

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

SONY INTERACTIVE ENTERTAINMENT LLC
Petitioner,

v.

QUANTUM IMAGING LLC
Patent Owner.

Case No. IPR2023-00995
U.S. Patent No. 10,846,941

DECLARATION OF MR. DAVID CRANE

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I. INTRODUCTION

1. I have been retained by the firm of KXT Law, LLP representing Sony Interactive Entertainment LLC (“Sony” or “Petitioner”) as an independent expert consultant in this proceeding before the Patent Trial and Appeal Board (“PTAB”) of the United States Patent and Trademark Office (“PTO”). I am not an employee of Sony or any affiliate or subsidiary of Sony.

2. I have been asked to provide my opinions and analysis regarding the subject matter of the U.S. Patent No. 10,846,941 (the “’941 Patent”). I am being compensated at my ordinary and customary rate of \$500 per hour for my work, plus reimbursement for any reasonable expenses. My compensation is based solely on the amount of time that I devote to activity related to this case and is in no way contingent on the nature of my findings, the presentation of my findings in testimony, or the outcome of this or any other proceeding.

3. This declaration is based on information currently available to me. I reserve the right to modify, amend and/or supplement my opinions in response to any additional information that becomes available to me, and/or in light of any relevant orders from the PTAB.

4. To the extent I am asked to testify in this proceeding, I may provide background on the issues at hand and reserve the right to use visual aids to illustrate my testimony.

II. BACKGROUND AND QUALIFICATIONS

5. My curriculum vitae (“CV”) is provided as Ex-1005 and it provides an accurate identification of my background and experience.

6. I am a world-renowned video game designer and game industry pioneer. I received a Bachelor of Science in Electronic Engineering Technology in 1975 from DeVry Institute of Technology, Phoenix, Arizona. This degree course of study included grounding in all areas of electronic circuitry and computer programming.

7. I have an engineering, gaming, and programming background going back more than 40 years. I built my first computer—an unbeatable Tic-Tac-Toe computer—at the age of 14 and graduated high school able to program IBM mainframe computers in 3 languages.

8. I began my professional engineering career at National Semiconductor in 1975 developing integrated circuits (“ICs”) and working with early analog-to-digital and digital-to-analog converters. I brought microprocessor automation techniques to the IC development and testing processes.

9. In 1977, I joined Nolan Bushnell’s Atari Inc., developing games for the Atari Video Computer System. In a period of one year, my games generated approximately \$15 million in sales revenues for the company. While at Atari I developed a number of programming techniques incorporated in dozens, if not

hundreds of video games. I developed for publication several game products while at Atari, including an electronic Slot Machine game program in 1978.

10. In 1979, I co-founded Activision, Inc., the first third-party publisher of video game cartridges. Activision grew to over \$300 million in value in three years and is now the largest video game publisher in the world with a market capitalization of over \$60 billion.

11. During my tenure at Activision, I designed and programmed many hit games with unit sales over 500,000. One such example is the game Pitfall!™ which sold over 3,500,000 copies and held the #1 spot on the Billboard Charts for 64 consecutive weeks. Pitfall!™ generated over \$50 million in wholesale revenues and spawned numerous other products including many sequels, toys, and a Saturday morning cartoon.

12. Throughout my 40+ year career I have focused on video game technology as it evolved, creating and publishing more than 80 commercial game products generating over \$400 million in revenues. I have designed and programmed games on virtually every video game system invented, from the early days of Atari and Magnavox through to present-day systems such as the iPhone and iPad.

13. I have received many other awards for my work and career. Most notably, I received one of the Academy of Interactive Arts and Sciences lifetime

honors: The Pioneer Award, celebrating my foundational and continuing work in the creation and development of the video game business. This singular honor, presented to me in 2010, was the inaugural award in a new category. I was the first to receive this award out of everyone who had ever worked in the video game industry throughout its entire history.

14. Additional awards include Game Designer of the Year (twice), the prestigious 2003 Game Developer Choice Award for contribution to the field, and the Lifetime Achievement Award in Video Games from Classic Gaming Expo. In addition to these personal honors, many of the individual games that I have developed have also received numerous awards.

15. I am a regular speaker and/or panelist at video game industry trade events such as the D.I.C.E. Summit (Design, Innovate, Communicate & Entertain), and GDC (Game Developers Conference). I have spoken at gatherings of game business executives (such as at the Pepperdine University Graziadio School of Business and Management), and I am featured annually at many consumer-focused game events. I have been profiled in national press publications including Forbes Magazine and Newsweek, and I have been interviewed by such diverse publications as television’s 20/20 News Magazine and the G4 Television Network.

A. Publications

16. A partial list of the published game titles for which I am responsible for the game design and/or programming would include: Canyon Bomber, Outlaw, Slot Machine, Pitfall!, Pitfall II, Lost Caverns, Freeway, Laser Blast, Fishing Derby, Dragster, Grand Prix, A Boy and His Blob, The Rescue of Princess Blobette, Ghostbusters, Skateboardin’, Super Skateboardin’, The Activision Decathlon, T*O*Y*S, Transformers, the computer game, David Crane’s Amazing Tennis, Bart Simpson’s Escape from Camp Deadly, CHOMP, Arcade Bowling, Ten Pin Championship Bowling, Stellar Blast, Arcade Hoops, 3 Point Hoops, QB Pass Attack, Field Goal Frenzy, Lotto Letters, Super Swish, Stellar Blast, Mariner Hybrid Infomercial, Lacrosse, Beach Volleyball, Spiderman Climbing game, Miller Seat Salsa, Super Cocoa Man, Break the Rules Hoops, Downfield Strike, Mini Motocross, Robopup Run, Toyota 4runner Challenge, Tyco RC Speed Wrench, Vertical Jam, E.T.’s Adventure, Bubble Yum Home Run Derby, Bubble Yum Bullpen Blast, Gummi Savers Egg Hunt, Foul Shot Shootout, Life Savers Water Park Pinball, Field Goal Challenge, Crème Savers Bowling, Golf Solitaire, Skyworks Lanes Bowling, Carefree on Ice, Gummi Savers Rock-N-Skate, YIPES! Photo Safari, Ice Breakers Slap Shot Shootout, Southpark Pinball, Breath Savers Road Rally, Ford NASCAR racing challenge, MTV Cranks Dirt Bike Game, Ice Breakers Ultimate Bobsled, Breath Savers Billiards, Snackwells Chocolate Factory

Pinball, Snowboard Big Air, Skate Rage Inline Skating, Candystand Miniature Golf, Hole In One Golf, Lifesavers Word Challenge, Candystand Open Tennis, Mountain Climbing, 3 Point Shootout, Grand Slam Pinball, Nabisco World Team Racing, Soccer Shootout, LifeSavers Treasure Hunt, Oreo Adventure, LifeSavers Roll-A- ball, Air Crisps Slam Dunk, Fruit Chews BMX, and Postopia Bowling. A more complete list of these titles is included in my Curriculum Vitae, *see* Ex-1005.

17. In 1995 I co-founded Skyworks, Inc., a company dedicated to creating advertising-sponsored browser-based games served to, and played in, a consumer’s home computer. At its peak around the year 2000, Skyworks games were serving over 80 million game plays per month.

18. More than 50 of the games noted in my CV, (those listed as “Online Games”), integrated advertising into the browser page serving the game, integrated advertising into the game itself, or both. More than a dozen of these games integrated advertising into the game-playing experience prior to the year 2002. Each of the Online Games that I developed communicated online between a game computer and a central game server either before, during, or after game play. These games include those where a server communicated with, and synchronized game play between client computers, those in which the game was managed by the game server, and those in which the server was used to keep and track game statistics.

19. Many of the games I developed required expertise in 3D environments, such as Little Computer People™, Transformers®: Battle to Save the Earth, David Crane’s Amazing Tennis™, Spiderman®, Toyota® 4runner® Challenge, Boxer’s Road, Bubble Yum® Home Run Derby, Foul Shot Shootout, and Skyworks Lanes Bowling to name a few. Other games I developed took said 3D environment expertise into the realm of true VR, including war-themed games such as Battletech: Gray Death Legions (rendering mechanical “mech warriors” in a virtual environment) and Warrior 2000 (rendering soldiers in futuristic military exoskeletons); an auto-themed terrain simulation for the BMW X3; and a sports-themed 3D golf game for The Weather Channel that was served simultaneously with the Masters golf tournament - complete with real-world matching terrain, hole placements, and weather. I was also a lead designer and programmer for “The Road,” a VR experience with open-road driving, sponsored buildings and billboards, and destination locations including a bowling alley and arcade (with 3D lobby for social interaction and player pairing). I have extensive experience with 3D environments and VR gaming.

20. As explained in my CV, I am also extensively familiar with a variety of different programming languages, including mainframe computer languages like FOTRAN, COBOL, and BASIC, numerous microprocessor assembly languages, several microprocessor programming languages like C and JAVA, scripting

languages like JavaScript and HTML, languages employed by mobile devices such as Objective-C, and engineering languages such as SPICE and VHDL.

III. ASSIGNMENT AND MATERIALS CONSIDERED

21. I have been asked to provide analysis and explain the subject matter of the '941 Patent, including the state of the art when the '941 Patent application was filed. I have also been asked to consider, analyze, and explain certain prior art to the '941 Patent, including how that art relates to the challenged claims of the '941 Patent and to provide my opinions regarding whether that art invalidates the claimed subject matter.

22. The opinions expressed in this declaration are not exhaustive of opinions I may offer in the future regarding the unpatentability of the claims of the '941 Patent. Therefore, the fact that I do not address a particular point should not be understood to indicate an agreement on my part that any claim complies with the requirements of any applicable patent or other rule.

23. I reserve the right to amend and supplement this declaration in light of additional evidence, arguments, or testimony presented during this IPR or related proceedings on the '941 Patent.

24. In forming the opinions set forth in this declaration, I have considered and relied upon my education, knowledge of the relevant field, knowledge of scientific and engineering principles, and my experience, as well as external

materials cited in the body of this declaration. I have also reviewed and considered the '941 Patent (Ex-1001), its prosecution history (Ex-1003), and the following additional materials:

Exhibit	Description
Ex. 1007	U.S. Patent No. 5,933,811 to Pisanich et al. (“Pisanich”)
Ex. 1008	U.S. Patent No. 7,168,051 to PSO Manual et al. (“PSO Manual”)

IV. UNDERSTANDING OF THE LAW

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

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

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

28. I understand that claimed subject matter may be obvious in view of prior art. I understand that the knowledge and understanding of a POSITA is relevant to an obviousness analysis. I understand, however, that it is not enough to show simply that all the limitations of the claimed subject matter are spread throughout the prior art. Instead, for claimed subject matter to be obvious over multiple references, including the knowledge of a POSITA, there must be some reason or motivation for a POSITA to combine the prior art references to arrive at the claimed subject matter. I understand that this motivation to combine need not be explicit in any of the prior art, but may be inferred from the knowledge of a POSITA at the time the patent was filed. I further understand that a single piece of prior art that discloses fewer than all of the elements of a patent claim may render a patent claim obvious if including the missing element would have been obvious to a POSITA (e.g., the missing element represents only an insubstantial difference over the prior art).

29. I understand that a patent claim is obvious if the differences between the subject matter claimed and the prior art are such that the subject matter as a whole would have been obvious during the relevant time period (e.g., at the time of the alleged invention). I understand that the obviousness analysis must focus on the knowledge available to a POSITA during the relevant time period in order to avoid impermissible hindsight. I further understand that the obviousness inquiry assumes

that the POSITA would have knowledge of all relevant references available during the relevant time period.

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

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

32. I further understand that an obviousness analysis recognizes that market demand, rather than scientific literature, often drives innovation, and that a motivation to combine references also may be supplied by the direction of the marketplace. For example, when there is a design need or market pressure to solve a problem and there are a finite number of identified, predictable solutions, a POSITA has good reason to pursue the known options within his or her technical grasp because the result is likely the product not of innovation but of ordinary skill and common sense.

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

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

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

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

37. I have been informed and I understand that factors referred to as “objective indicia of non-obviousness” or “secondary considerations” are also to be considered when assessing obviousness when such evidence is available. I understand that these factors can include: (1) commercial success; (2) long-felt but

unresolved needs; (3) copying of the invention by others in the field; (4) initial expressions of disbelief by experts in the field; (5) failure of others to solve the problem the claimed subject matter solved; and (6) unexpected results.

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

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

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

V. LEVEL OF SKILL IN THE ART

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

42. I have been informed and understand that factors that may be considered in determining the level of ordinary skill include: (1) the education of the inventor; (2) the type of problems encountered in the art; (3) prior art solutions to those problems; (4) rapidity with which innovations are made; (5) sophistication

of the technology; and (6) education level of active workers in the relevant field. I have been further informed and understand that a POSITA is also a person of ordinary creativity.

43. A POSITA in the technology field of the '941 Patent would, in my opinion, have had a bachelor's degree in computer engineering, computer science, or a similar discipline, and/or two years of professional experience in the fields of networking and network-based systems or applications, such as client-server and web-based systems, in the specific context of console and gaming or an equivalent level of skill, knowledge, and experience. A POSITA would have at least a general knowledge of online and in-game advertising methods prevalent in the field, as well as at least a general knowledge of 3D rendering and virtual reality.

44. In view of my educational background (e.g., a Bachelor of Science in Electronic Engineering Technology obtained in 1975) and decades of computer programming experience—including experience with advertising-supported games as discussed above in Section II—I was a person of more than the ordinary level of skill in the art as of the date of the '941 application. In forming my opinion, I have drawn on my academic background and professional experiences. My opinions herein, however, were formed taking into account the perspective of an ordinarily skilled artisan.

VI. THE ’941 PATENT’S PRIORITY DATE

45. I am informed that the earliest priority date of the ’941 Patent should be Mar. 22, 2004.

VII. THE ’941 PATENT

A. Overview

46. The ’941 Patent is entitled “Interactive Virtual Thematic Environment.” Per the Abstract, the patent discloses “integrating information, including real-time information, into a virtual thematic environment using a computer system” such that “[T]he computer system includes an interactive software application platform having at least:

- one thematic / publishing logic module which contains thematic environment rules;
- at least one digital content library module which provides content management on the thematic environment;
- and at least one quantum imaging environment (QIE) module which interprets content such that the content is manipulated and accessed by any device.” [Ex-1001, Abstract]

47. Note that said virtual interactive environment might be, for example: “a game, or a particular website, such as a museum website, store, school, hospital etc.” [*Id.*, 7:26-27]

48. In the “Background of the Invention” section [*Id.*, 1:35-46], the ’941 Patent suggests that “[existing] virtual environments, especially those present on

the internet, for example, have not provided the user with a real world experience. Accordingly, a way to integrate audio, video, 2D and 3D technology in order to maximize the real world experience for the user, is desired.”

49. In the “Summary of the Invention” section [*Id.*, 1:64 - 2:12], the ’941 Patent identifies examples of real-time information that might be integrated into a virtual thematic environment, including:

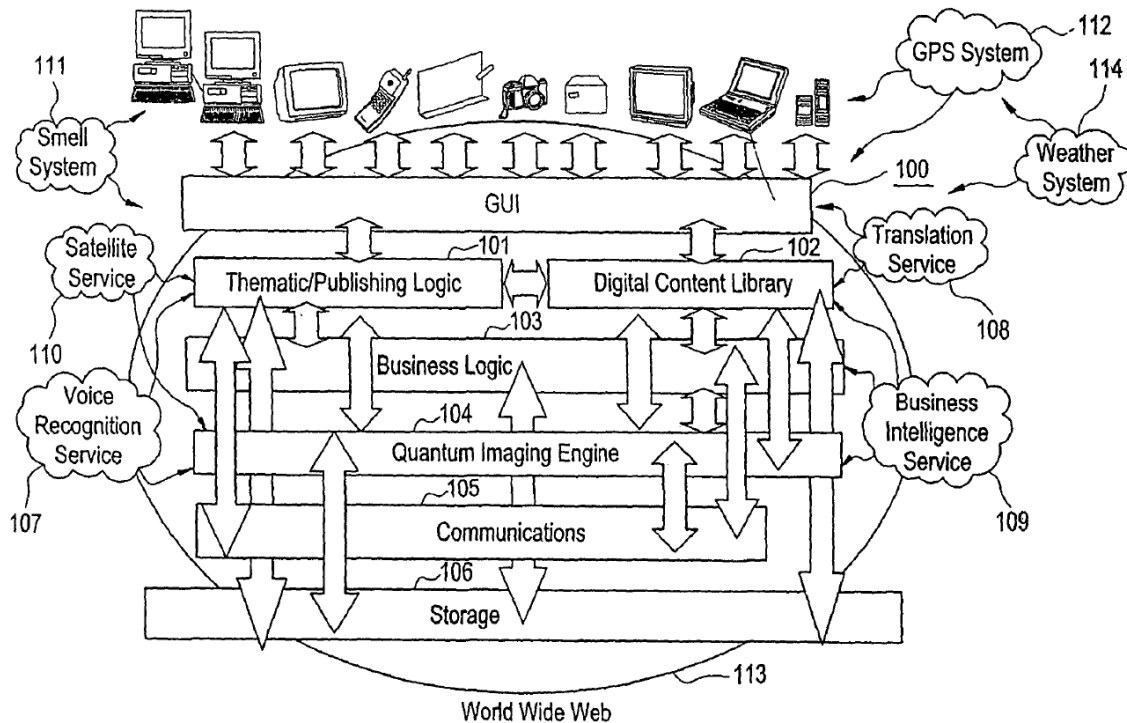
- Real-time audio
- Real-time video
- Real-time chronological
- Real-time text
- Real-time GPS
- Real-time product placement information from a sponsor
- Real-time language translation

50. Note that from the example types given, real-time information in the ’941 Patent appears to also include real-world information.

51. Other real-world information discussed includes “content from the real world (i.e., content from the sponsor’s websites, information on time, weather, late-breaking news, etc.)” [*Id.*, 17:65-67].

