

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

GOOGLE LLC
Petitioner,

v.

138 EAST LCD ADVANCEMENTS LIMITED,
Patent Owner.

Case No. IPR2024-00959
Patent 7,428,082

DECLARATION OF ROBERT STEVENSON, PH.D.

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I. INTRODUCTION

1. I have been retained by Google LLC (“Petitioner”) as an independent expert consultant in this proceeding before the Patent Trial and Appeal Board of the United States Patent and Trademark Office.

2. I am over 21 years of age and, if I am called upon to do so, I would be willing and able to testify as to the matters set forth herein.

3. My compensation is in no way contingent on the nature of my findings, the presentation of my findings in testimony, or the outcome of any related proceeding.

4. I understand that this proceeding involves U.S. Patent No. 7,428,082 (“the ’082 Patent,” Ex. 1001). The application for the ’082 Patent was filed May 2, 2003, as U.S. Patent Application No. 10/429,017.

5. I have been asked by Petitioner to provide my opinion on whether the claims of the ’082 Patent would have been anticipated or obvious to a person of ordinary skill in the art (“POSITA”) at the time of the earliest claimed priority date of the ’082 Patent. In performing my analysis, I have been asked to assume that the priority date is May 7, 2002. My opinions are set forth below.

6. Throughout this declaration, I refer to specific pages, figures, or line numbers of various exhibits. These citations are illustrative and are not intended to suggest that they are the only support for the propositions for which they are cited.

II. SUMMARY OF OPINIONS

7. This declaration considers claims 1-10 of the '082 Patent. Below, I set forth the opinions I have formed, the conclusions I have reached, and the bases for these opinions and conclusions. I believe the statements contained in this declaration to be true and correct to the best of my knowledge.

8. Based on my experience and knowledge of the art at the time of the earliest claimed priority date of May 7, 2002, it is my opinion that claims 1-10 of the '082 Patent would have been obvious and claim 9 is anticipated based on the asserted grounds discussed below. In my opinion, a person of ordinary skill in the art ("POSITA") would have found it obvious to combine the prior art references I cite and would have been motivated to do so before the priority date.

III. QUALIFICATIONS AND BACKGROUND

9. I believe that I am well qualified to serve as a technical expert in this matter based upon my qualifications, discussed in detail below. A copy of my curriculum vitae is included as Exhibit 1004, and it provides a comprehensive description of my academic and employment history. I am competent to write this declaration. In formulating my opinions, I have relied upon my training, knowledge, and experience in the relevant art.

10. I have a bachelor's degree in Electrical Engineering from the University of Delaware and a Ph.D. degree in Electrical Engineering from Purdue University. My Ph.D. research was on communications and signal processing.

11. I am presently a Professor in the Department of Electrical Engineering and in the Department of Computer Science and Engineering at the University of Notre Dame. I first joined the faculty at the University of Notre Dame as an Assistant Professor in the Department of Electrical Engineering in 1990. I was granted tenure and promoted to the rank of Associate Professor in August 1996. I attained the rank of Professor in the Department of Electrical Engineering in August 2002, and I continue to serve in that capacity. I have served concurrently as a Professor in the Department of Computer Science and Engineering at the University of Notre Dame from January 2003 through June 2018.

12. Since 2013, I have served as an Associate Chair of the Department of Electrical Engineering. I also serve as the Director of Undergraduate Studies in Electrical Engineering. In this role I oversee the department's undergraduate program in Electrical Engineering.

13. I spent the summer of 1992 at the Air Force Research Lab in Rome, New York, and I spent the summer of 1993 at the Intel® Corporation in Hillsboro, Oregon. Several leading computing companies, including Intel®, Sun Microsystems®, Apple® Computer, and Microsoft®, have supported my research at

Notre Dame. During the past 20 years, I have published over 100 technical papers related to the field of image processing and digital systems.

14. I am a member of the Institute of Electronics and Electrical Engineers, The International Society for Optical Engineering, and the Society for Imaging Science and Technology. I am a member of the academic honor societies Eta Kappa Nu, Tau Beta Pi, and Phi Kappa Phi.

