims 1, 2, 4, 5, 6, and 7. As I have explained above, a person of ordinary skill in the art would have found the subject matter of claim 7 obvious over Omnisphere I in view of Omnisphere II and Isomura, and further in view of Gutwein.

226. Claim 8 requires that “the identity code is stored as an Internet cookie on the terminal.” Ex. 1001 at 9:31-32. The Omnisphere References describe a “personal communication environment for wireless appliances.” Ex. 1008 at 505. It is in this type of environment that “[s]mall ubiquitous devices connected by wireless networks will become future Internet appliances,” Ex. 1009 at 1. While the Omnisphere References discuss networking Internet appliances, they do not disclose the use of an Internet cookie for storing the identity code on the terminal.

227. Webb discloses that, “[a]s is known to those skilled in the art, a cookie is an object used to store various types of information on a client. Conventionally, a cookie is a special text file that a server (e.g., a Web server) places on a client device (e.g., on the hard disk of a client device) so that the server can remember something about the user at a later time. A cookie can record a user's preferences when using a particular site, and can be used to authenticate a user.” Ex. 1009 at 4, ¶ [0039]. The cookie can be used to authenticate the user and give the user access to a specific resource on the Internet for a specified amount of time. *Id.* at ¶ [0048]. Thus, as taught by Webb, storing information, such as an identity code, as an Internet cookie on the terminal, *i.e.*, client device, was already known to those skilled in the art at the time of the alleged invention of the '090 patent.

228. It is my opinion that a person of ordinary skill in the art would have been motivated to combine the teachings of the Omnisphere References with Webb's Internet cookie because such a combination would improve the remote accessibility of wireless appliances in Omnisphere in a secure manner. Webb describes “[s]ystems, methods, and computer program products that can allow users to access one or more devices on a private network, via clients on a public network.” Ex. 1009 at Abst.; *see also id.* at ¶ [0011] (“Embodiments of the present invention can allow remotely located users to securely access devices on a private

network via the Internet.”). A person of ordinary skill in the art would have understood the value in adding increased security to the Omnisphere network described by the Omnisphere References. Moreover, the networking techniques disclosed in Webb may be applied to devices that “may be connected to the private network 16 via various technologies including . . . wireless.” Ex. 1009 at ¶ 43. Thus, a person of ordinary skill in the art would have understood that the networking techniques taught by Webb may be used to securely access the wireless appliances that are part of the private wireless LAN disclosed in Omnisphere. *See, e.g.*, Ex. 1009 at 8 (“*Wireless LAN/PAN*. We use the IEEE 802.11b wireless LAN and Bluetooth”); *id.* at Fig. 7. Web discloses that these techniques are used to access networked smart appliances, and therefore, it would have been obvious to use them with the wireless appliances described by the Omnisphere References. *See, e.g.*, Ex. 1009 at ¶ [0004].

229. In light of the foregoing, a person of ordinary skill in the art would have found the subject matter of claim 8 obvious.

X. CONCLUSION

230. In conclusion, as explained in detail above, it is my opinion that claims 1-8 of the '090 patent would have been obvious based on the various teachings of the references discussed above.

231. The concepts recited by claims 1-8 of the '090 patent were well-known in the context of personalizing products based on preferences over networks. Storing user preferences on databases included with remote servers was known from references such as Zimmerman, DeBourke, Lggulden, Gutwein, and Omnisphere I and II. Providing those preferences to identified products was known, for example, from Zimmerman, Omnisphere I and II, and DeBourke. Moreover, providing formulations including elements such as solids or liquids was well known from, for example, the networked customizable coffee-maker of Gutwein. Indeed, as I have demonstrated above, each of claims 1-8 would have been obvious to a person of ordinary skill in the art.

232. More specifically, claim 1 would have been obvious over Zimmerman in view of Lggulden and DeBourke and over Omnisphere I in view of Omnisphere II and Isomura. Claims 2-7 would have been obvious over (1) Zimmerman in view of Lggulden, and DeBourke and further in view of Gutwein; and (2) Omnisphere I in view of Omnisphere II and Isomura, and further in view of Gutwein. Finally, as I have discussed in detail above, claim 8 would have been obvious over (1) Zimmerman in view of Lggulden, DeBourke, and Gutwein and further in view of Webb; and (2) Omnisphere I in view of Omnisphere II, Isomura, and Gutwein, and further in view of Webb.

233. In signing this Declaration, I recognize that the Declaration will be filed as evidence in a contested case before the Patent Trial and Appeal Board of the United States Patent and Trademark Office. I also recognize that I may be subject to cross-examination in the case and that cross-examination will take place within the United States. If cross-examination is required of me, I will appear for cross-examination within the United States during the time allotted for cross-examination.

234. I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true and further that these statements were made with the knowledge that 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.

Respectfully submitted,

~~Tal Lavian~~
~~1/11/2016~~
Tal Lavian, Ph.D.

Dated: Jan, 11, 2016