52. Fig. 1 is a schematic display of a “six-level logical architecture of an interactive software platform” [*Id.*, 6:41-42]:

FIG. 1



Ex-1001 Fig. 1

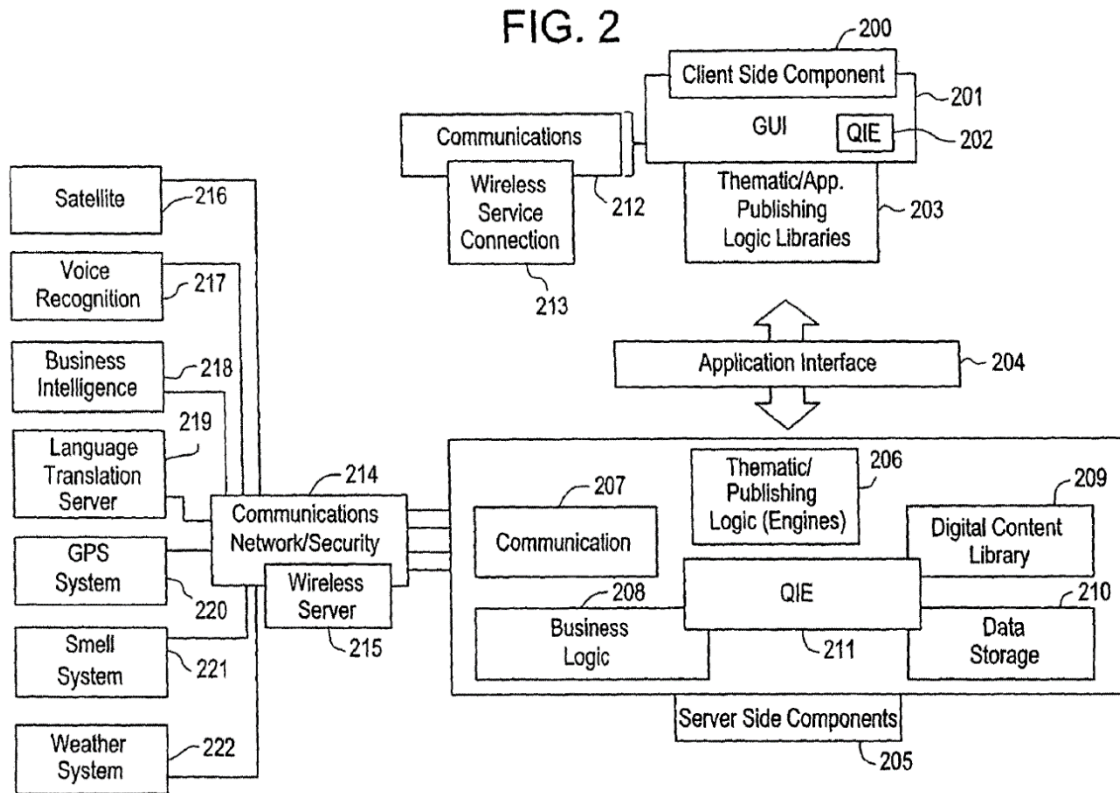
53. According to the purported invention, the interactive software platform can be served to *any device* (See Ex-1001, Abstract) with some such devices shown at the top of Fig. 1. This ability to serve an interactive experience to any device is allegedly made possible by the Quantum Imaging Engine 104 shown here. Note that the term Quantum Imaging Engine or Quantum Imaging Environment (“QIE”) module (or simply QIE) is not an industry term, but a “black box” that is integral to the alleged invention of the ’941 Patent. The specification describes what the QIE does, the short form of which states:

“[the QIE module] interprets content such that the content is manipulated and accessed by any device” [*Id.*, 4:30-38]

54. A more detailed description of what the QIE does can be found in column 15:

“The QIE 202/211 is both part of the client and the server components in the embodiment of FIG. 2. The QIE 202/211 includes an interpreter that will allow data to be transmitted to any device, and is the basis for the design structure and layout for applications. The QIE 202/211 allows developers to develop objects and applications from the interpreter. For gaming or other thematic environments, the representation of the layout and design may be in the representation of “zones”, and the layout and design may be set up as zones and content, for medical, retail, educational purposes, etc. The QIE 202/211 pertains to the most common denominator - the application architecture, and the content. QIE 202/211 is an interpreter that will take all of the rich content, interpret the information into objects to be manipulated and accessed via any device and place these objects or information in the appropriate format that is designed or will be designed by the developer.” [*Id.*, 15:51-67]

55. “FIG. 2 is a schematic showing one embodiment of the interactive software platform consistent with the present invention, in a client-server arrangement” [*Id.*, 6:43-45]. As seen in Fig. 2, the QIE exists in both the server and client side components of the interactive software platform. Notably, the specification explains that the QIE 202/211 “is an interpreter ...” - the singular form indicating to a POSITA that the contents of boxes 202 and 211 are the same system.



Ex-1001 Fig. 2

56. Thus, the QIE is an integral part of the alleged invention of the '941 Patent. According to Claim 1 of the '941 Patent, the QIE is “a software layer that receives, interprets, and manipulates the second content so as to be accessible on different types of devices for use within the virtual thematic environment.”

57. The '941 Patent also discloses the integration of “mini-applications” that operate within the virtual thematic environment. The '941 specification does not define what makes an application a mini-application, but includes a list of examples:

“... integrates mini-applications, such as word processing, mutual fund calculators, spreadsheets, static purchasing (i.e., static e-

commerce applications, and any other type of application that can be scaled or as a demo), e-mail, and the like, into the virtual thematic environment without a noticeable delay.” [*Id.*, 7:7-12]

B. Prosecution History of the ’941 Patent

58. As noted above, I have reviewed the ’941 Patent’s prosecution history.

59. I am informed, and I have confirmed, that during prosecution of the ’941 Patent, the independent claims 1, 15, 22, and 23 were amended to further clarify the concepts of the virtual thematic environment, the primary application, the QIE module and the digital content library module. Although the Examiner subsequently allowed the claims for “the specific environment and algorithm described in the independent claims” (Ex-1003, pp. 11-12), the Examiner did acknowledge that “processing multiple applications and interactions there-between is well-known in the art . . .” *Id.*, p. 11.

60. See Petition, section VI.B for more detail.

C. The ’941 Patent’s Claims

61. For reference, claims 1, 3, 5, 7-12, and 23-26 of the ’941 Patent are reproduced below:

1. Claim 1:

[pre]: One or more non-transitory computer readable medium storing an interactive software application platform comprising:

- a.** 1[a]: at least one thematic/publishing logic module containing virtual thematic environment rules to coordinate actions to be taken to constitute and provide a virtual thematic environment on a visual component, the virtual thematic environment being a theme-based virtual world environment;
- b.** 1[b]: a primary application providing the virtual thematic environment; and a secondary application within the primary application, the secondary application being different from the primary application, the secondary application being launched from the primary application, and having first content utilized within a same application environment as second content provided by the primary application;
- c.** 1[c]: a graphics user interface (GUI) module including software that renders graphical display elements onto the visual component and permits a user to interact with a graphical display element within the virtual thematic environment, the GUI module providing a first user interface that is associated with the primary application and enabling the user to access the primary application through the first user interface, and a second user interface associated with the secondary application and enabling the user to access the secondary application through the second user interface;

- d.** 1[d]: a quantum imaging environment (QIE) module, the QIE module being a software layer that receives, interprets, and manipulates the second content so as to be accessible on different types of devices for use within the virtual thematic environment, the QIE module obtaining first real-time information and second real-time information, the QIE module supplying the first real-time information into the primary application, and supplying the second real-time information into the secondary application, the primary application configured to provide access to the first real-time information to the user within the virtual thematic environment via the first user interface, the secondary application configured to provide the second real-time information to the user within the virtual thematic environment via the second user interface; and
- e.** 1[e]: at least one digital content library module storing information, the information containing 2 dimensional and 3 dimensional content, and providing content management of information within the virtual thematic environment coordinated by the thematic/publishing logic module, the digital content library module being a content management application.

2. **Claim 3: The one or more non-transitory computer readable medium according to claim 1, wherein said first real-time information and said second real-time information are accessed by a user selection mechanism.**
3. **Claim 5: The one or more non-transitory computer readable medium according to claim 3, wherein said selection mechanism is a hot click button.**
4. **Claim 7: The one or more non-transitory computer readable medium according to claim 1, wherein said first real-time information and said second real-time information are provided to the user via a mobile device.**
5. **Claim 8: The one or more non-transitory computer readable medium according to claim 1, wherein at least one of the first real-time information and the second real-time information are downloaded from a source external to the virtual thematic environment.**
6. **Claim 9: The one or more non-transitory computer readable medium according to claim 8, wherein said first real-time information and said second real-time information are downloaded from the Internet.**
7. **Claim 10: The one or more non-transitory computer readable medium according to claim 1, wherein at least one of said first real-time information and said second real-time information are automatically downloaded based on actions of the user within the virtual thematic environment.**
8. **Claim 11: The one or more non-transitory computer readable medium according to claim 1, wherein the user is provided with objects within the virtual thematic environment which operate in real-time with real-time information.**

9. **Claim 12: The one or more non-transitory computer readable medium according to claim 1, wherein the at least one secondary application includes at least one of an entertainment application, a business application, a publishing application, a game application, a financial application, a music application, a graphic application, an education application, a medical application, a word processing application, an electronic mail application, a spreadsheet application, a static purchasing application, an instant messaging application, and a video messaging application.**

10. **Claim 23:**

[pre]: A computer system, comprising:

- a. 23[a]: a client system and a server system communicating to provide an interactive software application platform, the interactive software application platform comprising:
- b. 23[b]: at least one thematic/publishing logic module containing virtual thematic environment rules to coordinate actions to be taken to constitute a virtual thematic environment, the virtual thematic environment being a theme-based virtual world environment;
- c. 23[c]: a graphics user interface (GUI) module, the GUI module including software that renders graphical display elements onto a visual component and permits the user to interact with the graphical display elements within a virtual thematic environment;
- d. 23[d]: a primary application providing the virtual thematic environment;

- e. 23[e]: a secondary application within the primary application, the secondary application being different from the primary application, the secondary application being launched from the primary application, and having first content utilized within a same application environment of the virtual thematic environment as second content provided by the primary application, the primary application receiving and using first real-time information to provide the second content, the secondary application receiving and using second real-time information to provide the first content, the first real-time information being different from the second real-time information;
- f. 23[f]: a quantum imaging environment (QIE) module, the QIE module being a software layer configured to receive and interpret the first content and the second content such that the first content and the second content is manipulated so as to be accessible on different types of devices for use within the virtual thematic environment;
- g. 23[g] at least one digital content library module storing information and providing content management of information within the virtual thematic environment, the digital content library module being a content management application; and
- h. 23[h] wherein the GUI module includes software that renders graphical display elements onto the visual component and permits the user to interact with the graphical display elements within the virtual thematic environment, the GUI module providing a first user interface that is associated with the primary application and enabling the user to access the primary application through the first user interface, and a second user interface associated with the secondary application and enabling the user to access the secondary application through the second user interface.

11. **Claim 24: The computer system according to claim 23, wherein the virtual thematic environment is a game environment.**
12. **Claim 25: The computer system according to claim 23, wherein the first real-time information and the second real-time information include audio, video, text, or any combination thereof.**
13. **Claim 26: The computer system according to claim 23, wherein the first real-time information and the second real-time information is new or updated information.**

VIII. CLAIM CONSTRUCTION

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

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

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

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

65. For the purpose of this declaration, I have been instructed to adopt the following understanding of certain terms:

A. Quantum Imaging Environment Module (QIE)

66. I would paraphrase the QIE described in the '941 Patent as something of a “universal translator.” As an initial matter, I find that the '941 specification describes only *what* the QIE does and is completely silent on *how* it does it. There is nothing in the specification to inform a POSITA how to implement such a translator. In interpreting the claims for the purpose of this IPR I have been instructed to address the ‘what’ and not the ‘how’.

67. For this analysis I assume the QIE is to be understood according to Claim 1 of the of the '941 Patent as “a software layer that receives, interprets, and manipulates the second content so as to be accessible on different types of devices for use within the virtual thematic environment.”

B. Virtual Thematic Environment

68. As an expert in the video game field, in my opinion a POSITA as of the filing of the '941 Patent would understand how to recognize and implement a “virtual environment.” I am informed that there have been arguments that because the '941 specification suggests some themes as a guideline, such as

“geographically themed” or pertaining to a “museum, store, school, hospital, etc.” that the term would not be purely subjective.

69. For the purposes of this declaration, I will interpret the term according to Claim 1 of the ’941 Patent as follows:

70. A “virtual thematic environment” is “a theme-based virtual world environment.”

IX. UNPATENTABILITY ANALYSIS

71. The following paragraphs provide some basic background and then proceed with an overview of the main prior art references I discuss throughout this declaration.

A. Background Information

72. In my opinion, as of the ’941 Patent’s priority date, a POSITA would have been aware of various different types of software, programming languages, and applications related to the subject matter of the ’941 Patent. Some of this background knowledge is discussed here.

1. Flight Simulator Games

73. Games are simulations. Games in which the player controls an airplane have existed since the 1970s. The Flight Simulator genre expanded on that concept in an attempt to approach the realism of flight controls. This background section serves to introduce the Flight Simulator to any who are not familiar with the genre.

74. The earliest Flight Simulator examples date back to the 1980s and 1990s, such as the “Flight Simulator” series created by SubLOGIC (and later renamed and published by Microsoft as “Microsoft Flight Simulator”). The display of a Flight Simulator game (although adjustable to different viewpoints) typically represented the pilot’s view, divided into a cockpit containing necessary gauges and readouts, and a view out the canopy to a 3D rendered virtual environment. By the year 2000 the degree of detail had reached a high level of realism as shown by the example below.



Microsoft Flight Simulator 2000¹

¹ <https://www.mobygames.com/game/3341/microsoft-flight-simulator-2000/screenshots/windows/351054/>

75. While in this view, the cockpit would remain stationary while the canopy view tilted and scrolled based on the orientation of the simulated aircraft. The view from the canopy showed a simulated virtual environment, thematically representing cities, lakes, rivers, farmland, and other terrain.

76. Flight Simulator games such as Microsoft Flight Simulator 2000 could provide incredible detail within the terrain (although at a cost to performance). Said detail included signs and billboards when flying low through a city. For example, the Microsoft Flight Simulator 2000 Pilot’s Handbook² (© 1983-1999 Microsoft Corporation) explained:

“Choosing between quality and performance depends on what you want to do. If you want to spend an evening reading signs and billboards as you fly the Bell 206B JetRanger III helicopter down the glittering streets of Las Vegas, then you’re probably willing to sacrifice a little performance for a better view.”

77. Alternatively, a player could reduce the detail for better performance. But it was well known in the art that the terrain rendered in a virtual thematic world circa 2000 could (and did) include readable signs and billboards.

² https://oldgamesdownload.com/wp-content/uploads/Microsoft_Flight-Simulator_2000_Pilots_Handbook_EN.pdf

78. Many Flight Simulator games incorporated real-world aircraft from commercial sponsors. For example, “Flight Simulator II” from SubLOGIC emulated the Piper 181 Cherokee Archer, a fact that was emphasized in the product’s advertising:



Magazine ad, January 1984, (annotated with zoom)³

79. “Microsoft Flight Simulator 2.0” featured a Cessna 182,⁴ while Microsoft Flight Simulator 3.0 added the Gates Learjet 25, Cessna Skylane, and

³ <https://www.mobygames.com/game/14094/flight-simulator-ii/promo/group-92253/image-798091/>

⁴ <https://gamefaqs.gamespot.com/pc/942572-microsoft-flight-simulator-20>

Sopwith Camel.⁵ “Microsoft Flight Simulator 2000” added the Concorde and Boeing 777-300.⁶

80. Sponsored content in video games was well known prior to the filing of the ’941 Patent, and Flight Simulator products were no exception, including sponsored aircraft and sponsorship opportunities on signs and billboards.

2. Compatibility with a plurality of gaming devices

81. As was well known in the art prior to the filing of the ’941 Patent, games were often made available for multiple devices. This allowed for players to enjoy a game regardless of what game system they had in their home or pocket. Allowing for different capabilities across devices was almost a financial necessity, spreading the high cost of game development across multiple platforms.

82. There were many differences across devices, including screen size and resolution, rendering and processing power, and differences in controllers. Per the latter, a PC would have a keyboard and a mouse; a gaming console would have a joystick; and a mobile device might have a touch screen. But arguably, the biggest differences were found in the screen resolution (including color depth, for

⁵ https://en.wikipedia.org/wiki/Microsoft_Flight_Simulator_3.0

⁶ <https://www.mobygames.com/game/3341/microsoft-flight-simulator-2000/promo/group-7900/image-95533/>

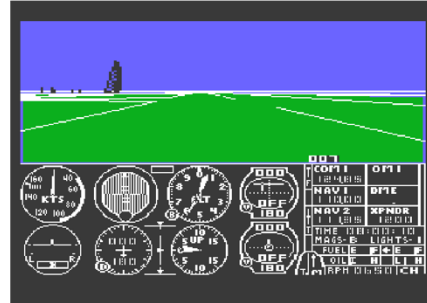
example), and rendering and processing power. To publish a game on different platforms, the game program had to be configured to manipulate game content to work on different devices. As was well known in the art, the conventional method of doing so involved creating a different version of the game for each device or at least different size and resolution images.

83. For example, consider the following examples of the SubLOGIC Flight Simulator on 6 different devices. A POSITA would have understood that

each version of this game accounted for hardware and display differences between each gaming device:



Apple II, 1984



Atari 8-bit, 1984



Commodore 64, 1984



Atari ST, 1984



Amiga 1986



TRS-80, 1987

6 versions of SubLOGIC Flight Simulator II game⁷
1984 - 1987

⁷ <https://www.mobygames.com/game/14094/flight-simulator-ii/screenshots/>

84. As far back as the 1980s, conventional rendering technology was configured to interpret and manipulate game content so as to be accessible on different types of devices.