A. Significant Research

15. For the past 20 years my work has focused on the design of techniques, hardware, and software for the processing of digital signals using digital computing devices. As an academic researcher I attempt to develop novel ideas for systems, then publish and present those ideas to the technical community. My success as an academic is directly related to the insights and techniques that provide the basis for new generations of products. My early work on digital techniques for printing and image capture devices led to significant interaction with companies developing desktop computers products in the early 1990's as they tried to incorporate those ideas into their products.

16. My interaction with Apple's Imaging Group focused on various imaging devices such as digital cameras, scanners, and printers and how to best support those devices on desktop computers. At Intel, I worked in Intel's Architecture Lab at the time the MMX multimedia instructions were being

incorporated into the Pentium processor. My work there dealt with developing video compression techniques for CD-ROM's and network communications that were well matched to the Pentium architecture. I also gave a series of talks on how advanced communication and video processing techniques could be better supported on the Pentium platform. Similarly, my interaction with Sun Microsystems's group examined how advanced signal processing techniques could be best implemented using Sun's new Visual Instruction Set on the Sparc architecture.

17. I have also received significant support for my research from several U.S. Department of Defense Agencies. The Air Force Research Laboratory has funded my work to develop advanced parallel processing algorithms that exploited an ad-hoc network of mixed computers to achieve significant computational advantages over their previously implemented techniques. Other Department of Defense agencies have supported my work in image and video enhancement.

B. Publications And Conferences

18. I have published over 150 papers in international journals and international conferences.

19. I am an inventor of U.S. Patent No. 6,081,552, "Video Coding Using a Maximum A Posteriori Loop Filter," June 27, 2000.

20. Additional information concerning my background, qualifications, publications, conferences, honors, and awards are described in my Curriculum Vitae, a copy of which is provided as Exhibit 1004.

C. Compensation and Previous Expert Opinions

21. I am being compensated at my usual rate of \$700/hour for each hour of service that I provide in connection with this case, including time I spend consulting, writing this report, giving deposition testimony and testifying. My compensation does not depend in any way on the content of my testimony and is not affected by or dependent on the outcome of the case. If called to testify as to the contents of this report, I can and would testify truthfully and competently.

22. A listing of previous cases in which I have provided expert testimony in the past four years can also be found in Exhibit 1004.

IV. MATERIALS CONSIDERED

23. In forming my opinions, I have reviewed the following documents, as well as other documents cited throughout this declaration:

Exhibit	Description
Ex. 1001	U.S. Patent No. 7,428,082 to Nakajima (“the ’082 Patent”)
Ex. 1002	File History of U.S. Patent No. 7,428,082
Ex. 1005	U.S. Patent Application Publication No. 2002/0030833 to Kuwata et al. (“Kuwata”)
Ex. 1006	U.S. Patent Application Publication No. 2001/0025303 to Fisher et al. (“Fisher”)
Ex. 1007	U.S. Patent No. 6,788,305 to Ohga (“Ohga”)
Ex. 1008	European Patent Application EP 0 998 140 to Shiohara et al. (“Shiohara”)
Ex. 1009	U.S. Patent No. 6,903,762 to Prabhu et al. (“Prabhu”)
Ex. 1010	U.S. Patent No. 5,477,264 to Sarbadhikari et al. (“Sarbadhikari”)

24. I have also relied on my education, experience, research, training, and knowledge in the relevant art, and my understanding of legal principles described in this declaration.

25. All of the opinions contained in this declaration are based on the documents I reviewed and my knowledge and professional judgment. My opinions have also been guided by my understanding of how a POSITA would have understood the claims of the ’082 Patent at the time of the earliest claimed priority date.

26. I reserve the right to supplement and amend any of my opinions in this declaration based on documents, testimony, and other information that becomes available to me after the date of this declaration.

V. LEGAL STANDARDS

27. I am an engineer and not a lawyer. My understanding of the legal standards to apply in reaching the conclusions in this declaration is based on discussions with counsel for Petitioner, my experience applying similar standards in other patent-related matters, and my reading of the documents submitted in this proceeding. I have applied these legal standards in preparing this declaration.

28. I have been informed that there are two ways in which prior art may render a patent claim unpatentable. First, I have been informed that the prior art can “anticipate” a claim. Second, I have been informed that the prior art can render a claim “obvious” to a POSITA. I understand that a claim is patentable if it was not anticipated and would not have been rendered obvious by the prior art at the effective filing date of the patent.

29. I have been informed that a dependent claim is a patent claim that refers back to another patent claim. I have been informed that a dependent claim includes all of the limitations of the claim to which it refers plus its own limitation(s).

30. I have been asked to provide my opinions as to whether the cited prior art discloses or renders obvious claims 1-10 of the '082 Patent from the perspective of a POSITA at the time of the earliest claimed priority date of May 7, 2002, as described in more detail below.

31. I have been informed that in IPR proceedings, such as this one, the party challenging the patent bears the burden of proving unpatentability by a preponderance of the evidence. I understand that a preponderance of the evidence means “more likely than not.”

32. For purposes of this declaration, I have been asked to provide my opinions on issues regarding unpatentability. I have been informed of the following legal standards, which I have applied in forming my opinions.

A. Level of Ordinary Skill

33. I have been informed that a POSITA is determined by considering several factors, including the (i) type of problems encountered in the art; (ii) prior art solutions to those problems; (iii) rapidity with which innovations are made; (iv) sophistication of the technology; and (v) educational level of active workers in the field.

34. I have been instructed to assume that a POSITA is not a specific real individual, but rather a hypothetical individual having the qualities reflected by the

factors discussed above. A POSITA is assumed to be person of ordinary creativity familiar with the prior art as of the priority date of the patent at issue.

B. Prior Art

35. I have been advised and understand that the information used to evaluate whether an invention was new and not obvious when made is generally referred to as “prior art.” I understand that in an IPR proceeding, prior art includes patents and printed publications that existed before the earliest claimed priority date or the earliest filing date of the patent (which I have been informed is also called the “effective filing date”). I have been informed and understand that a patent or published patent application is prior art if it was filed before the earliest filing date of the claimed invention and that a printed publication is prior art if it was publicly available before the earliest filing date.

C. Anticipation

36. I have been informed that under 35 U.S.C. § 102, a patent claim is unpatentable for anticipation if the claimed subject matter was patented or described in a printed publication before the effective filing date of the claimed invention. I have been informed that this is referred to as unpatentability by anticipation. I have been informed that a patent claim is anticipated under § 102 if a single prior art reference discloses all the limitations of the claimed invention. I

understand that limitations may be expressed or inherent such that the limitation is essential to the prior art.

D. Obviousness

37. I have been informed that for obviousness under 35 U.S.C. § 103, a patent claim is unpatentable if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious to a POSITA to which said subject matter pertains at the time the invention was made. I have been informed that this is referred to as unpatentability by obviousness.

38. I have been informed that an obviousness analysis includes the following considerations:

- a. Determining the scope and content of the prior art;
- b. Ascertaining the differences between the prior art and the claims at issue;
- c. Resolving the level of ordinary skill in the pertinent art; and
- d. Considering evidence of secondary indicia of nonobviousness (if available).

39. I have been informed that the relevant time for considering whether a claim would have been obvious to a POSITA is the time of invention. For my obviousness analysis, counsel for Petitioner instructed me to assume that the date

of invention for the challenged claims is May 7, 2002. My opinions would not change if I assumed another, e.g., later, date of invention.

40. I have been informed that a reference may be modified or combined with other references or with a POSITA's own knowledge if the person would have found the modification or combination obvious. I have also been informed that a POSITA is presumed to know all the relevant prior art, and the obviousness analysis may take into account the inferences and creative steps that a POSITA would employ.

41. I have been informed that an obviousness determination must be made from the perspective of a POSITA. I have also been informed that there is no requirement that the prior art contain an express suggestion to combine known elements to achieve the claimed invention, and that a suggestion to combine known elements to achieve the claimed invention may come from the prior art as a whole or individually. Also, the obviousness analysis may rely on the inferences and creative steps a POSITA would employ, as filtered through his or her knowledge as of the priority date. But I understand that obviousness grounds cannot be sustained by mere conclusory statements and must include some articulated reasoning and rationale to support a legal conclusion of obviousness.