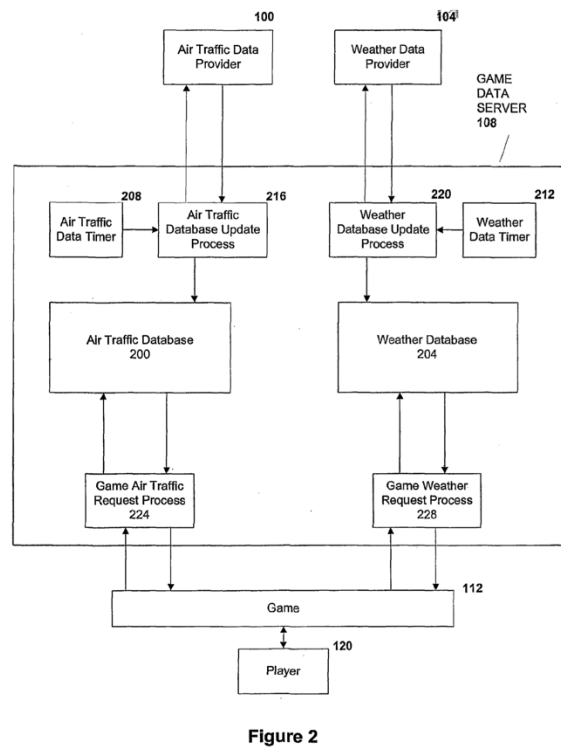
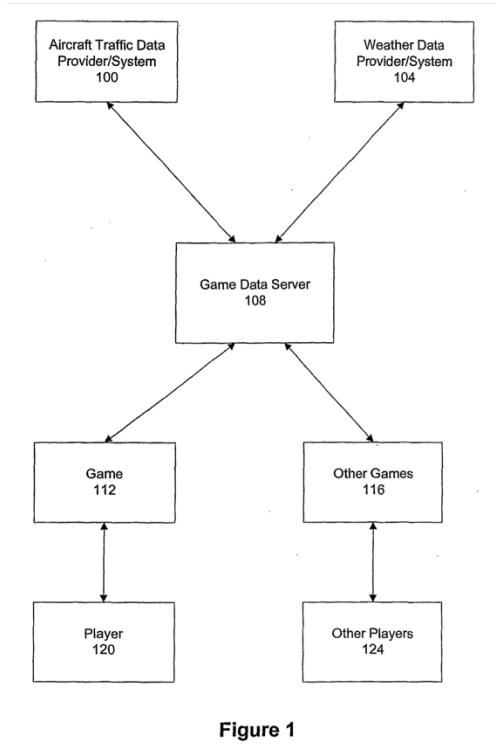
B. Overview of the Prior Art

85. The following paragraphs proceed with an overview of the main prior art references I discuss throughout this declaration.

1. International Publication WO 02/062436 A2 (“Pisanich”)

86. I am informed that Pisanich (Ex-1007), published August 15, 2002, qualifies as prior art under 35 U.S.C. § 102(a) and § 102(b) against the ’941 Patent.

87. Pisanich discloses an enhancement to gaming such that “[R]eal world data is integrated into a gaming experience to influence the game and actions of a player.” [Ex-1007, Abstract]. Specifically, “A game module creates game elements from the real world data associated with the location. Weather conditions are simulated based on weather information for different observation locations in the world, and traffic conditions are simulated as well.” *Id.*



Pisanich Figures 1 and 2

88. As seen in Figure 1, Game 112 received data served from Game Data Server 108, which in turn received external real-time air traffic and weather data from 100 and 104 respectively:

“Referring to Figure 1, a game data server 108 continually gathers “real time” data from traffic 100 and a weather 104 data provider systems. On request, the game data server 108 permits data available to a game 112, 116 and players 120, 124. **The data providers 100, 104 are located remotely and are typically accessed via the internet** or through some other communications means (such as a satellite, or a leased line). The data providers 100, 104 are conventional and gather and encode observations about the world (weather, airplane traffic, etc.) and make it available in real-time (as

quickly as it is processed and available) in a known format and structure.” [Ex-1007, 5:13-20. Emphasis added]⁸

89. Pisanich disclosed a “software product embodiment” for the game [Id., 2:18]. As shown in Figure 2, “Air Traffic Data Provider 100” and “Weather Data Provider 104” represent external sources of real-time data. In one embodiment of Pisanich, the weather data comes from the national METAR database:⁹

“The weather data is normally updated by physical (by a person) or electronic means, for example, in the METAR database, and is made available once an hour, which is sufficient to capture the normal speed of change of weather conditions.” [Id., 6:8-10]

90. In said embodiment air traffic information comes from the national air traffic control system:

⁸ All emphasis in this declaration is added by me unless otherwise noted.

⁹ “Meteorological Aerodrome Report (METAR), also known as Meteorological Terminal Aviation Routine Weather Report, Meteorological Terminal Air Report or Meteorological Airfield Report is a format for reporting weather information.” <https://www.skybrary.aero/articles/meteorological-aerodrome-report-metar>

“The national air traffic control system updates traffic data once every three minutes typically to capture the positions, headings and speed changes of the aircraft.” [*Id.*, 6:13-15]

91. In both cases, the real-time information is obtained from a source external to the game system. Also shown in Figure 2, Game Data Server 108 maintains internal databases by invoking data request processes to cache and update the real-time data:

“Referring to Figure 2, the game data server 108 maintains its own air traffic and weather databases 200, 204 using data requested from the external air traffic 100 and weather 104 data providers as described above. To control the type and frequency of requests for data made of the external data systems 100, 104, the game server 108 **uses timer processor 208, 212 to initiate the data requests. At startup, or any full reset**, the timer processes 108, 212 instruct data requestors 216, 220 to **request all current data** available about weather and traffic.” [*Id.*, 7:17-22 Emphasis added]

“After the databases 200, 204 are fully populated, the timers 208, 212 then instruct the data request processes 216, 220 to request data and update the respective databases 200,204 at the best update frequency and time for the individual data.” [*Id.*, 7:23 - 8:3]

92. Pisanich disclosed a game system, implemented using an object-oriented design as shown in Fig. 3:

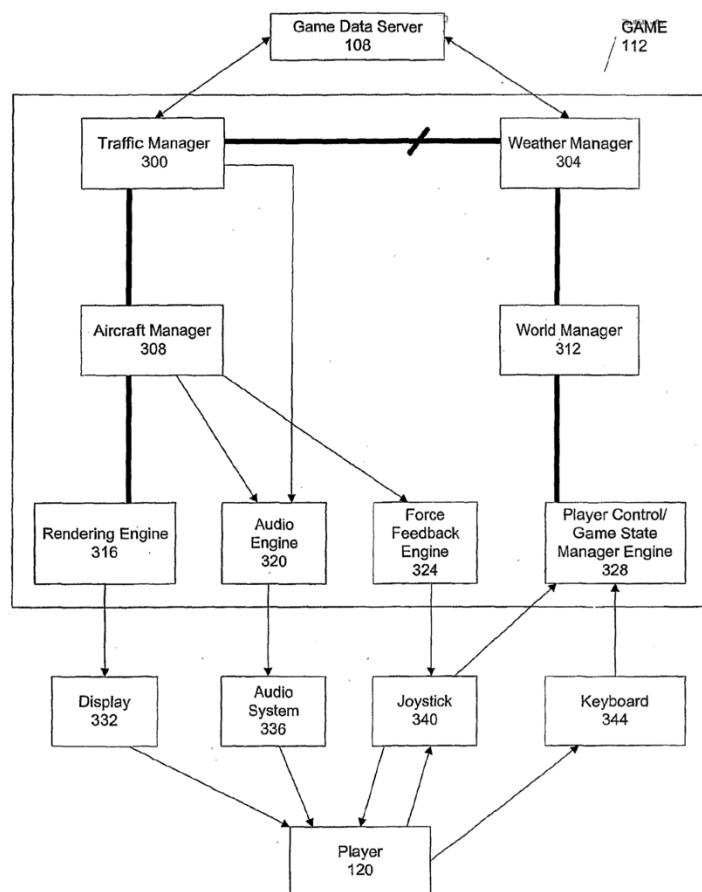


Figure 3

“Referring to Figure 3, a game system 107 (sic)¹⁰ is shown implemented using an object oriented design. The specialized objects preferably store their own data, request data from other objects when needed, and provide data to other objects when requested. Figure3 illustrates a connection between the traffic manager 300, weather manager 304, aircraft manager 308, world manager 312, rendering engine 316, and player control 328. Since all of these processes

¹⁰ There is no element 107 shown in Figure 3. From context I believe this to be a typo, referring instead to element 112.

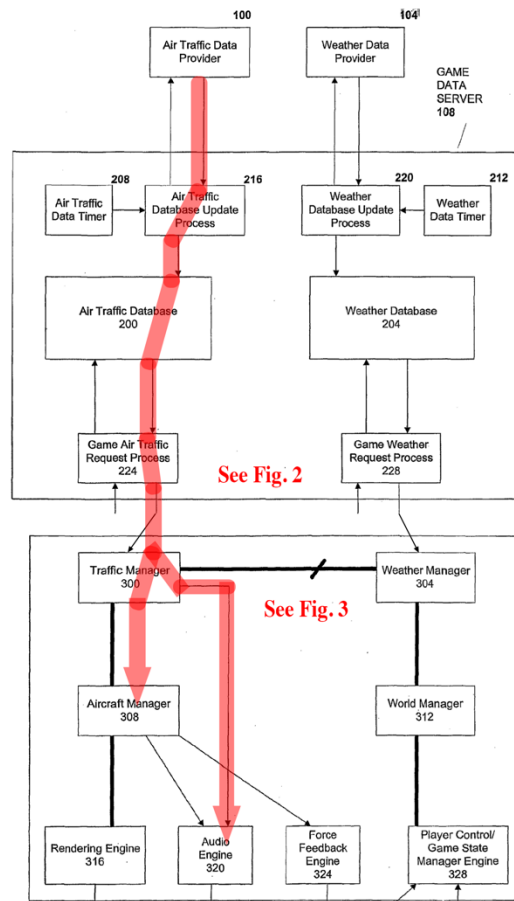
request and process requests for data from each other, they can be visualized as being on a bus architecture.” [*Id.*, 10:1-5]

93. Game 112 contained managers and engines, said engines including Rendering Engine 316, Audio Engine 336, Force Feedback Engine 324, and Player Control / Game State Manager Engine 328. As was well known in the art at the time of Pisanich, game engines are pre-programmed modules written to implement required logic functions.

94. Pisanich described using pre-programmed rules in the implementation of the game system:

“Examples of these preprogrammed and flexible action rules include those that react to the changing position of the aircraft, ATC communications and control, and the position of the player aircraft (as controlled by the player).” [*Id.*, 36:1-3]

95. Pisanich indicated the flow of data between real-time, real-world information and the exemplary Flight Simulator game that can be best seen by combining Figures 2 and 3 (annotated):



Example of real-time, real-world data path from Game Data Server 108 into Traffic Manager 300, Aircraft Manager 308, and Audio Engine 320

“Referring to Figure 1, a game data server 108 continually gathers “real time” data from traffic 100 and a weather 104 data provider systems.” [*Id.*, 5:13-15]

“Based on player aircraft type, state and position received from the player control/game state process 328, the traffic manager 300 requests traffic data from the game data server 108 that will be within

a predefined geographic area around the player's aircraft.” [*Id.*, 10:11-13]

“The traffic manager 300 also simulates the communications of air traffic within the game world, based on real time data. The external realization of this is through communications commands that are sent to the audio engine 336.”¹¹ [*Id.*, 10:20-22]

“The aircraft manager 308 provides aircraft specific information about the aircraft to the rendering engine 316. The aircraft manager 308 also outputs directives to the audio engine 320...” [*Id.*, 15:21-22]

96. Thus, following this exemplary data path, real-time information from external servers that tracked real-world data was produced to the game player in the form of rendered images and rendered audio.

2. Phantasy Star Online Manual (“PSO Manual”)

97. I am informed that PSO Manual (Ex-1008) qualifies as prior art under 35 U.S.C. § 102(a) and § 102(b) against the ’941 Patent. The PSO Manual describes the game play and features of the online multiplayer game Phantasy Star Online. When referring to the written Phantasy Star Online Manual I use the term

¹¹ “Audio Engine 320” is coupled directly to “Audio System 336” (shown in Figure 3).

“PSO Manual.” Note that PSO Manual abbreviates the game name to “PSO” when explaining the operation of the game.

98. Phantasy Star Online was a game for the Sega® Dreamcast™ game console. PSO Manual identified that PSO operated in a client-server configuration, requiring users to log into the “PSO server” with a serial number and access key:

“The first time you connect to the PSO network to play online you must input the unique serial number and access key from the label that was included inside your PSO package. [...] This information will then be sent to the PSO server...” [Ex-1008, p. 8]

99. PSO Manual disclosed the game to be an online multiplayer game that took place in a science fiction fantasy virtual environment on the planet Ragol:

“Faced with the imminent destruction of their home world, a large-scale evacuation plan known as the Pioneer Project was established to find a new home planet. Unmanned probes sent into deep space discovered a habitable planet they dubbed Ragol and the first interstellar transport ship Pioneer 1 was sent to establish a colony. After confirming Ragol was suitable, the initial colonists began preparing the planet starting with construction of the central dome.”

“7 years later... Pioneer 2 completed its long voyage with the main wave of refugees aboard but just as they entered orbit and opened a communications link with the Central Dome, an enormous explosion occurred. All contact with the men and women of Pioneer 1 was lost. Exactly what happened on Ragol?” [*Id.*, p. 2]

100. Characters are depicted in the manual wearing high-tech armor equipped with weapons, consistent with the science fiction fantasy theme:





CHARACTER TYPES

CHARACTER PROFESSIONS

In the world of PSO each of the nine character types is one of three species (human, newman or android) whose profession is either Hunter, Ranger or Force. While members of each profession start out with the same equipment level, the attributes of each character vary according to their species.

HUNTER

Proficient with blade weapons, we excel in close-range combat.

FORCE

Proficient with techniques, we are best suited for combat support.

HUmarr

Hunter+Human

I am well-versed in close-range combat, have a balanced growth potential and can handle some recovery and attack techniques. Beginner oriented.



HUnewarr

Hunter+Newman

My TP is higher than HUmarr's so I have a much better balance between technique usage and close-range combat skills. Intermediate orientated.



HUCast

Hunter+Android

Among all the characters I have the highest HP. As Hunters go, I have the most attacking power, and can use a variety of different weapons. However, I can't use any techniques because I have no TP.



RANGER

Proficient with gun-type weapons, we excel in long-range combat.

RAmarr

Ranger+Human

Though shooting is my speciality, I can also do some attack and recovery techniques. My growth potential is the most balanced of all the Rangers. Intermediate orientated.



RACast

Ranger+Android

I am famous for my optimal accuracy rate. I can use all weapons but no techniques. I have more attacking power than any other Ranger.



RACaseal

Ranger+Android

I too am famous for my optimal accuracy rate and can use all weapons but no techniques. While RACast may have more attacking power, I have the best defense power.



FOmarr

Force+Human

I am able to handle techniques quite well and I have the most balanced growth potential as a Force.



FOnewm

Force+Newman

I can use all techniques and am proud to have the highest TP level. Once I learn a variety of techniques, I can become a leader on the battlefield. Advanced oriented.



FOnewarr

Force+Newman

My TP level and technique usage is the same as FOnewm's but I have more defense power. My slightly lower HP makes me a bit weaker in close-range combat. Advanced oriented



PHANTASY STAR ONLINE

7

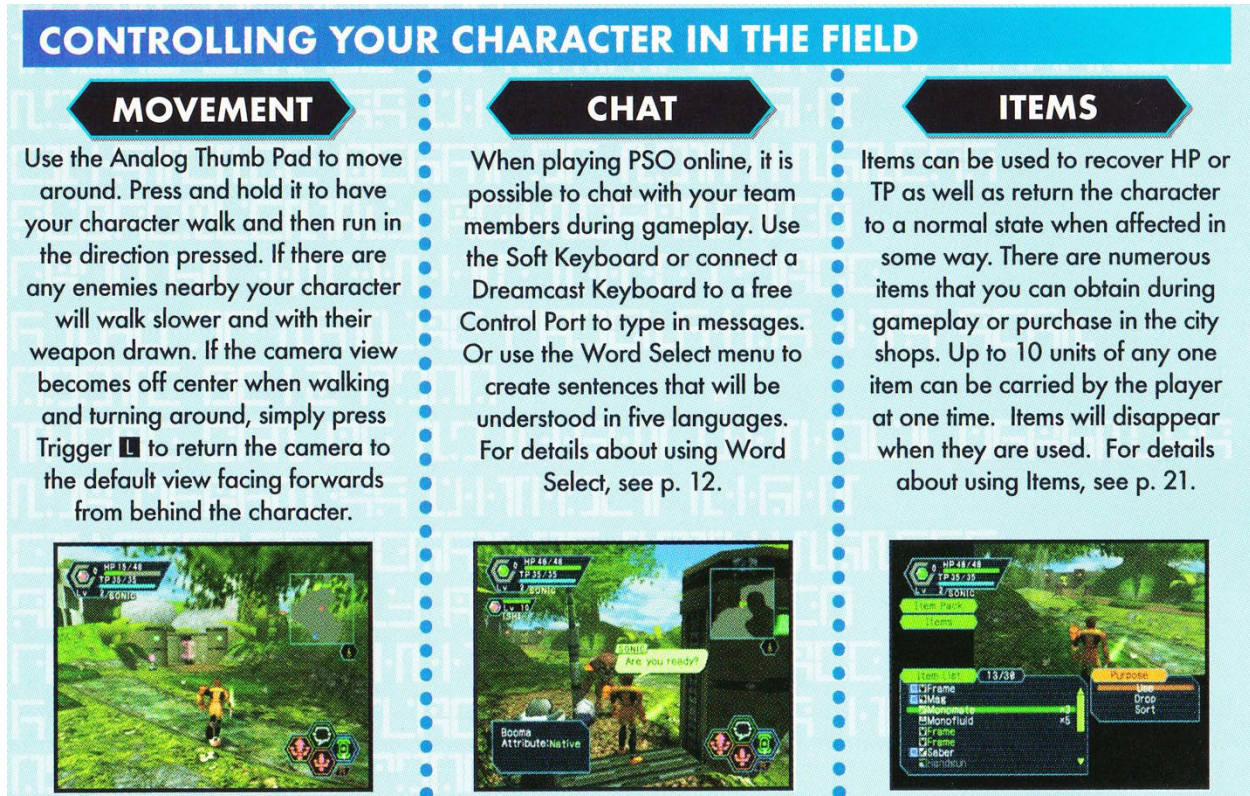
101. PSO Manual also answered the question, “What is PSO?” on p. 2:

“PSO is a network RPG. Online you will meet a variety of people from all over the world. Overcome language barriers by using the five language “word select” feature that enables communication with users whose language is different from your own. Organize a team to play the game online or embark on Hunter’s Guild quests, all the while chatting to exchange information.” [*Id.*, p. 2]

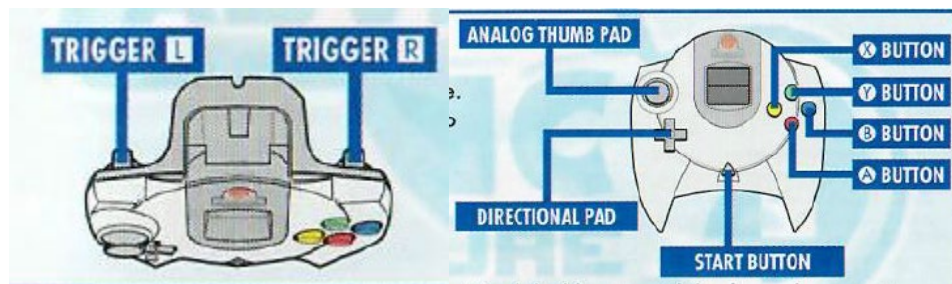
102. Within the first two pages, PSO Manual established the game type (network role-playing game [“RPG”]), the game’s theme (science fiction fantasy) and at least two forms of real-time interaction: online team play and communication (“word select”) with other players. Up to 4 players could play together online (*See Id.*, top of p. 3).