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

- a. A combination of familiar elements according to known methods is likely to be obvious if it yields predictable results;
- b. The substitution of one known element for another is likely to be obvious if it yields predictable results;
- c. The use of a known technique to improve similar items or methods in the same way is likely to be obvious if it yields predictable results;
- d. The application of a known technique to a prior art reference that is ready for improvement to yield predictable results;
- e. Any need or problem known in the field and addressed by the reference can provide a reason for combining the elements in the manner claimed;
- f. A person of ordinary skill often will be able to fit the teachings of multiple references together like a puzzle; and
- g. The proper analysis of obviousness requires a determination of whether a POSITA would have a “reasonable expectation of success”—but not “absolute predictability” of success—in achieving the claimed invention by combining prior art references.

43. I have been informed that, when a work is available in one field, design alternatives and other market forces can prompt variations of it, either in the same field or in another. I have been informed that if a POSITA could have implemented a predictable variation and would have seen the benefit of doing so, that variation is likely to have been obvious. I have been informed that, in many fields, such as the mechanical arts, market demand—not scientific literature—may drive design trends. I have been informed that, when there was a design need or market pressure and there are a finite number of predictable solutions, a POSITA would have had a good reason to pursue those known options.

44. I have been informed that the law permits the application of “common sense” in examining whether a claimed invention would have been obvious to a POSITA. For example, I have been informed that combining familiar elements according to known methods and in a predictable way may suggest obviousness when such a combination would yield nothing more than predictable results. I understand, however, that a claim is not obvious merely because every claim element is disclosed in the prior art. A party asserting obviousness must provide a specific motivation to combine or modify the references as recited in the claims and explain why one skilled in the art would have reasonably expected to succeed in doing so.

45. I have been informed that there is no rigid rule that a reference or combination of references must contain a “teaching, suggestion, or motivation” to combine references. But I also understand that the “teaching, suggestion, or motivation” test can be a useful guide in establishing a rationale for combining elements of the prior art. I have been informed that this test poses the question as to whether there is an express or implied teaching, suggestion, or motivation to combine prior art elements in a way that results in the claimed invention, and that it helps to counter the use of hindsight, which is impermissible. Likewise, if a prior art reference “teaches away” from a potential prior art combination, then a motivation to combine may not exist.

46. I am not aware of any evidence of secondary considerations, such as unexpected results, industry skepticism, long-felt unresolved need, commercial success, praise by others, or copying that would alter my opinions set forth below.

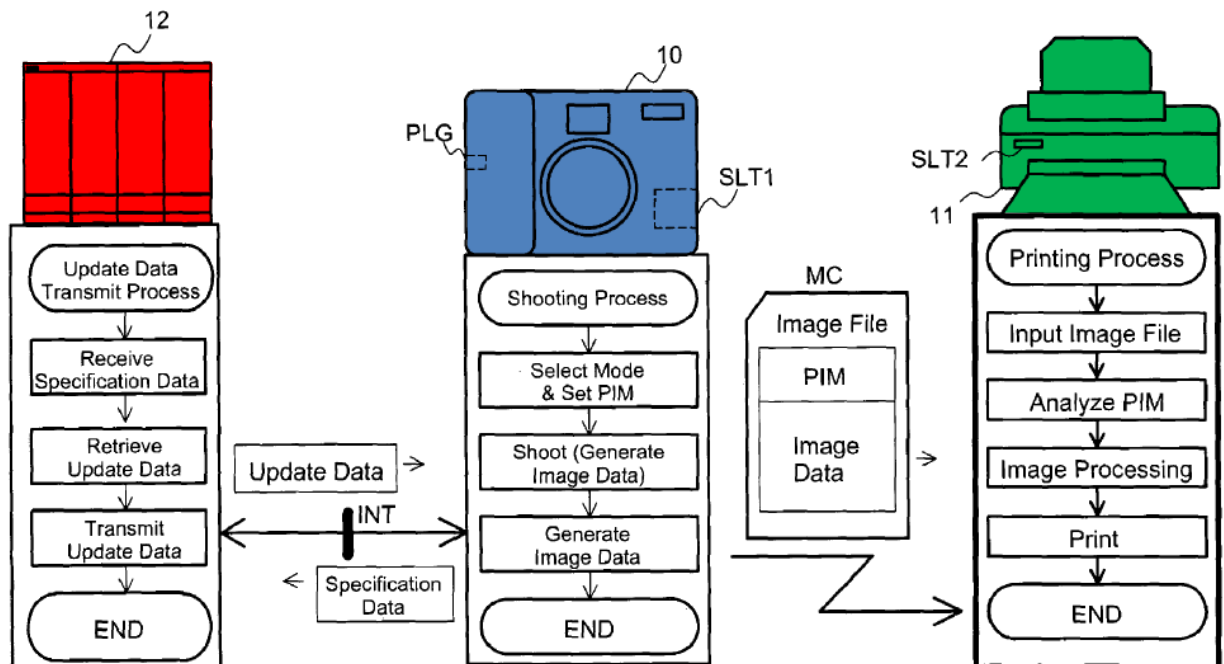
47. I have been informed that, in an obviousness analysis, prior art must be analogous art to the patent being considered. I have been informed that a prior art reference is considered to be analogous, or in the same field of art, if the reference is either (1) in the same field of endeavor as the challenged patent, regardless of the problems the challenged patent and the prior art address, or (2) reasonably pertinent to the particular problem being solved by the challenged patent.