103. Among other features, PSO supported “Movement” through the virtual world, “Chat” with team members, and an inventory of “Items” that can be

carried by a player. The game play of PSO was controlled through a GUI using the game controller while viewing action of the game screen:

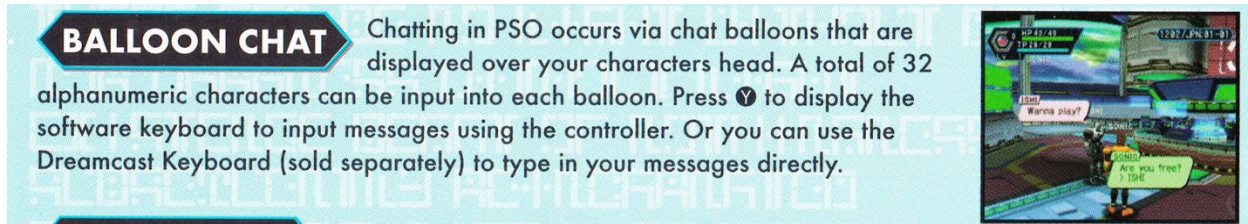


GUI while controlling your character in the field, PSO Manual, p. 16

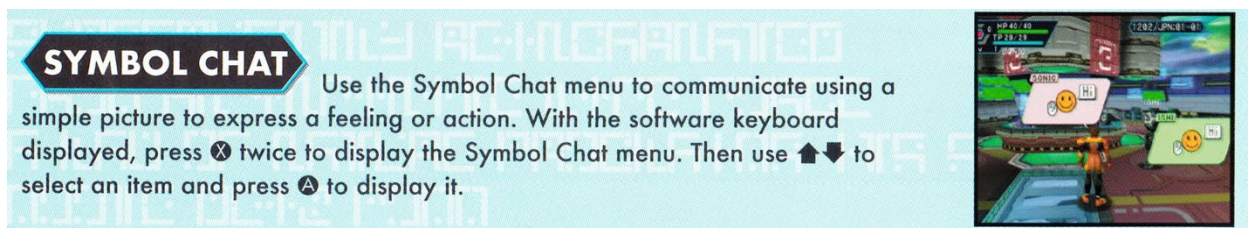


Dreamcast Controller, PSO Manual, p. 31

104. As part of the “Chat” operations, the “Balloon Chat” and “Symbol Chat” features incorporated speech bubbles into the virtual thematic environment:

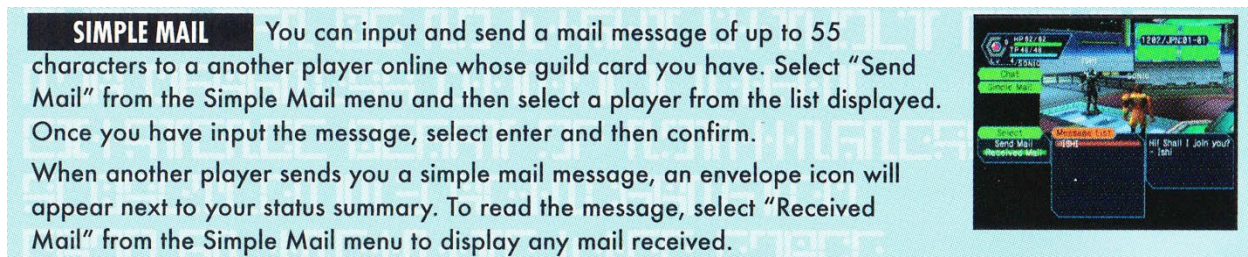


PSO Manual, p. 12



PSO Manual, p. 12

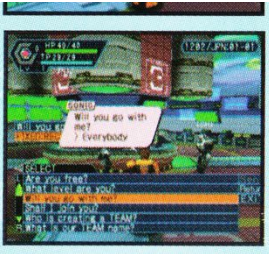
105. A player can also send an email message up to 25 characters long to a team member:



PSO Manual, p. 26

106. A player could also communicate with players all over the world in multiple languages:

WORD SELECT Use the Word Select menu to communicate by constructing simple sentences from a number of pre-selected phrases with the controller. This system is 5 language (English, French, German, Spanish and Japanese) compatible so all messages created and sent will be automatically translated into the language setting designate by each player. (E.g., if you display a Word Select message in English, the selected message will appear in Japanese for a player whose language setting is Japanese.)



PSO Manual, p. 12

107. A player could acquire inventory items through in-game mechanisms, including, for example, making purchases from a “Shop:”

THE CITY SHOPS In the city shops you can buy or sell weapons, armor, technique discs and various tool items. Approach a counter, press **A** to display the current amount of money (Meseta) you have and the “Buy/Sell” menu. Select “Buy” or “Sell” and use **↑↓** to select an item. Then select whether to “Buy/Sell” or “Cancel” from the confirmation menu. When buying tool items, you may be asked in what quantity to buy (a maximum of 10 can be carried at one time). When buying weapons or armor you may be given the option of equipping the item immediately. Whether you can use a weapon or armor item will depend on your characters profession and/or experience. Items that can be used are identified by the color as follows:

WHITE	Item can be equipped.
GREY	Item cannot be equipped at current experience level.
X	Item can Never be Equipped
GREEN	A speciality item with slot usage, Photon efficiency, etc.



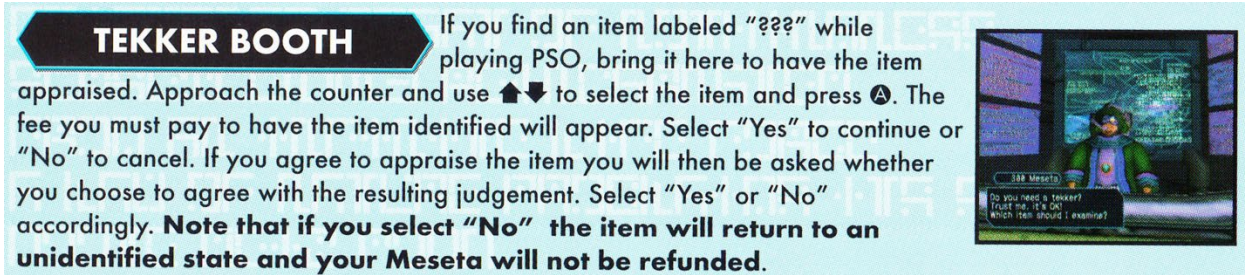
PSO Manual, City Shops, p. 13

108. The game also accounted for in-game currency and the appraisal of items:

MONEY (MESETA) Used to purchase goods (weapons, tools, armor, etc.) and services (HP/TP recovery) in the city, money can be obtained during gameplay by picking up the item pictured here or as reward money for quests. If you don't wish to carry it around, you can deposit your money at the Check Room where it can be accessed at anytime.



PSO Manual, Currency, p. 13



PSO Manual, Item appraisal, p. 13

109. PSO Manual taught an online multiplayer game that took place in a virtual thematic environment. Multiple streams of real-time information were incorporated into the game, including the positions of a player’s team members on both the game screen and radar display, live chat information, email, resource management (i.e., an inventory system), and an accounting system for in-game goods:



Example PSO game screen, p. 19

110. As shown on p. 19, the game view was of the player character, various enemies and NPCs, and other team members in a virtual thematic environment. Included was a HUD with status information, a radar view including the position of team members, an indication of an available email message, control icons, etc.

The HUD was a 2D overlay, while the virtual environment was rendered in 3D and represented the theme of the alien planet Ragol (identified earlier).

111. Each player in the game could collect and equip various items such as weapons, armor, and tools; and the item type is represented by an icon:

INTRODUCTION TO ITEMS FOUND IN PSO A variety of weapon, armor and tool items are available on the planet Ragol and the shops of the city on Pioneer 2. Each type is distinguished by their boxes as follows:

WEAPONS There are three main categories of weapons found in PSO that correspond with each of the three professions. In general, “blade” weapons are used by Hunters, “gun-type” weapons are used by Rangers and “cane-style” weapons are used by Force. Your ATP (attacking power) and ATA (accuracy) will increase whenever a weapon is equipped.

Each weapon requires a certain level of experience in order to be able to use it. If your character has yet to reach the level required, you will not be able to equip the weapon. Furthermore, some weapons can only be used by members of certain professions. Weapons that have special abilities are indicated by the weapon name color (see p. 13). Also weapons with unknown capabilities should be taken to the tekker for assessment.

ARMOR There are various types of armor and shields that are used to protect from enemy attack. Of the two main classes of armor protection “frames” can be used by all professions, however “armor” can only be used by Hunters and Rangers. Similarly, of the two main classes of shield protection (equipped to the left hand), there are barriers that can be used by all professions and shields that can only be equipped by Hunters and Rangers. Your DFP (defensive power) and EVP (rate of defensive evasion) will increase whenever armor is equipped.

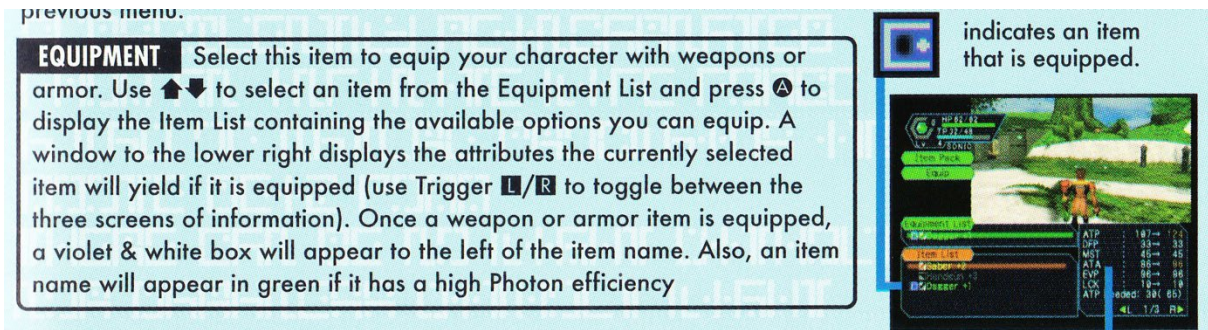
As with weapons, individual armor items also require certain levels of experience to be obtained before they can be used. Some types of armor have “slots” which can be further equipped with “units” to provide even greater protection or other specialized effects.

TOOL ITEMS There are a wide variety of useful tool items available in the world of PSO that will assist you in your adventures. Item names ending in “mate” indicate items which are used for HP recovery while item names ending in “fluid” are used for TP recovery. Item names starting with “anti” are used to return those affected with poison or paralysis to normal.

Techniques are acquired via items called “technique disks.” Use “telepipes” to create temporary teleport gates to the city. If you happen to have an item called “scape doll” with you if you are felled, you will be resurrected automatically. Items will disappear when they are used.

PSO Manual, p. 22

112. Items appear in the “Item Menu,” and from the Item Menu a player could equip his character with, for example, different weapons:



PSO Manual, p. 21

113. Zooming in on that manual image, PSO Manual taught that each weapon was represented by a 2D icon (to the left of the item name) representing its “type,” and a 3D object visible in the virtual thematic environment when activated for play (i.e., “Equipped”):



PSO Manual, images from p. 21 and p. 16

114. As seen above, each weapon or item in inventory is represented by 2D and 3D information.

C. Ground 1: Claims 1, 3, 5, 7-12, and 23-26 Are Obvious Over International Publication WO 02/062436 A2 (“Pisanich”) in View of the Knowledge of a POSITA

115. In my opinion, a POSITA would have considered Pisanich to be prior art and highly relevant to the patentability of the '941 Patent's claims. Both are directed to interactive environments which include multiple streams of real-time information served from external sources. The '941 Patent discloses “integrating information, including real-time information, into a virtual thematic environment using a computer system” [Ex-1001, Abstract]. The '941 Patent claims multiple streams of real-time information to be incorporated into said virtual thematic environment, including “obtaining first real-time information and second real-time information ...” [*Id.*, Claim 1]

116. Pisanich is entitled “INTEGRATION OF REAL-TIME DATA INTO A GAMING APPLICATION” [Ex-1007, Title]. Pisanich asserts an invention in which “Real world data is integrated into a gaming experience to influence the game and actions of a player.” [Ex-1007, Abstract]. “In a flight simulator game, the game integrates real aircrafts and real weather conditions as the player's aircraft navigates in the world.” [*Id.*]. A POSITA would have recognized that a Flight Simulator simulated an interactive virtual environment. Pisanich disclosed multiple streams of real-time real world information, such as “the real world

information includes weather information such as cloud cover, precipitation, wind, fog, as well as air traffic data...” [*Id.*, 2:22-23].

117. A POSITA would have been motivated to combine and collectively consider the teachings of Pisanich with his knowledge of the state of the art of video games (*See* Section IX.A: Background Information) to arrive at the subject matter claimed by the ’941 Patent.

118. Additionally, the exemplary systems disclosed in both Pisanich and the ’941 Patent serve interactive content in a substantially similar manner, transmitting real-time content from a server computer over a network such as the Internet to a gaming machine. Not only would a POSITA have been motivated to combine and collectively consider the teachings of Pisanich with well-known industry knowledge to arrive at the subject matter claimed by the ’941 Patent, he/she would have had a reasonable expectation of success when doing so.

119. In my opinion, when viewed and considered in light of the knowledge possessed by a POSITA, Pisanich and said knowledge together disclose all the limitations of and render claims 1, 3, 5, 7-12, and 23-26 of the ’941 Patent obvious.

1. Claim-By-Claim Analysis

a. Claim 1

- (i) 1[preamble]: One or more non-transitory computer readable medium storing an interactive software application platform comprising:**

120. Should the preamble be deemed to be limiting, Pisanich taught this limitation, disclosing a game implemented as a “software product embodiment” (i.e., the claimed **software application**) featuring object-oriented programming techniques (*See* ¶89 - ¶92). It was well known in the art for game software to be stored in **non-transitory computer readable media**.

121. Moreover, Pisanich disclosed that the claimed **software application** was **interactive**, teaching that “player 120 controls a gaming unit within a game 112” [Ex-1007, 6:18].

122. Thus, Pisanich disclosed, or at least rendered obvious in view of the knowledge of a POSITA this claim element.

- (ii) 1[a]: at least one thematic/publishing logic module containing virtual thematic environment rules to coordinate actions to be taken to constitute and provide a virtual thematic environment on a visual component, the virtual thematic environment being a theme-based virtual world environment;**

123. Pisanich disclosed the claimed **thematic/publishing module** in the form of a game system equipped with a Rendering Engine and Game State

Management (*See* ¶92). The game system disclosed by Pisanich controls aircraft operation based on a “Rule-Based Logic Module” containing the claimed **virtual thematic environment rules to coordinate actions to be taken**:

“The rule-based logic module **controls the actions of the psuedo aircraft in reaction to the changing state of the pseudo aircraft and the changing world around it**. As the real time data received by the pseudo aircraft varies due to the day, position, and weather, it is the interaction with these rules that provides the influence of real time data on the player’s experience within the game.” [Ex-1007, 35:20 - 36:1 Emphasis added]

124. Pisanich disclosed an exemplary flight-themed game in which a player could fly around in the virtual environment of a specific location:

“In accordance with the present invention, real world information is incorporated into a **virtual environment provided for a game**. In a software product embodiment, an application module receives a location selection from a player. The location selection selects a geographic location within which the game is to take place, for example, San Francisco. The application module then retrieves real world information. The real world information may differ depending on the nature of the game. For a **flight simulator game**, the real world information includes weather information such as cloud cover, precipitation, wind, fog, as well as air traffic data, including the location of other planes near the player, altered routes of other planes, and airport conditions, for the selected location, at a time period at or

near to the time the information is requested.” [*Id.*, 2:17 - 3:3
Emphasis added]

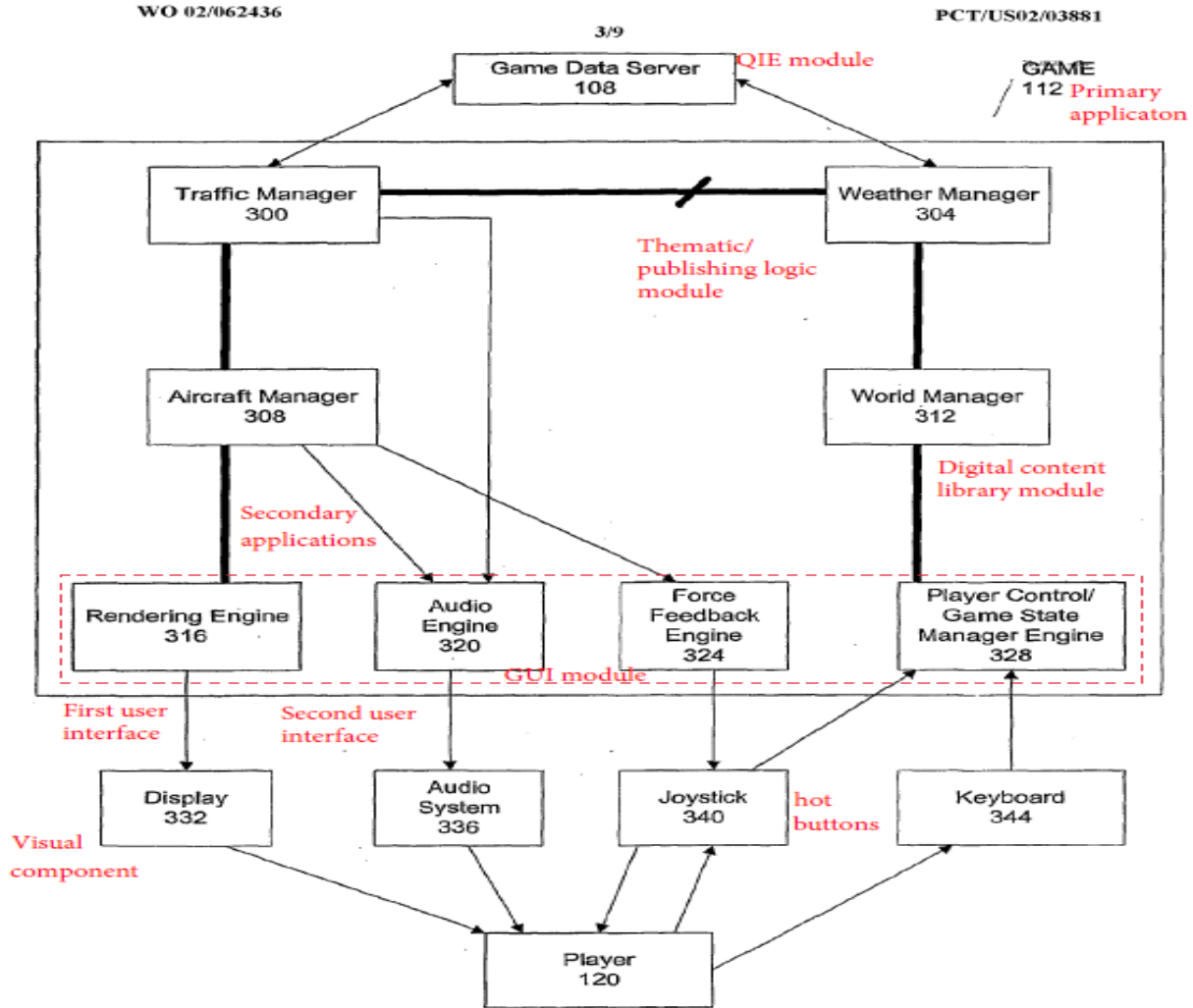
“The world manager 312 maintains information about the physical state of the world as is known in the art. This includes **information about the terrain, ground cover, hydrology, buildings, roads, and navigation features**. The world manager 312 takes real-time input from the weather manager 304 that might affect the look of terrain (temperature, precipitation). The world manager 312 provides navigation and terrain information to the traffic manager 300 and aircraft manager 304. The world manager 312 also provides information to the rendering engine 316.” [*Id.*, 16:3-9 Emphasis added]

125. A flight simulator embodied the theme and visuals of flying through the world, disclosing the claimed “**provid[ing] a virtual thematic environment on a visual component, the virtual thematic environment being a theme-based virtual world environment.**”

126. Thus, Pisanich disclosed, or at least rendered obvious in view of the knowledge of a POSITA this claim element.

- (iii) **1[b]: a primary application providing the virtual thematic environment; and a secondary application within the primary application, the secondary application being different from the primary application, the secondary application being launched from the primary application, and having first content utilized within a same application environment as second content provided by the primary application;**

127. Pisanich taught the claimed **primary application** in the form of a game system that provided a **virtual thematic environment** such as a flight simulator. Weather and real-time air traffic information for the flight simulator was served from the server component of the game system (*See* Game Data Server at ¶88).



Pisanich Figure 3, claimed applications and modules annotated.

128. Pisanich taught at least two examples of the claimed **secondary application within the primary application, the secondary application being different from the primary application**. As shown by Figure 3 reproduced above, there are multiple “managers” or “engines”, i.e., secondary applications, that are within the primary application, i.e., game 112, which receive real-time

information from, e.g., the Air Traffic Database Update Process 216 and/or Weather Database Update Process 220 (*Id.*). The primary application periodically launched these secondary applications at startup or under the control of timer processors 208, 212, in order to obtain and update air traffic and weather information (*See* ¶89).

129. To clarify the language of this claim element, it refers to “the secondary application [] having first content,” and “second content provided by the primary application.” This introduces an area of possible confusion, with first coming from secondary and second coming from primary. Regardless of which is named first vs. second, it is claimed that two distinct pieces of content were utilized in the same application environment, and that the sources of said content were the primary and secondary applications.

130. The exemplary Flight Simulator disclosed by Pisanich was a virtual thematic environment provided by the primary application. Content provided by the primary application included elements common to the Flight Simulator genre, including an aircraft cockpit lined with 2D controls and 3D terrain rendered outside the canopy, etc. The 3D view was a virtual thematic environment under the control of the World Manager 312, which managed game-related content that was fixed in the game:

“The world manager 312 maintains information about the physical state of the world as is known in the art. This includes **information about the terrain, ground cover, hydrology, buildings, roads, and navigation features.**” [*Id.*, 16:3-5 Emphasis added]

131. Absent any real-time information, the player would have been able to fly around and admire the scenery. The terrain content rendered by the game taught the claimed **content provided by the primary application.**

132. Content from the secondary application, e.g., audio messages heard while playing in the form of communications from Air Traffic Control, is integrated into the primary application. Any of the content obtained through the secondary application taught the claimed **content provided by the secondary application.**

133. First and second content was **utilized within a same application environment** as claimed. For example:

“Real world data is integrated into a gaming experience to influence the game and actions of a player. A game module creates game elements from the real world data associated with the location. Weather conditions are simulated based on weather information for different observation locations in the world...” [*Id.*, Abstract]

“For a flight simulator game, the real world information includes weather information such as cloud cover, precipitation, wind, fog, as well as **air traffic data, including the location of other planes** near

the player, **altered routes of other planes**, and **airport conditions**, for the selected location, at a time period at or near to the time the information is requested.” [*Id.*, 2:22 - 3:3 Emphasis added]

“After receiving the real world information the application module **generates simulated real world constructs responsive to the real world information**. For example, in a flight simulator game, constructs may include clouds, wind, rain, and air traffic. Clouds, for example, are generated in the virtual environment responsive to the location and nature of the clouds as identified in the real world database. Air traffic, i.e., **other airplanes** flying near the player’s plane, are **generated responsive to actual locations of real world airplanes**.” [*Id.*, 3:3-8 .Emphasis added]

“The traffic manager 300 also simulates the communications of air traffic within the game world, **based on real time data**. The external realization of this is through communications commands that are sent to the audio engine 336. The audio engine 336 uses these commands to **output realistic audio communications messages to the user** (for example, voice communications from air traffic control (ATC) and aircraft) based on the state of the player and other aircraft in the game. These **messages include messages between ATC and the other aircraft and between ATC and the player 120**.” [*Id.*, 10:20 – 11:3. Emphasis added].

134. Said constructed objects were “generated in the virtual environment,” thus **provided by the primary application** as claimed.

135. The audio communications with the Air Traffic Control tower were generated based on real-time, real-world information obtained by the Air Traffic Database Update Process 216 and sent to Aircraft Manager 308 and Traffic Manager 300 (See the data path, ¶95):

“The audio engine 320 is a conventional engine that generates realistic aircraft, communications, and world sounds to the user. **Based on input from the aircraft manager 308 and traffic manager 300**, it outputs event based sounds and spoken communications to the user via the audio system 336.” [*Id.*, 16:11-14 Emphasis added]

“As **the real time data received by the pseudo aircraft varies due to the day, position, and weather**, it is the interaction with these rules that provides the influence of real time data on the player's experience within the game. Examples of these preprogrammed and flexible action **rules include those that react to the changing position of the aircraft, ATC communications and control, and the position of the player aircraft** (as controlled by the player). For example, one rule reacting to the position of the aircraft would include the need to announce to the air traffic controller process 908 that the **pseudo aircraft is within 50 miles of the airport and ready to land. This would also result in an audio message that would be heard by the player.**” [*Id.*, 35:21 - 36:6 Emphasis added]

136. The static terrain information and objects constructed from, and audio generated based upon the dynamic weather and air traffic information were combined in the virtual thematic environment (**primary application**), all visible

through the aircraft’s canopy view or audible through the gaming unit’s speakers, disclosing the claimed **having first content utilized within a same application environment as second content provided by the primary application:**

“The rendering engine 316 **displays to the user** the internal (cockpit) and external (**terrain, weather, other aircraft**) state of the game via the display 332 using conventional technology.” [*Id.*, 16:10-11
Emphasis added]

137. Thus, Pisanich disclosed, or at least rendered obvious in view of the knowledge of a POSITA this claim element.

- (iv) **1[c]: a graphics user interface (GUI) module including software that renders graphical display elements onto the visual component and permits a user to interact with a graphical display element within the virtual thematic environment, the GUI module providing a first user interface that is associated with the primary application and enabling the user to access the primary application through the first user interface, and a second user interface associated with the secondary application and enabling the user to access the secondary application through the second user interface;**

138. The flight simulator disclosed by Pisanich was well known in the art to be operable through a GUI interface. A player viewed the virtual world through the window of a cockpit using the claimed **software that renders graphical display elements onto the visual component**; and the player interacted with controls in the cockpit that **permits a user to interact with a graphical display**

element within the virtual thematic environment as claimed. Pisanich specifically disclosed such a cockpit display, terrain display, and user controls:

“The aircraft manager 308 then interfaces with the weather manager 304 for real time weather information that may affect the operation of the aircraft (for example, precipitation, wind, temperature), traffic manager 300 to **provide display of real time traffic within the cockpit displays**” [*Id.*, 15:17-20 Emphasis added]

“The rendering engine 316 displays to the user the **internal** (cockpit) and **external** (terrain, weather, other aircraft) state of the game via the display 332 using conventional technology.” [*Id.*, 16:10-11 Emphasis added]

“As a player 120 **controls a gaming unit** within a game 112...” [*Id.*, 6:18 Emphasis added]

“The requests for data by the game 112 are created in response to **choices and control inputs by the player** 120, e.g., where and how the player 120 is flying a plane in a flight-simulation application.” [*Id.*, 8:13-15 Emphasis added]

139. As was well known in the art, as the player of a Flight Simulator controlled his aircraft through the GUI interface, he would interact with objects displayed graphically in the virtual thematic environment seen through his cockpit window: colliding with buildings, mountains, and other airplanes, or making a smooth landing at a destination airport. It was also well known in the art that the

GUI interface allowed a player to interact with objects displayed graphically as part of the cockpit display - clicking on switches and dials to control the operation of his aircraft.

140. Pisanich explicitly disclosed interactions with other aircraft (also graphical display elements within the virtual thematic environment):

“The player can also try to intentionally fly into the pseudo aircraft or force the pseudo aircraft to fly off its course or into a ground object or mountain. In one embodiment, if the pseudo aircraft or the pseudo and player aircraft collides with another object, then the object colliding explodes and the game session ends.” [*Id.*, 40:14-17]

141. Thus, Pisanich disclosed, or at least rendered obvious the claimed GUI that **permits a user to interact with a graphical display element within the virtual thematic environment.**

142. This element contains a claimed **second user interface associated with the secondary application.** It is notable that the ’941 Patent claims a second user interface and not a second *graphical* user interface. Pisanich disclosed an audio interface between the player and the audio engine 336 (one of the **secondary applications**) by way of the Traffic Manager 300 whereby:

“The traffic manager 300 also simulates the communications of air traffic within the game world, based on real time data. The external realization of this is through communications commands that are sent to the audio engine 336. The audio engine 336 uses these commands

to output realistic audio communications messages to the user (for example, **voice communications** from air traffic control (ATC) and aircraft) **based on the state of the player and other aircraft in the game.**” [*Id.*, 10:20 - 11:2 Emphasis added]

143. Said audio interface is **associated with the secondary application** and **enable[es] the user to access the secondary application through the second user interface** through his gaming device’s speaker, independent of the claimed **GUI module providing a first user interface.**

144. Moreover, Pisanich disclosed another interface to the applications serving specific weather and air traffic based on a location in the virtual world. A player made a selection, distinct from in-game flight controls and game play, by selecting a location for the game.

“In a software product embodiment, an application module receives a **location selection from a player.** The location selection selects a geographic location within which the game is to take place, for example, San Francisco.” [*Id.*, 2:18-20 Emphasis added]

“For a flight simulator game, the real world information includes **weather information** such as cloud cover, precipitation, wind, fog, as well as air traffic data, including the **location of other planes near the player**, altered routes of other planes, and airport conditions, **for the selected location**, at a time period at or near to the time the information is requested.” [*Id.*, 2:22-3:3 Emphasis added]

145. Said “location selection from a player” enables the user to configure the game to **access** specific information for the selected location from **the primary and/or the secondary application**.

146. Thus, Pisanich disclosed, or at least rendered obvious in view of the knowledge of a POSITA this claim element.

- (v) **1[d]: a quantum imaging environment (QIE) module, the QIE module being a software layer that receives, interprets, and manipulates the second content so as to be accessible on different types of devices for use within the virtual thematic environment, the QIE module obtaining first real-time information and second real-time information, the QIE module supplying the first real-time information into the primary application, and supplying the second real-time information into the secondary application, the primary application configured to provide access to the first real-time information to the user within the virtual thematic environment via the first user interface, the secondary application configured to provide the second real-time information to the user within the virtual thematic environment via the second user interface; and**

147. As an initial matter, it was well known in the art as of the filing of the ’941 Patent to interpret and manipulate video game content for use on different types of devices (*See* Section A.2). Pisanich taught a rendering engine that used conventional technology to display objects internal to the cockpit, and to display objects external to the aircraft in the virtual thematic environment:

“The rendering engine 316 displays to the user the internal (cockpit) and external (terrain, weather, other aircraft) state of the game via the display 332 **using conventional technology.**” [*Id.*, 16:10-11
Emphasis added]

148. Said “conventional technology” included rendering technology configured to account for differences between multiple gaming devices as needed (*See* ¶83).

149. As a matter of clarification, this claim element refers to “first real-time information” and “second real-time information” as opposed to the “first content” and “second content” of claim 1[b]. There is no antecedent connection between these sets of terms. As noted for claim 1[b] and 1[c], Pisanich disclosed at least four sets of real-time information, including weather data, air traffic data, player inputs to the cockpit controls, and player input for configuring the game.

Features of the claimed QIE:

150. The claimed “QIE module” in this claim element purports to perform the following functions:

- (1) Interpret and manipulate content for different types of devices
- (2) Obtain first real-time information
- (3) Obtain second real-time information
- (4) Supply first real-time information into the primary application

(5) Supply second real-time information into the secondary application

151. Each of the functions ascribed to the QIE in this claim element were taught by Pisanich in the “Game Data Server 108” module.

QIE function (1): interpret and manipulate content for different types of devices:

152. As noted above, it was well known in the art as of the filing of the ’941 Patent to interpret and manipulate video game content for use on different types of devices. In addition, Pisanich explicitly taught that the real-time, real-world data collected by Game Data Server 108 could be served into different games, presumably on different devices:

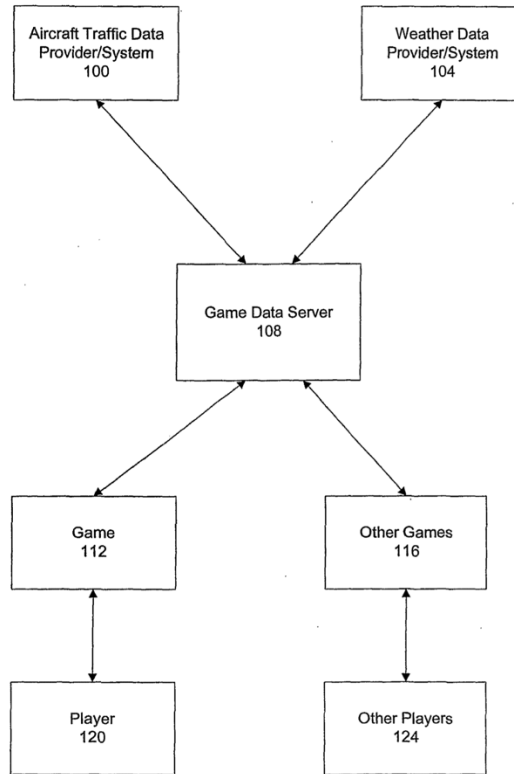


Figure 1

Pisanich Fig. 1

“Moreover, a second player 124 may play an entirely different game 116 (for instance, a car racing game, or a football game) than the game 112 being played by the first player 120. However, the different game 116 may request the same type of data (weather, for example) as the first game 112. The architecture of the present invention can be extended to meet the data requirements of other games. For example, in addition to weather reports, a car road racing game may generate and use a database that stores real time data about automobile traffic. A maritime game may collect and store real time data about sea conditions that could be used in the game and so forth.” [*Id.*, 7:9-16]

153. Each type of game relied on the Game Data Server to provide a range of information specific to that game’s needs. Thus, Pisanich taught that Game Data Server 108 could be connected to multiple devices playing different games, and said server **interpreted and manipulated content** to said multiple devices as claimed.