VI. BACKGROUND

A. The '082 Patent

48. The '082 Patent “relates to a technique for image processing of image data, based on image processing control data that is related to the image data and is used to control the image processing of the image data.” Ex. 1001, 1:7-10. Figure 1, below, depicts an “image output system” that includes “a digital still camera (DSC) 10 as an image related data generator, a color printer 11 as an image processing apparatus and an image output apparatus, and an update data storage server (UDS server) 12 as an update data transmit apparatus.” *Id.*, 5:46-52.

Fig. 1



Id., FIG. 1 (annotated).

49. As shown in Figure 3, below, the camera includes an **image data generator 31**, a **control data storage module 33**, an **identification data storage module 34**, a **storage manager 35**, and an **image file generator 36**. *Id.*, 7:24-58. The **image data generator 31** “generates image data from the information regarding the light rays collected by the image generation circuit.” *Id.*, 7:24-27. The **control data storage module 33** stores image processing control data, also called “PIM parameters” or “PIM” in the specification. *Id.*, 5:59-62, 7:27. The image processing control data may include “various information,” including “gamma values” of the camera, “setting parameters for contrast and color balance,” “color space parameters that identif[y] the color space where the image data is defined,” and “parameters related to the shooting condition.” *Id.*, 6:59-60, 6:63-7:2.

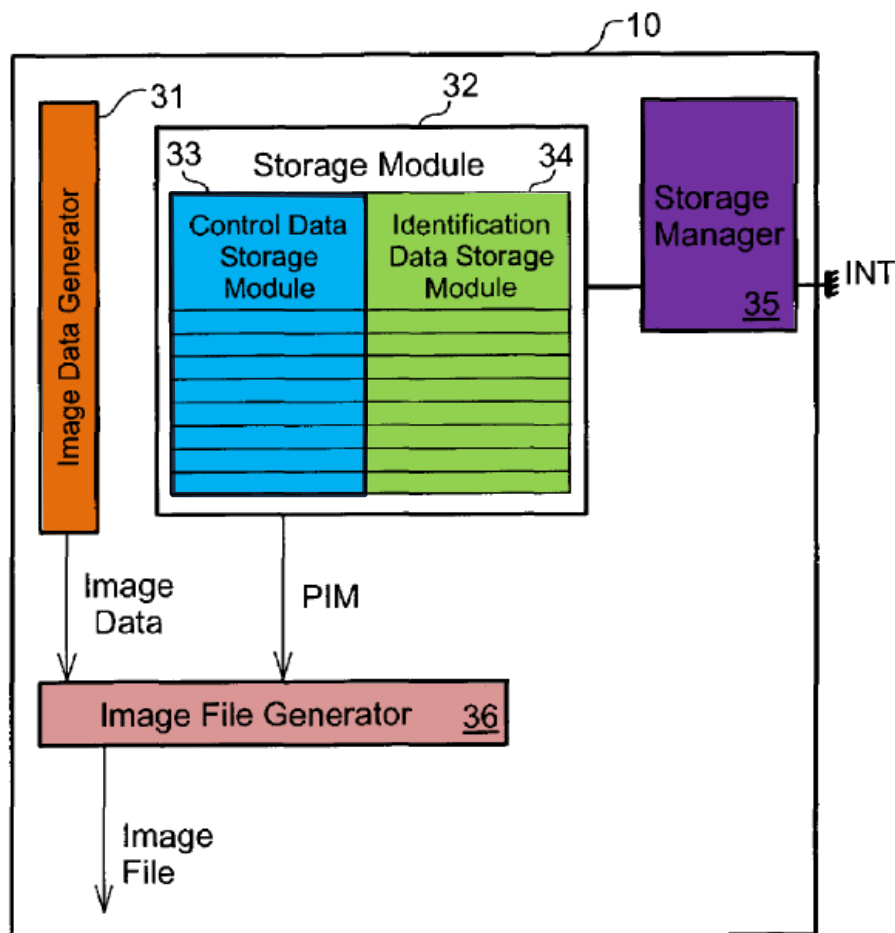
50. The **identification data storage module 34** “stores identification data that identifies the [image processing control data].” *Id.*, 7:53-54. This identification data “can include attribute data of the image related data generator, such as the name of the device,” and “data related to the image output devices, such as the name of the device.” *Id.*, 2:64-3:2.