QIE function (2): obtain first real-time information:

154. As shown in Figure 2, the Game Data Server 108 obtained first real-time information (weather information) from Weather Data Provider 104 (*See* ¶87). Ex-1007, 11:11-18 (“The weather manager 304 processes requests for weather state (temperature winds, precipitation, visibility) over a general area from the render engine 316 on a continual basis. This data is used to display real time changing weather within the world on the game display. The weather manager 304 also simulates realistic, changing weather based on the real time weather feed and rule-based processes within weather manager 304 itself to provide weather effects not provided for from available real world data, for example, wind gusts, thunderstorms, cloud drift rate, the intensity of any precipitation, and the like.”) A player can access such first real-time information in the game via a rendering engine. *Id.*, 16:10-11 (“rendering engine 316 displays to the user the internal (cockpit) and external (terrain, weather, other aircraft) state of the game via the display 332 using conventional technology.”).

QIE function (3): obtain second real-time information:

155. Pisanich discloses that, for a non-limiting example, the second real-time information obtained and supplied into the game can be the real-time communication messages exchanged between the air traffic controller (ATC) and the player of the game and the player can access such real-time communication messages via an audio engine. *Id.*, 10:20 – 11:3 (“The traffic manager 300 also simulates the communications of air traffic within the game world, based on **real time data**. The external realization of this is through communications commands that are sent to the audio engine 336. The audio engine 336 uses these commands to output realistic audio communications messages to the user (for example, voice communications from air traffic control (ATC) and aircraft) based on the state of the player and other aircraft in the game. These messages include messages between ATC and the other aircraft and between ATC and the player 120.”)

QIE function (4): supplying first real-time information into the primary application:

156. Game Data Server 108 provided the first real-time information (weather information) to the game (primary application) upon request:

“On request, the game data server 108 permits data available to a game 112, 116 and players 120, 124.” [*Id.*, 5:14-15]

“The data requested by the game 112 includes data such as **weather** reports or **air traffic** in the direction that the player 120 is guiding the vehicle in the game 112.” [*Id.*, 6:20-22 Emphasis added]

QIE function (5): supplying second real-time information into the secondary application:

157. *See* QIE Function (3). The second real-time information is transferred to the Traffic Manager 300 which generated audio to the Audio Engine 320 (the secondary user interface).

158. The traffic manager 300 also simulates the communications of air traffic within the game world, based on real time data. The external realization of this is through communications commands that are sent to the audio engine 336. [*Id.*, 10:20-22]. Regarding the additional claimed **the primary application configured to provide access to the first real-time information to the user within the virtual thematic environment via the first user interface, the secondary application configured to provide the second real-time information to the user within the virtual thematic environment via the second user interface**, Pisanich disclosed the first and second user interfaces as shown for claim 1[c].

159. Thus, Pisanich disclosed, or at least rendered obvious in view of the knowledge of a POSITA this claim element.

- (vi) **1[e]: at least one digital content library module storing information, the information containing 2 dimensional and 3 dimensional content, and providing content management of information within the virtual thematic environment coordinated by the thematic/publishing logic module, the digital content library module being a content management application.**

160. As an initial matter, the exemplary Flight Simulator game disclosed by Pisanich displayed both an aircraft cockpit control panel and a view through the aircraft’s canopy. It was well known in the art that the cockpit control panel was a 2D GUI interface overlaying the rendered 3D canopy display. A POSITA would have understood that in order to display such a game screen, the 2D and 3D content must necessarily be stored in the gaming device. In addition, Pisanich discloses a content management application, e.g. world manager 312, which, like the at least one digital content library module storing information containing 2 dimensional and 3 dimensional content, “maintains information about the physical state of the world as is known in the art. This includes information about the terrain, ground cover, hydrology, buildings, roads, and navigation features.” Ex-1007, 16:3-5. A POSITA would understand that such information on the “physical state of the world” such as terrain has to be 2 dimensional and 3 dimensional content because terrain is by nature 3 dimensional.

161. Moreover, Pisanich taught the use of an object oriented design such that each object managed its own storage:

“Referring to Figure 3, a game system 107 (sic) is shown implemented using an object oriented design. The specialized objects preferably store their own data, request data from other objects when needed, and provide data to other objects when requested.” [*Id.*, 10:1-3]

162. The storing, requesting, and providing data would have been understood by a POSITA to be “management” of data. Thus, Pisanich taught that any of the objects in the disclosed object oriented design performed **content management** as claimed. Likewise, the data under management was digital so any of the objects in the disclosed object oriented design performed the function of a **digital content library module**. As for the claimed digital content library module being a content management application, in the disclosed object oriented design any of the objects shown in Figure 3 that performed content management would be understood by a POSITA to be applications under the plain and ordinary meaning of the term “application.”¹² Thus, Pisanich disclosed the claimed **digital content library module being a content management application**.

163. Shown in Figure 3, “Rendering Engine 316” processed the main game display, including the cockpit controls and the virtual thematic environment seen

¹² In my opinion a POSITA would consider the plain and ordinary meaning of the term “application” in the context of computer gaming to be “a software program.”

through the canopy, requiring the management of both 2D and 3D data. “Aircraft Manager 308” managed the 2D and 3D data for other aircraft in the game. “World Manager 312” managed at least 3D data for real-time weather phenomena. Any of said program objects disclosed the claimed **storing information, the information containing 2 dimensional and 3 dimensional content, and providing content management of information within the virtual thematic environment coordinated by the thematic/publishing logic module.**

164. Thus, Pisanich disclosed, or at least rendered obvious in view of the knowledge of a POSITA this claim element.

b. Claim 3: The one or more non-transitory computer readable medium according to claim 1, wherein said first real-time information and said second real-time information are accessed by a user selection mechanism.

165. Pisanich disclosed, or at least rendered obvious claim 1 from which claim 3 depends, thus disclosing or rendering obvious this claim.

166. As for the additional limitations of this claim, **said first real-time information and said second real-time information** were accessed based on selections made by the user during game play, including, for example where and how the player was flying a plane:

“As a player 120 plays the computer game 112, the game will make requests for air traffic and weather data corresponding to the **change in location** and in time of the player’s gaming unit. The requests for

data are preferably made through separate air traffic 224 and weather request 228 processes. The game 112 requests data in a form that specifies the data needed. For example, the game 112 may specify the current position (latitude, longitude, and altitude), state heading, and speed of the game aircraft in flight simulation game. **The requests for data by the game 112 are created in response to choices and control inputs by the player 120, e.g., where and how the player 120 is flying a plane in a flight-simulation application.** The game data requests are used by the air traffic request process 224 and weather request process 228 to generate data queries for the respective traffic and weather databases 200, 204.” [*Id.*, 8:8-17 Emphasis added]

167. The air traffic and weather data were served based on the player’s location in the virtual world - a location that was based on an initial selection from the player. This player selection was obtained from the player by the “Player Control / Game State Manager 328”:

“In a software product embodiment, an application module receives **a location selection from a player.** The location selection selects a geographic location within which the game is to take place, for example, San Francisco.” [*Id.*, 2:18-20 Emphasis added]

“The player control/game state process 328 controls the startup and execution of the game through **selection and control information from the user...**” [*Id.*, 17:17-18 Emphasis added]

168. Thus, both **first real-time information and said second real-time information [were] accessed by a user selection mechanism.**

169. Thus, Pisanich disclosed, or at least rendered obvious in view of the knowledge of a POSITA this claim.

c. Claim 5: The one or more non-transitory computer readable medium according to claim 3, wherein said selection mechanism is a hot click button.

170. Pisanich disclosed, or at least rendered obvious claim 3 from which claim 5 depends, thus disclosing or rendering obvious this claim.

171. As for the additional limitation of this claim, a POSITA would have understood the term “hot click” to refer to an action taken as a result of clicking a button. This claim refers to **said selection mechanism** (antecedent from claim 3), in which a player made a selection, for example a player’s selected location for the simulation (*See* claim 3).

172. Pisanich Figure 3 indicates a “Joystick 340” and a “Keyboard 344” providing input to “Player Control/Game State Manager Engine 328” (*See* ¶92). A POSITA would understand that a joystick typically includes a click button conveniently positioned (i.e., “hot”) on the joystick for the player to click. Joystick 340 or Keyboard 344 could have been used to preform said selection mechanism:

“The joystick 340 allows the user to also provide input to the game via the player control/game state process 328. [...] The keyboard 344 is a standard computer keyboard. The player uses coded keypresses and macros to control the configuration of the game and the aircraft.”
[*Id.*, 17:21 - 18:3]

173. To the extent it is argued that the term “hot click” should be understood in the context of HTML functionality, such as defining a word that performs an operation when clicked, it was well known in the art that hyperlinks could be ‘clicked’ on through the keyboard interface, ‘tabbing’ to a link and pressing ENTER.

174. Regardless of the method, Pisanich disclosed making a location selection from within the exemplary Flight Simulator application, and such would have been done through one of the two disclosed input mechanisms. A POSITA would have interpreted an on-screen button that performed a selection when clicked as the claimed **hot-click button**.

175. Thus, Pisanich disclosed, or at least rendered obvious in view of the knowledge of a POSITA this claim.

d. Claim 7: The one or more non-transitory computer readable medium according to claim 1, wherein said first real-time information and said second real-time information are provided to the user via a mobile device.

176. Pisanich disclosed, or at least rendered obvious claim 1 from which claim 7 depends, thus disclosing or rendering obvious this claim.

177. As for the additional limitations of this claim, Pisanich expressly disclosed processing based on the location of a player’s gaming unit, and that the system tracks a player’s change of location:

“Thus, the game 112 requests data based on a current location and time of a **player gaming unit**.” [*Id.*, 6:22-23 Emphasis added]

“In one embodiment, the application module determines whether the information for the location has changed since it was last retrieved or if the player has moved to a new location.” [*Id.*, 3:13-14 Emphasis added]

178. A POSITA would understand that a mobile device is a computing device that can be moved from one physical location/position to another. Processing based on a current location of a device (i.e., a “player gaming unit”) taught that said device’s position could change, and therefore that the device may be mobile. And since it was the player’s gaming unit that served a Flight Simulator, for example, to the player (**provided to the user**), it would have been obvious to a POSITA that the claimed **first real-time information and said second real-time information [were] provided to the user via a mobile device**.

179. Thus, Pisanich disclosed, or at least rendered obvious in view of the knowledge of a POSITA this claim.

- e. **Claim 8: The one or more non-transitory computer readable medium according to claim 1, wherein at least one of the first real-time information and the second real-time information are downloaded from a source external to the virtual thematic environment.**

180. Pisanich disclosed, or at least rendered obvious claim 1 from which claim 8 depends, thus disclosing or rendering obvious this claim.

181. As for the additional limitations of this claim, at least the claimed **first real-time information** (i.e., either the air traffic or weather data) was downloaded from a **source external to the virtual thematic environment** such as “Air Traffic Data Provider 100” or “Weather Data Provider 104” shown in Figure 2 (*See* ¶88).

182. Thus, Pisanich disclosed, or at least rendered obvious in view of the knowledge of a POSITA this claim.

f. Claim 9: The one or more non-transitory computer readable medium according to claim 8, wherein said first real-time information and said second real-time information are downloaded from the Internet.

183. Pisanich disclosed, or at least rendered obvious claim 8 from which claim 9 depends, thus disclosing or rendering obvious this claim.

184. As for the additional limitations of this claim, Pisanich disclosed downloading real-time information from the Internet:

“Referring to Figure 1, a game data server 108 continually gathers “real time” data from traffic 100 and a weather 104 data provider systems. [...] **The data providers 100, 104 are located remotely and are typically accessed via the internet ...**” [*Id.*, 5:13-16 Emphasis added]

185. Thus, Pisanich disclosed, or at least rendered obvious in view of the knowledge of a POSITA this claim.

- g. **Claim 10: The one or more non-transitory computer readable medium according to claim 1, wherein at least one of said first real-time information and said second real-time information are automatically downloaded based on actions of the user within the virtual thematic environment.**

186. Pisanich disclosed, or at least rendered obvious claim 1 from which claim 10 depends, thus disclosing or rendering obvious this claim.

187. As for the additional limitations of this claim, Pisanich disclosed that as the simulation progressed and **actions of the user** directed his or her aircraft through the world, **real-time information** such as weather and air traffic corresponding to each new location was **automatically downloaded**:

“As a player 120 plays the computer game 112, **the game will make requests** for air traffic and weather data corresponding to the **change in location** and in time of the player’s gaming unit. [...] The requests for data by the game 112 are **created in response to choices and control inputs by the player 120, e.g., where and how the player 120 is flying a plane in a flight-simulation application.**” [*Id.*, 8:8-15 Emphasis added]

188. Thus, Pisanich disclosed, or at least rendered obvious in view of the knowledge of a POSITA this claim.

- h. Claim 11: The one or more non-transitory computer readable medium according to claim 1, wherein the user is provided with objects within the virtual thematic environment which operate in real-time with real-time information.**

189. Pisanich disclosed, or at least rendered obvious claim 1 from which claim 11 depends, thus disclosing or rendering obvious this claim.

190. As for the additional limitations of this claim, Pisanich disclosed providing to the user the claimed **objects within the virtual thematic environment which operate in real-time with real-time information**. For example, other airplanes were rendered in the canopy view of the virtual thematic environment, representing real-time air traffic at the player’s virtual location:

“The aircraft manager 308 then interfaces with the weather manager 304 for real time weather information that may affect the operation of the aircraft (for example, precipitation, wind, temperature), traffic manager 300 to **provide display of real time traffic within the cockpit displays**” [*Id.*, 15:17-20 Emphasis added]

191. In addition, based on real-time weather at said location the game rendered weather-related objects such as clouds:

“After receiving the real world information the application module **generates simulated real world constructs responsive to the real world information**. For example, in a flight simulator game, constructs may include clouds, wind, rain, and air traffic. **Clouds, for example, are generated in the virtual environment** responsive to

the location and nature of the clouds as identified in the real world database.” [*Id.*, 3:3-7 Emphasis added]

192. Thus, Pisanich disclosed, or at least rendered obvious in view of the knowledge of a POSITA this claim.

- i. **Claim 12: The one or more non-transitory computer readable medium according to claim 1, wherein the at least one secondary application includes at least one of an entertainment application, a business application, a publishing application, a game application, a financial application, a music application, a graphic application, an education application, a medical application, a word processing application, an electronic mail application, a spreadsheet application, a static purchasing application, an instant messaging application, and a video messaging application.**

193. Pisanich disclosed, or at least rendered obvious claim 1 from which claim 12 depends, thus disclosing or rendering obvious this claim.

194. As for the additional limitations of this claim, the secondary applications disclosed by Pisanich were data-gathering applications that improved the entertainment value of a virtual thematic world. As discussed above, Pisanich discloses an instant messaging application for audio message communications between an ATC and the players in real time. In addition, contributions to the entertainment value of a game product are detailed in Pisanich’s “Background of the Invention” [*Id.*, 1:5-2:14]:

“In conventional computer gaming experiences, the player is immersed in a closed environment driven by the application developer. [...] The player’s experience is confined to the boundaries of the application developer’s imagination and the player’s own selections.

[...]

In contrast, in the real world, the weather can change suddenly and unexpectedly, air traffic can become unexpectedly heavy, mechanical failures can occur, airports can close, planes crash occasionally, and actual pilots must adapt to these conditions. However, none of these events are modeled in a typical game, or, if they are modeled, they generated in some non-random pattern or occur upon selection by a user.

[...]

In conventional games the player is] deprived of the excitement of knowing that conditions he or she are flying in are “real” which can provide **a significant difference in enjoyment level** for players.

Accordingly, a new gaming architecture is needed in which real world events, environments, actors, and objects can be incorporated during a gaming experience, providing a player with the true simulation of a real world experience, and also the **added excitement** of taking part in actual real world events as they occur.”

195. Thus, secondary applications disclosed by Pisanich were also **entertainment applications**, providing **a significant difference in enjoyment level** and **added excitement** to a Flight Simulator game.

196. As discussed above, the secondary applications disclosed by Pisanich also provided real-time information on real world objects for incorporation into a game.

197. Thus, Pisanich disclosed, or at least rendered obvious in view of the knowledge of a POSITA this claim element.

j. Claim 23

(i) [preamble]: A computer system, comprising:

198. Should the preamble be deemed to be limiting, Pisanich taught this limitation, disclosing a “computer game 112” (*See* ¶88) and an “internal database located in the player’s computer.” [*Id.*, 10:14]. A POSITA would have understood these references to represent the claimed **computer system**.

(ii) 23[a]: a client system and a server system communicating to provide an interactive software application platform, the interactive software application platform comprising:

199. Pisanich disclosed the claimed **interactive software application platform** (*See* claim 1[pre] ¶120). Pisanich disclosed “Game Data Server 108” (*See* ¶88) configured to serve data to a game on a client “player’s computer.” A POSITA would have recognized the system taught by Pisanich to be a client-server configuration including the claimed **client system** and **server system**.

- (iii) **23[b]: at least one thematic/publishing logic module containing virtual thematic environment rules to coordinate actions to be taken to constitute a virtual thematic environment, the virtual thematic environment being a theme-based virtual world environment;**

200. *See* claim 1[a].

- (iv) **23[c]: a graphics user interface (GUI) module, the GUI module including software that renders graphical display elements onto a visual component and permits the user to interact with the graphical display elements within a virtual thematic environment;**

201. *See* claim 1[c].

- (v) **23[d]: a primary application providing the virtual thematic environment;**

202. Pisanich disclosed the claimed **primary application providing the virtual thematic environment** (*See* ¶127).

- (vi) **23[e]: a secondary application within the primary application, the secondary application being different from the primary application, the secondary application being launched from the primary application, and having first content utilized within a same application environment of the virtual thematic environment as second content provided by the primary application, the primary application receiving and using first real-time information to provide the second content, the secondary application receiving and using second real-time information to provide the first content, the first real-time information being different from the second real-time information;**

203. Pisanich disclosed the claimed **secondary application within the primary application, the secondary application being different from the primary application, the secondary application being launched from the primary application, and having first content utilized within a same application environment of the virtual thematic environment as second content provided by the primary application** (*See* claim 1[b]).

204. As noted for claim 1[b], Pisanich disclosed having first content utilized within a same application environment as second content provided by the primary application.