51. The **storage manager 35** manages the image processing control data and communicates with the server to acquire update data corresponding to the image processing control data. *Id.*, 7:34-41. This update data can, for example,

“correspond[] to the image related data generator and the image output device specified by the identification data.” *Id.*, 3:2-5.

52. The **image file generator 36** “generates an image file and transmits the image file to the printer.” *Id.*, 5:58-59, 7:29-33. This image file contains image data from the **image data generator 31** and related image processing control data from the **control data storage module 33**. *Id.*, 5:59-62, 7:29-32.

Fig.3

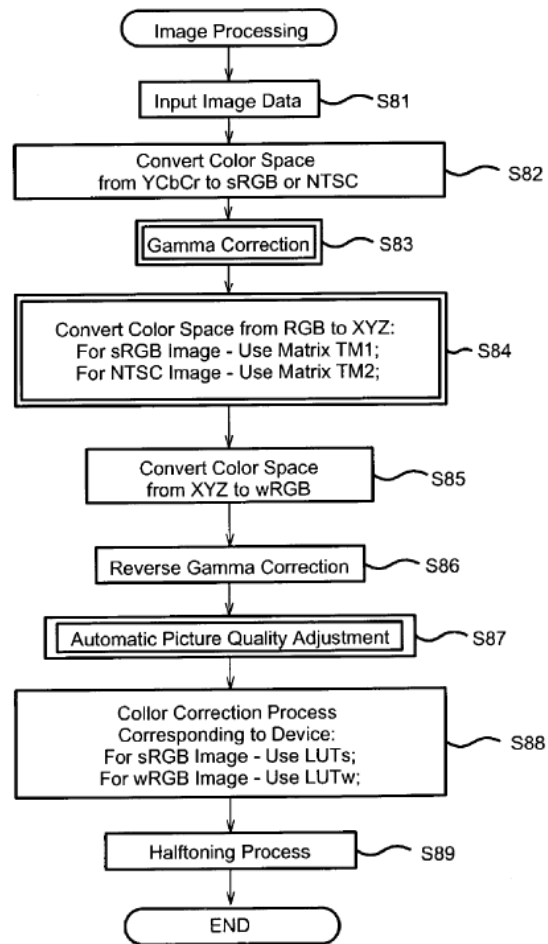


Id., FIG. 3 (annotated).

53. An update data transmit module of the **server 12** determines the update data for the image processing control data based on “specification data sent from the” camera’s **storage manager 35** and “sends update data to the” **camera 10**. *Id.*, 6:26-30, 7:39-44, 8:3-5. “[T]he specification data may include a part of the [image processing control data], or identification data to identify the [image processing control data].” *Id.*, 6:30-31. After receiving the update data, the **storage manager 35** stores it in the **control data storage module 33** by either overwriting old data or saving it separately. *Id.*, 7:45-50.