205. Finally, as real-time air traffic and weather information (the first real-time information) was different from real-time audio communications (the second

real-time information), Pisanich taught the claimed **the first real-time information being different from the second real-time information.**

206. Thus, Pisanich disclosed, or at least rendered obvious in view of the knowledge of a POSITA this claim element.

(vii) **23[f]: a quantum imaging environment (QIE) module, the QIE module being a software layer configured to receive and interpret the first content and the second content such that the first content and the second content is manipulated so as to be accessible on different types of devices for use within the virtual thematic environment;**

207. As shown for claim 23[e], Pisanich disclosed that the claimed **the first content and the second content** were combined and interacted within the exemplary Flight Simulator (i.e., **for use within the virtual thematic environment.**) Further, as shown for claim 1[d], Pisanich disclosed interpreting and manipulating said content **so as to be accessible on different types of devices**, teaching the operation of the claimed QIE module.

(viii) **23[g]: at least one digital content library module storing information and providing content management of information within the virtual thematic environment, the digital content library module being a content management application; and**

208. Pisanich disclosed the claimed **digital content library module** (*See* claim 1[e]).

- (ix) **23[h]: wherein the GUI module includes software that renders graphical display elements onto the visual component and permits the user to interact with the graphical display elements within the virtual thematic environment, the GUI module providing a first user interface that is associated with the primary application and enabling the user to access the primary application through the first user interface, and a second user interface associated with the secondary application and enabling the user to access the secondary application through the second user interface.**

209. As seen for claim 1[c], Pisanich disclosed a GUI interface to access the primary application, and a second user interface to access the secondary application.

- k. **Claim 24: The computer system according to claim 23, wherein the virtual thematic environment is a game environment.**

210. Pisanich disclosed, or at least rendered obvious claim 23 from which claim 24 depends, thus disclosing or rendering obvious this claim.

211. As for the additional limitation of this claim, the exemplary Flight Simulator game disclosed by Pisanich represents the claimed **game environment**.

212. Thus, Pisanich disclosed, or at least rendered obvious in view of the knowledge of a POSITA this claim.

I. Claim 25: The computer system according to claim 23, wherein the first real-time information and the second real-time information include audio, video, text, or any combination thereof.

213. Pisanich disclosed, or at least rendered obvious claim 23 from which claim 25 depends, thus disclosing or rendering obvious this claim.

214. One of the claimed types of **first real-time information** was the weather, traffic and/or terrain information at the player’s location. While Pisanich did not explicitly disclose the use of audio, video, or text in the weather or traffic elements it was well known in the art to include text signage in the modeling of weather, traffic and/or terrain information. A POSITA would have been motivated to combine well-known techniques to improve weather, traffic, and/or terrain realism to arrive at the subject matter of this claim element.

215. Also shown for claim 23[e], one of the claimed types of **second real-time information** is audio communications/messages. Pisanich also teaches the use of METAR data (*See* ¶89). As of the early 2000s the METAR data included text, teaching the claimed **second real-time information include audio, video, text, or any combination thereof**. An example METAR data record from 2004¹³ is a text string that reads:

¹³<https://web.archive.org/web/20040510164634/https://en.wikipedia.org/wiki/METAR>

**“KOUN 130432Z AUTO 02004KT 10SM CLR M06/M09 A3046
RMK AO2”**

216. The key to the understanding of said METAR text string is reproduced here:

“KOUN is the code for the particular reporting station, Norman, Oklahoma

130432Z indicated the time of day and day of the month of the report (UTC).

AUTO indicates that the report was taken from an automated weather station.

02004KT means there is a 4 knot wind from 20 degrees true

10SM is the visibility in statute miles

CLR means “clear skies,” with no clouds below 12000 feet

M06/M09 indicates a surface temperature of negative 6 degrees Celsius and a surface dew point of minus 9 degrees Celsius.

A3046 is the altimeter setting, which is 30.46 inches of mercury.

RMK indicates the remarks section follows

A02, the only remark in this report, indicates that the station has a precipitation sensor.”

217. Thus, Pisanich disclosed, or at least rendered obvious in view of the knowledge of a POSITA this claim.

- m. **Claim 26: The computer system according to claim 23, wherein the first real-time information and the second real-time information is new or updated information.**

218. Pisanich disclosed, or at least rendered obvious claim 23 from which claim 26 depends, thus disclosing or rendering obvious this claim.

219. As shown for claim 23[e], as the player controlled his or her aircraft around the virtual thematic environment his or her location changed. The claimed **first real-time information** in the form of a user’s input while playing the game was constantly updated, as was the **first real-time information** in the form of real-time updates to the virtual terrain as the player moved about the virtual thematic environment; and the claimed **second real-time information** in the form of audio messages between the ATC and the player happening in real time is always new or updated as such messages are based on the current status of the player.

220. Thus, Pisanich disclosed, or at least rendered obvious in view of the knowledge of a POSITA all asserted claims of the ’941 Patent.

D. Ground 2: Claims 1, 3, 5, 7-12, and 23-26 Are Obvious Over PSO Manual in View of the Knowledge of a POSITA

221. In my opinion, a POSITA would have considered Phantasy Star Online (as documented in PSO Manual) to be prior art and highly relevant to the patentability of the ’941 Patent’s claims. Both references are directed to interactive environments which include multiple streams of real-time information

served from external sources. The ’941 Patent discloses “integrating information, including real-time information, into a virtual thematic environment using a computer system” [Ex-1001, Abstract]. The ’941 Patent claims multiple streams of real-time information to be incorporated into said virtual thematic environment, including “obtaining first real-time information and second real-time information ...” [*Id.*, Claim 1]

222. PSO is an online multiplayer game that takes place in a virtual thematic environment. Multiple streams of real-time information are incorporated into the game, including the positions of a player’s team members (communicated online) on both the game screen and radar display, live chat information, and email (*See* Section IX B.2).

223. A POSITA would have been motivated to combine and collectively consider the teachings of PSO Manual with his knowledge of the state of the art of video games (*See* Section IX.A: Background Information) to arrive at the subject matter claimed by the ’941 Patent.

224. Additionally, the exemplary systems disclosed in both PSO Manual and the ’941 Patent serve interactive content in a substantially similar manner, transmitting said content from a server computer over a network such as the Internet to a client computer. Not only would a POSITA have been motivated to combine and collectively consider the teachings of PSO Manual with well-known

industry knowledge to arrive at the subject matter claimed by the ’941 Patent, he would have had a reasonable expectation of success when doing so.

225. In my opinion, when viewed and considered in light of the knowledge possessed by a POSITA, PSO Manual and said knowledge together disclose all the limitations of and render claims 1, 3, 5, 7-12, and 23-26 of the ’941 Patent obvious.

1. Claim-By-Claim Analysis

a. Claim 1

- (i) 1[preamble]: One or more non-transitory computer readable medium storing an interactive software application platform comprising:**

226. Should the preamble be deemed to be limiting, PSO Manual taught this limitation, disclosing an online RPG game (the claimed **interactive software application**) sold for the Sega® Dreamcast™ game console (*See* ¶¶98 - ¶¶102). It was well known that games sold for the Sega® Dreamcast™ game console were stored on a GD-ROM, the claimed **non-transitory computer readable medium**.

227. Thus, PSO Manual disclosed, or at least rendered obvious in view of the knowledge of a POSITA this claim element.

- (ii) **1[a]: at least one thematic/publishing logic module containing virtual thematic environment rules to coordinate actions to be taken to constitute and provide a virtual thematic environment on a visual component, the virtual thematic environment being a theme-based virtual world environment;**

228. PSO Manual taught this limitation, disclosing an online game that took place on an alien planet displayed on a game screen (*See* ¶110), teaching the claimed **to constitute and provide a virtual thematic environment on a visual component, the virtual thematic environment being a theme-based virtual world environment.**

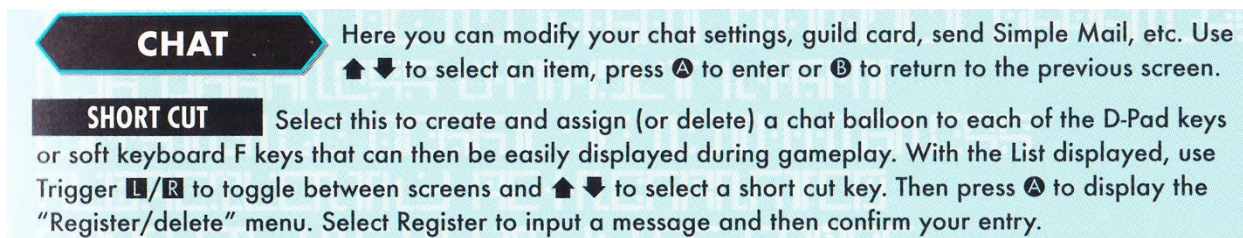
229. As for the claimed **virtual thematic environment rules**, it was well known in the art that a virtual world gaming environment was designed to implement rules simulating interactions with objects, terrain, weapons, projectiles, etc.

230. Thus, PSO Manual disclosed, or at least rendered obvious in view of the knowledge of a POSITA this claim element.

- (iii) **1[b]: a primary application providing the virtual thematic environment; and a secondary application within the primary application, the secondary application being different from the primary application, the secondary application being launched from the primary application, and having first content utilized within a same application environment as second content provided by the primary application;**

231. PSO Manual taught this limitation, disclosing an online RPG game as the claimed **primary application** (See ¶102). Secondary applications disclosed by PSO Manual include “Balloon Chat,” “Symbol Chat,” and “Simple Mail” (See ¶104 - ¶105) that generate content (e.g., a speech bubble) on the game screen **having first content utilized within a same application environment as second content provided by the primary application** as claimed.

232. PSO Manual also disclosed launching the Chat and/or Mail function from the game (primary application) either through the “Soft Keyboard” or a “Dreamcast Keyboard,” (¶103) or with a “Short Cut” interface:



PSO Manual, p. 25

233. After such a “Short Cut” was configured, the chat interface (the claimed secondary application) could be **launched from the primary application** as claimed with a single keypress.

234. Thus, PSO Manual disclosed, or at least rendered obvious in view of the knowledge of a POSITA this claim element.

- (iv) **1[c]: a graphics user interface (GUI) module including software that renders graphical display elements onto the visual component and permits a user to interact with a graphical display element within the virtual thematic environment, the GUI module providing a first user interface that is associated with the primary application and enabling the user to access the primary application through the first user interface, and a second user interface associated with the secondary application and enabling the user to access the secondary application through the second user interface;**

235. PSO Manual taught this limitation, disclosing the claimed **graphics user interface (GUI) module including software that renders graphical display elements onto the visual component and permits a user to interact with a graphical display element within the virtual thematic environment, the GUI module providing a first user interface that is associated with the primary application** (*See* ¶103). A player moved his in-game character with the “Analog Thumb Pad” (*Id.*) as his in-game character interacted with elements in the virtual on the game screen (**graphical display**).

236. As noted for claim 1[b], from the primary application a player could launch a chat application, which opened a “Soft Keyboard” (the claimed **second user interface associated with the secondary application**) enabling the user to **access the secondary application through the second user interface.**

237. Thus, PSO Manual disclosed, or at least rendered obvious in view of the knowledge of a POSITA this claim element.

- (v) **1[d]: a quantum imaging environment (QIE) module, the QIE module being a software layer that receives, interprets, and manipulates the second content so as to be accessible on different types of devices for use within the virtual thematic environment, the QIE module obtaining first real-time information and second real-time information, the QIE module supplying the first real-time information into the primary application, and supplying the second real-time information into the secondary application, the primary application configured to provide access to the first real-time information to the user within the virtual thematic environment via the first user interface, the secondary application configured to provide the second real-time information to the user within the virtual thematic environment via the second user interface; and**

238. PSO Manual taught this limitation, disclosing the claimed **software layer that receives, interprets, and manipulates the second content so as to be accessible on different types of devices for use within the virtual thematic environment** in the form of a multi-lingual chat feature. The “Word Select”

feature (*See* ¶106) allowed a player to construct sentences to be sent via chat (**second real-time information**) to any destination around the world. The “Word Select” system at the destination **receive, interpret, and manipulate** the content for any device,¹⁴ translated into the language of the recipient.

239. PSO disclosed the claimed **first real-time information** at least in the form of real-time movements of remote team members including the locations within the virtual thematic environment of said remote members (*See* ¶110). Said claimed **first real-time information** was **suppl[ied] into the primary application**.

240. As claimed, **the primary application [was] configured to provide access to the first real-time information to the user within the virtual thematic environment via the first user interface** (i.e., the GUI), as the game window was updated with the game play, locations, and action of the remote players. Likewise, **the secondary application [was] configured to provide the second real-time information to the user within the virtual thematic environment via the**

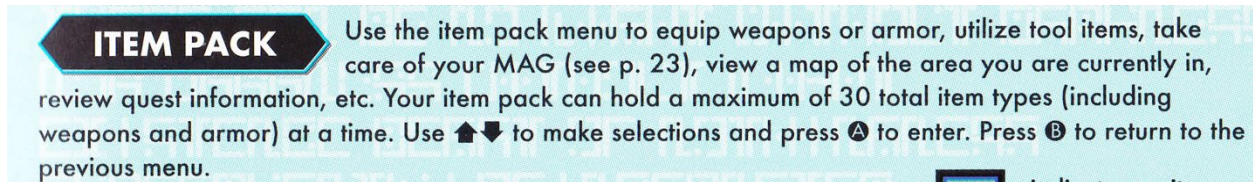
¹⁴ It was well known in the art at the time that game systems/consoles such as Dreamcast sold into different countries were different hardware and/or software systems, including the use of different voltage sources, different language operating systems, and compatible with different television standards.

second user interface when displaying the “Balloon Chat,” “Symbol Chat,” and “Simple Mail.”

241. Thus, PSO Manual disclosed, or at least rendered obvious in view of the knowledge of a POSITA this claim element.

- (vi) **1[e]: at least one digital content library module storing information, the information containing 2 dimensional and 3 dimensional content, and providing content management of information within the virtual thematic environment coordinated by the thematic/publishing logic module, the digital content library module being a content management application.**

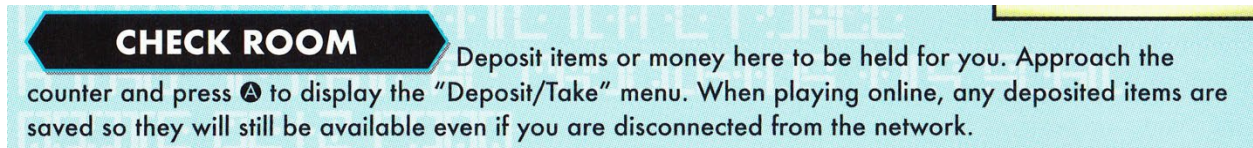
242. PSO Manual taught this limitation, disclosing the concept of an “Item Pack” representing an inventory control system for items:



PSO Manual, p. 21

243. Said Item Pack stored and managed the inventory for each player. Stored information included the claimed **2 dimensional** (See ¶111 re icons) and **3 dimensional** content (See ¶114 re weapon use). The content managed by the “Item Pack” was used **within the virtual thematic environment [and] coordinated by the thematic/publishing logic module** as claimed.

244. PSO Manual also taught the storage of Items and in-game currency in a construct called the “Check Room” that stored a player’s deposited items. Said storage was maintained on the server which would necessarily have to manage said content for every registered player of the game:



PSO Manual, p. 14

245. Thus, PSO Manual disclosed, or at least rendered obvious in view of the knowledge of a POSITA this claim element.

- b. **Claim 3: The one or more non-transitory computer readable medium according to claim 1, wherein said first real-time information and said second real-time information are accessed by a user selection mechanism.**

246. PSO Manual disclosed, or at least rendered obvious claim 1 from which claim 3 depends, thus disclosing or rendering obvious this claim.

247. As for the additional limitations of this claim, re the **first real-time information** identified for claim 1[d] (in the form of real-time movements of remote team members including the locations within the virtual thematic environment of said remote members), PSO Manual disclosed a number of user selection options that affected real-time game play. For example, each user selected (or created) a team to join:

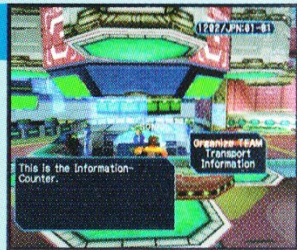
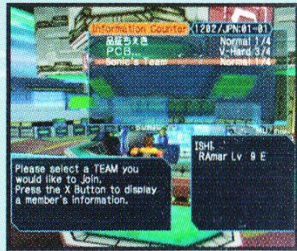
VISUAL LOBBY INFORMATION COUNTER

Once inside the visual lobby you can move around and chat with other users within the same block in real time. Visit the information counter and select “Organize TEAM” when you wish to create a new or join an existing team. Select “Transport” to move to a different SHIP or BLOCK. Use to select menu items and press **A** to enter your selections. Press **B** to cancel.

TEAMS

You need to belong to a team in order to investigate the planet of Ragol. To do so you can either join an existing team or create one of your own.

JOIN A TEAM Select this to display a list of the teams available in this BLOCK. Display information about the members in each team by pressing **X**. Select and enter a team to join in and you will be transported to the city in the field where that team is currently playing. A lock mark will appear next to teams that require a password to join. If you do not know the password, you won't be able to join that team.

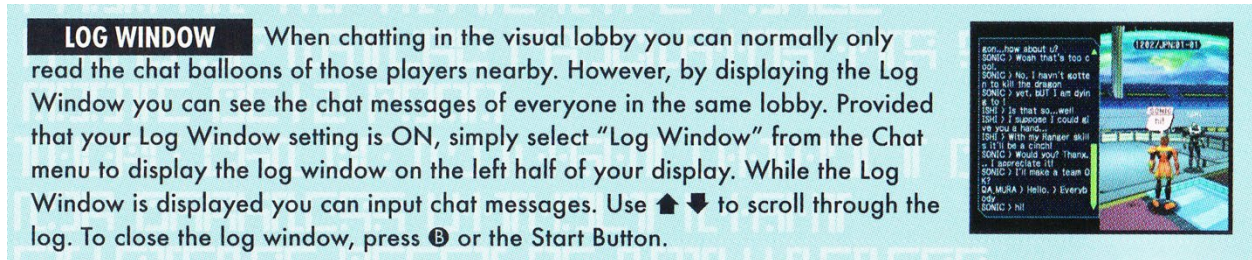



PSO Manual, p. 10

248. The primary activities in the virtual thematic environment involved interaction with team members - based on the player's team selection. Thus, all real-time information coordinating team game play was based on a selection made by each user. Moreover, as part of the user selection, a player could choose to move to a different SHIP or BLOCK (*Id.*, p. 10), accessing an alternate set of teams to join. Thus, **said first real-time information [was] accessed by a user selection mechanism as claimed.**

249. Likewise, the **second real-time information** identified for claim 1[d] (in the form of live chat data passing back and forth between team members), at least the same “team selection” disclosed a user selection that allowed a user to access chat from any specific player. In addition, PSO Manual disclosed that a

player made a proximity selection, moving close to a player in order to ‘hear’ his or her chat (i.e., read the chat balloon):



PSO Manual, p. 26

250. While all chat was available in the “Log Window,” with said window closed, the second real-time information was only integrated into the virtual thematic environment and accessed when one player approached another. Thus, **said second real-time information [was] accessed by a user selection mechanism as claimed.**

251. Thus, PSO Manual disclosed, or at least rendered obvious in view of the knowledge of a POSITA this claim.

c. Claim 5: The one or more non-transitory computer readable medium according to claim 3, wherein said selection mechanism is a hot click button.

252. PSO Manual disclosed, or at least rendered obvious claim 3 from which claim 5 depends, thus disclosing or rendering obvious this claim.

253. As for the additional limitation of this claim, a POSITA would have understood the term “hot click” to refer to an action taken as a result of clicking a button. This claim refers to **said selection mechanism** (antecedent from claim 3),

in which a player makes a selection, for example joining a team (*See* claim 3). As noted for claim 3, the examples given for selection mechanism involve the user selecting an option and clicking to invoke an action.

254. PSO Manual disclosed many examples of invoking actions by clicking. For example, actions invoked through game menus result from the clicking of buttons:

“Use   to select menu items and press (A) to enter your selections. Press (B) to cancel.” [p. 10]

“Press (Y) at any time during gameplay to display the software keyboard. With the software keyboard displayed, press (X) to display the Word Select menu and then press (X) again to display the Symbol Chat menu. Press (X) once more to toggle back to the software keyboard.” [p. 11]

“Use  to move between selection menus. Select “Send” during message construction to display the message (or partial message) without designating a target. Select “Return” or press (B) to return to the previous menu. Select “EXIT” or press (Y) to close the Word Select menu at any point without displaying a message.” [p. 12]

255. To the extent it is argued that the term “hot click” should be understood in the context of HTML functionality, such as defining a word that performs an operation when clicked, the selecting of, and clicking on words like “Send,” “Return,” or “Exit” meets that understanding.

256. PSO Manual also disclosed configuring “hot clicking” in contexts other than menu operation, teaching the configuration of hot buttons in the form of “Short Cuts” (*See* ¶232). Once configured, a short cut button click instantly invoked an operation.

257. Thus, PSO Manual disclosed, or at least rendered obvious in view of the knowledge of a POSITA this claim.

d. Claim 7: The one or more non-transitory computer readable medium according to claim 1, wherein said first real-time information and said second real-time information are provided to the user via a mobile device.

258. PSO Manual disclosed, or at least rendered obvious claim 1 from which claim 7 depends, thus disclosing or rendering obvious this claim.

259. As discussed in ¶178 above, a POSITA would understand that a mobile device is a computing device that can be moved from one physical location/position to another. As for the additional limitations of this claim, PSO Manual taught that playing a network RPG such as PSO “you will meet a variety of people from all over the world” (P. 2). The teachings of PSO Manual do not place any restrictions on location. A POSITA would have understood that the teachings of PSO Manual could have applied to any networked gaming device at the time, which would have included mobile devices.

260. Thus, PSO Manual disclosed, or at least rendered obvious in view of the knowledge of a POSITA this claim.

- e. **Claim 8: The one or more non-transitory computer readable medium according to claim 1, wherein at least one of the first real-time information and the second real-time information are downloaded from a source external to the virtual thematic environment.**

261. PSO Manual disclosed, or at least rendered obvious claim 1 from which claim 8 depends, thus disclosing or rendering obvious this claim.

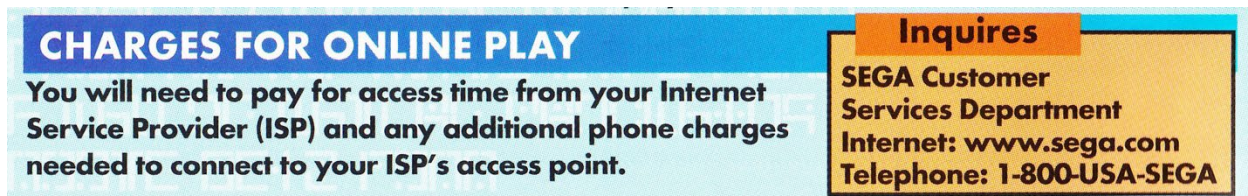
262. As for the additional limitations of this claim, PSO Manual taught a multi-player network RPG that could combine players from all over the world in team play (*See* ¶101 - ¶102). Information representing movements and actions of each player (**the first real-time information**) was downloaded into the virtual thematic environment running each player’s gaming device from the PSO server (*See* ¶98). Likewise, the chat information (**the second real-time information**) was passed from one player through the server to the recipient. Either the PSO server, or the team member’s gaming device from which said information originated, was a **source external to the virtual thematic environment** as claimed.

263. Thus, PSO Manual disclosed, or at least rendered obvious in view of the knowledge of a POSITA this claim.

- f. **Claim 9: The one or more non-transitory computer readable medium according to claim 8, wherein said first real-time information and said second real-time information are downloaded from the Internet.**

264. PSO Manual disclosed, or at least rendered obvious claim 8 from which claim 9 depends, thus disclosing or rendering obvious this claim.

265. As for the additional limitations of this claim, PSO Manual taught that players’ game devices were networked to the PSO server in order to receive **said first real-time information and said second real-time information**, and that access to the server was through the Internet, thus **downloaded from the Internet as claimed**:



PSO Manual, p. 8

266. Thus, PSO Manual disclosed, or at least rendered obvious in view of the knowledge of a POSITA this claim.

- g. **Claim 10: The one or more non-transitory computer readable medium according to claim 1, wherein at least one of said first real-time information and said second real-time information are automatically downloaded based on actions of the user within the virtual thematic environment.**

267. PSO Manual disclosed, or at least rendered obvious claim 1 from which claim 10 depends, thus disclosing or rendering obvious this claim.

268. As for the additional limitations of this claim, at least with a chat (**said second real-time information**), the **action of one user** selecting “Send” (or invoking a short cut key during play in the virtual thematic environment) resulted in the **automatic download** of chat information to another user’s gaming device.

269. Thus, PSO Manual disclosed, or at least rendered obvious in view of the knowledge of a POSITA this claim.

h. Claim 11: The one or more non-transitory computer readable medium according to claim 1, wherein the user is provided with objects within the virtual thematic environment which operate in real-time with real-time information.

270. PSO Manual disclosed, or at least rendered obvious claim 1 from which claim 11 depends, thus disclosing or rendering obvious this claim.

271. As for the additional limitations of this claim, PSO Manual taught that gameplay **operated in real time**, continuing even when the Main Menu was open. PSO Manual also taught the display of a real time clock showing “Internet Time” in the virtual thematic environment:

MAIN MENU

Press the Start Button to display the main menu used for a variety of actions such as equipping weapons, using items, customizing your Action Palette, etc. **Note that gameplay does not pause while the main menu is displayed. All menu operations take place in REAL TIME.** You can monitor gameplay via the reduced sized game display that appears in the upper right portion of your screen.

STATUS SUMMARY

MAIN MENU ITEMS

EXPLANATION WINDOW

DETAILED PLAYER STATUS

INTERNET TIME (SEE BELOW)



This window displays full details of your character's status. Use Trigger **L/R** to toggle between the three screens of information.

INTERNET TIME This globally compatible format for telling time developed by Swatch, is based on Internet Time Units called “.beats” (24 hours divided into 1000 beats). It is especially useful when arranging meeting times with PSO players from around the world.

PSO Manual, p. 20

272. Moreover, said real time game play inherent in a multi-player game provided the player with interactive objects in the virtual thematic environment. Thus, **the user [was] provided with objects within the virtual thematic environment which operate[d] in real-time with real-time information** as claimed.

273. Thus, PSO Manual disclosed, or at least rendered obvious in view of the knowledge of a POSITA this claim.

- i. **Claim 12: The one or more non-transitory computer readable medium according to claim 1, wherein the at least one secondary application includes at least one of an entertainment application, a business application, a publishing application, a game application, a financial application, a music application, a graphic application, an education application, a medical application, a word processing application, an electronic mail application, a spreadsheet application, a static purchasing application, an instant messaging application, and a video messaging application.**

274. PSO Manual disclosed, or at least rendered obvious claim 1 from which claim 12 depends, thus disclosing or rendering obvious this claim.

275. As for the additional limitations of this claim, PSO Manual taught secondary applications in the form of at least a chat application (the claimed **instant messaging application**), and “Simple Mail” (the claimed **electronic mail application**). *See* ¶103 - ¶105.

276. Thus, PSO Manual disclosed, or at least rendered obvious in view of the knowledge of a POSITA this claim.

j. **Claim 23**

(i) **[preamble]: A computer system, comprising:**

277. Should the preamble be deemed to be limiting, PSO Manual taught this limitation, disclosing the use of the application on the Sega® Dreamcast™ gaming system, which is a computer system (*See* ¶98 - ¶102).

- (ii) **23[a]: a client system and a server system communicating to provide an interactive software application platform, the interactive software application platform comprising:**

278. PSO Manual taught this limitation, disclosing that PSO operated in a client-server configuration, requiring users to log into the “PSO server” with a serial number and access key (*See* ¶98), thus disclosing **a client system and a server system communicating to provide an interactive software application platform** as claimed.

279. Thus, PSO Manual disclosed, or at least rendered obvious in view of the knowledge of a POSITA this claim element.

- (iii) **23[b]: at least one thematic/publishing logic module containing virtual thematic environment rules to coordinate actions to be taken to constitute a virtual thematic environment, the virtual thematic environment being a theme-based virtual world environment;**

280. PSO Manual taught this limitation as explained for claim 1[a].

- (iv) **23[c]: a graphics user interface (GUI) module, the GUI module including software that renders graphical display elements onto a visual component and permits the user to interact with the graphical display elements within a virtual thematic environment;**

281. PSO Manual taught this limitation as explained for claim 1[c].

- (v) **23[d]: a primary application providing the virtual thematic environment;**

282. PSO Manual taught this limitation as explained for claim 1[b].

- (vi) **23[e]: a secondary application within the primary application, the secondary application being different from the primary application, the secondary application being launched from the primary application, and having first content utilized within a same application environment of the virtual thematic environment as second content provided by the primary application, the primary application receiving and using first real-time information to provide the second content, the secondary application receiving and using second real-time information to provide the first content, the first real-time information being different from the second real-time information;**

283. PSO Manual taught the claimed **secondary application within the primary application, the secondary application being different from the primary application, the secondary application being launched from the primary application, and having first content utilized within a same application environment of the virtual thematic environment as second content provided by the primary application** as explained for claim 1[b].

284. As noted for claim 1[b], PSO Manual disclosed an online RPG game as the claimed **primary application** and one of several chat applications as the claimed **secondary application**, with chat information as the claimed **first content**.

285. The second part of this claim element requires a **first real-time information** and a **second real-time information**, both real-time information with no antecedent to prior claims. Said second part of this claim element has three limitations on said first and second real-time information:

- the primary application receiving and using first real-time information to provide the second content
- the secondary application receiving and using second real-time information to provide the first content
- the first real-time information being different from the second real-time information

286. PSO Manual disclosed these elements. Consider, for example, one player chatting with another. For this example, the claimed **primary application** is the online RPG game. To render the game as it progresses requires information from the PSO Server representing the state of the virtual world in real time - including inter-party communication - which would be the claimed **first content**. I refer to this as the “rendering data.”

287. As has been established, a player of PSO could interact in real-time with a “Software Keyboard,” typing a message and pressing “Send.” As disclosed in PSO Manual, a chat balloon was rendered attached to ‘my’ player (SONIC) showing ‘my’ message “Are you free?” (See ¶104):



PSO Manual, p. 12

288. Per the first bullet point above, the first real-time information supplied into the game can be in the form of data regarding a player’s real-time position and movements on the *Phantasy Star Online* world map. *Id.*, p. 21 (“Item Pack: Use the item pack menu to ... view a map of the area you are currently in ...”). Thus, **the primary application receiv[ed] and us[ed] first real-time information to provide the second content.**

289. Per the second bullet point above, in this two-way conversation player 2 responded as shown, communicating through the PSO Server to player 1’s gaming device. The chat application on player 1’s gaming device (the claimed **secondary application**) received and used the real-time response from player 2

(the claimed **second real-time information**), passing it to the primary application as part of the rendering data (the claimed **first content**) in order that player 2’s chat balloon would be rendered in the virtual thematic environment on player 1’s gaming device. Thus, **the secondary application receiv[ed] and us[ed] second real-time information to provide the first content.**

290. Per the third bullet above, the player’s real-time position and movements (**the first real-time information**) was different from the player’s real-time chat messages to other players (**the second real-time information**).

291. Thus, PSO Manual disclosed, or at least rendered obvious in view of the knowledge of a POSITA this claim element.

- (vii) **23[f]: a quantum imaging environment (QIE) module, the QIE module being a software layer configured to receive and interpret the first content and the second content such that the first content and the second content is manipulated so as to be accessible on different types of devices for use within the virtual thematic environment;**

292. PSO Manual taught this limitation as explained for claim 1[d].

- (viii) **23[g]: at least one digital content library module storing information and providing content management of information within the virtual thematic environment, the digital content library module being a content management application; and**

293. PSO Manual taught this limitation as explained for claim 1[e].

- (ix) **23[h]: wherein the GUI module includes software that renders graphical display elements onto the visual component and permits the user to interact with the graphical display elements within the virtual thematic environment, the GUI module providing a first user interface that is associated with the primary application and enabling the user to access the primary application through the first user interface, and a second user interface associated with the secondary application and enabling the user to access the secondary application through the second user interface.**

294. PSO Manual taught this limitation as explained for claim 1[c].

- k. **Claim 24: The computer system according to claim 23, wherein the virtual thematic environment is a game environment.**

295. PSO Manual disclosed, or at least rendered obvious claim 23 from which claim 24 depends, thus disclosing or rendering obvious this claim.

296. As for the additional limitations of this claim, the term RPG stands for Role Playing Game. The network RPG disclosed by PSO Manual (*See* ¶101) was a game.

297. Thus, PSO Manual disclosed, or at least rendered obvious in view of the knowledge of a POSITA this claim.

l. Claim 25: The computer system according to claim 23, wherein the first real-time information and the second real-time information include audio, video, text, or any combination thereof.

298. PSO Manual disclosed, or at least rendered obvious claim 23 from which claim 25 depends, thus disclosing or rendering obvious this claim.

299. As for the additional limitations of this claim, the first and second real-time information in the example presented for claim 23 **includes text** as claimed.

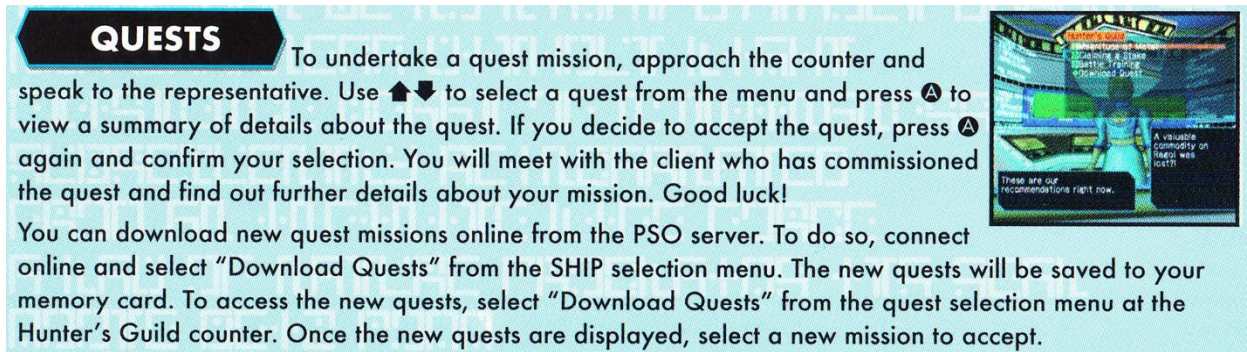
300. Thus, PSO Manual disclosed, or at least rendered obvious in view of the knowledge of a POSITA this claim.

m. Claim 26: The computer system according to claim 23, wherein the first real-time information and the second real-time information is new or updated information.

301. PSO Manual disclosed, or at least rendered obvious claim 23 from which claim 26 depends, thus disclosing or rendering obvious this claim.

302. As for the additional limitations of this claim, the first and second real-time information in the example presented for claim 23 include **new or updated information** that are updated in real-time as claimed.

303. In addition, PSO Manual taught that players could “download new quest missions online from the PSO Server,” creating a new or updated experience:



PSO Manual, p. 15

304. Thus, PSO Manual disclosed, or at least rendered obvious in view of the knowledge of a POSITA this claim.

E. Secondary Considerations of Non-Obviousness

305. Based on my review of the '941 Patent's prosecution history, I note that no secondary considerations of non-obviousness were identified in connection with the patent's claims.

306. I am not separately aware of any evidence of commercial success, skepticism, failure of others, industry praise, unexpected results, or the like. Instead, as discussed above, it is my opinion that the subject matter embraced by the '941 Patent's claims was known in the art and would have been expected to function as any service configured to deliver clickable, online advertising (e.g., banner ads).

I declare that all statements made herein of my own knowledge are true and all statements made on information and belief are believed to be true and further that these statements were made with the knowledge that willfully false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code.

Date: JUN 4, 2023



David Crane