54. A **printer 11** receives the image file and “executes the image processing of the image data according to the” image processing control data and prints the image. *Id.*, 5:62-64, 6:14-18. Figure 8, below, “is a flowchart of the image processing” performed by the **printer 11**. *Id.*, 9:12-10:56. As discussed further below, this flowchart is substantively identical to Figure 10 of Kuwata.

Fig.8

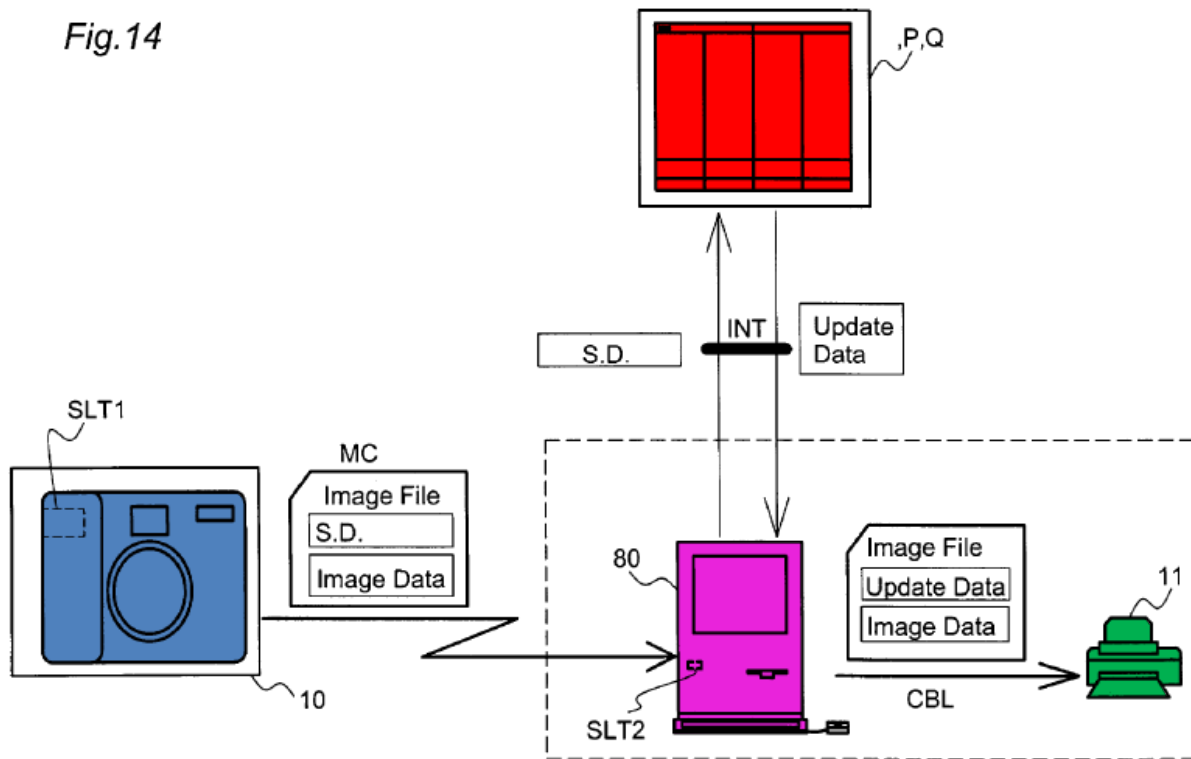


Id., FIG. 8.

55. Figure 14, below, depicts another embodiment of an image output system, where a **personal computer** is an “image related data editor” and communicates with the **server**, **digital camera**, and **printer**. *Id.*, 12:60-67. In this embodiment, the image file sent from the **camera** to the **personal computer** includes specification data, which the **computer** extracts and sends to the **server** to acquire the update data. *Id.*, 13:1-30. An image file generator at the **computer** then

“generates the modified image file” with the image data from the camera and the update data and sends the image file to the **printer**. *Id.*, 13:14-43.

Fig.14



Id., FIG. 14 (annotated).

56. In the claims, independent claims 1 and 10 relate to the image related data generator/digital camera used in the image output system of the Figure 1 embodiment, independent claim 7 relates to an image related data editor used the image output system of the Figure 14 embodiment, and independent claims 8 and 9 relate to update data transmit apparatus and corresponding method for use in either the Figure 1 or the Figure 14 embodiments.

B. Prosecution History

57. The '082 Patent was filed as U.S. Application No. 10/429,017 (“’017 Application”). The Examiner rejected the original claims as anticipated by U.S. Patent No. 6,229,625 (“Nakatsuka”). In response, Applicant amended several claims to require that “the image processing control data is to be used in processing of the image data by an image processing device that receives the image data and the image processing control data that are transferred from the” corresponding apparatus. Ex. 1002, 173-174. Applicant argued that Nakatsuka lacked this feature and that, for the “image related data generator,” “image related data editor,” and “update transmit apparatus” claims, the Examiner was improperly combining components from different devices disclosed in Nakatsuka. *Id.*, 180-181. For the “method for transmitting update data” claim, Applicant argued that the claim requires that “the inputting and transmitting steps involve the same peripheral device” and the Examiner was mapping these steps to two different devices. *Id.* 183-184.

58. The Examiner then rejected most claims as obvious over Nakatsuka and U.S. Patent Pub. No. 2002/0122194 (“Kuwata ’194”) and rejected three claims as anticipated by Kuwata ’194. *Id.*, 197-211. Regarding the obviousness rejection, Applicant argued that, though Kuwata ’194’s filing date “predates the priority date of May 7, 2002, to which the subject application is entitled,” it was commonly

owned, only prior art under 35 U.S.C. § 102(e), and thus could not be used in an obviousness rejection under § 103(c). *Id.*, 226-227. Regarding the anticipation rejection, Applicant argued that Kuwata '194's output specification information was "significantly different from image processing control data" because the output specification information "is used to specify the size and type of printing paper used for printing, the number of copies, and the time required for printing," but not to specify image processing control data to be updated which is pre-stored and thus did not disclose the added requirement of "a memory management module configured to acquire additional image processing control data." *Id.*, 225, 227-229.

59. The Examiner then issued a notice of allowance. *Id.*, 241-246.

VII. LEVEL OF ORDINARY SKILL IN THE ART

60. In my opinion, POSITA in the field of the '082 Patent would have had a bachelor's degree in electrical engineering, computer science, or related disciplines, and two years of experience in digital image processing. Relevant work experience can substitute for formal education and additional education could substitute for work experience.

61. I met the criteria for a POSITA at the earliest priority date of the '082 patent. At the time of the invention, I had already received a Ph.D. in Electrical Engineering and had been a professor of Electrical Engineering at the University of

Notre Dame for over a decade. I also had worked in the field of image/video processing and analysis for over 15 years. So I would have exceeded the level of ordinary skill in the art.

VIII. CLAIM CONSTRUCTION

62. I understand that, in this proceeding, the claims are construed according to their ordinary and customary meaning, in light of the specification and prosecution history, as understood by a POSITA at the time of the invention. I understand that this is the same claim construction approach used in district court litigation.

63. In my opinion, none of the claim terms require further construction for me to provide my opinions on whether the prior art renders obvious the claims of the '082 patent.

IX. THE PRIOR ART

64. As explained in Section X below, it is my opinion that claims 1-10 would have been obvious to a POSITA based on combinations of Kuwata, Fisher, and Ohga, each of which I have been instructed to assume is prior art. It is also my opinion that claim 9 is anticipated by Ohga.

A. Kuwata (Ex. 1005)

65. Kuwata, like the '082 Patent, relates to processing image data “based on the control parameter values obtained from the analyzed output control

information” related to the image data. Kuwata, [0067], [0071], [0101]. Kuwata discloses a digital still camera (“DSC”) 22 “that generates image files GF,” and a “printer 24 as an output device that outputs images based on image files GF generated by” DSC 22. Kuwata, [0080]. The image file “generated by DSC 22 is sent to printer 24 via, for example, cable CV ... and computer PC, or via cable CV or by a wireless communications channel.” Kuwata, [0085]. The image output system including DSC 22, the computer PC, and printer 24 is depicted in Figure 4, below.

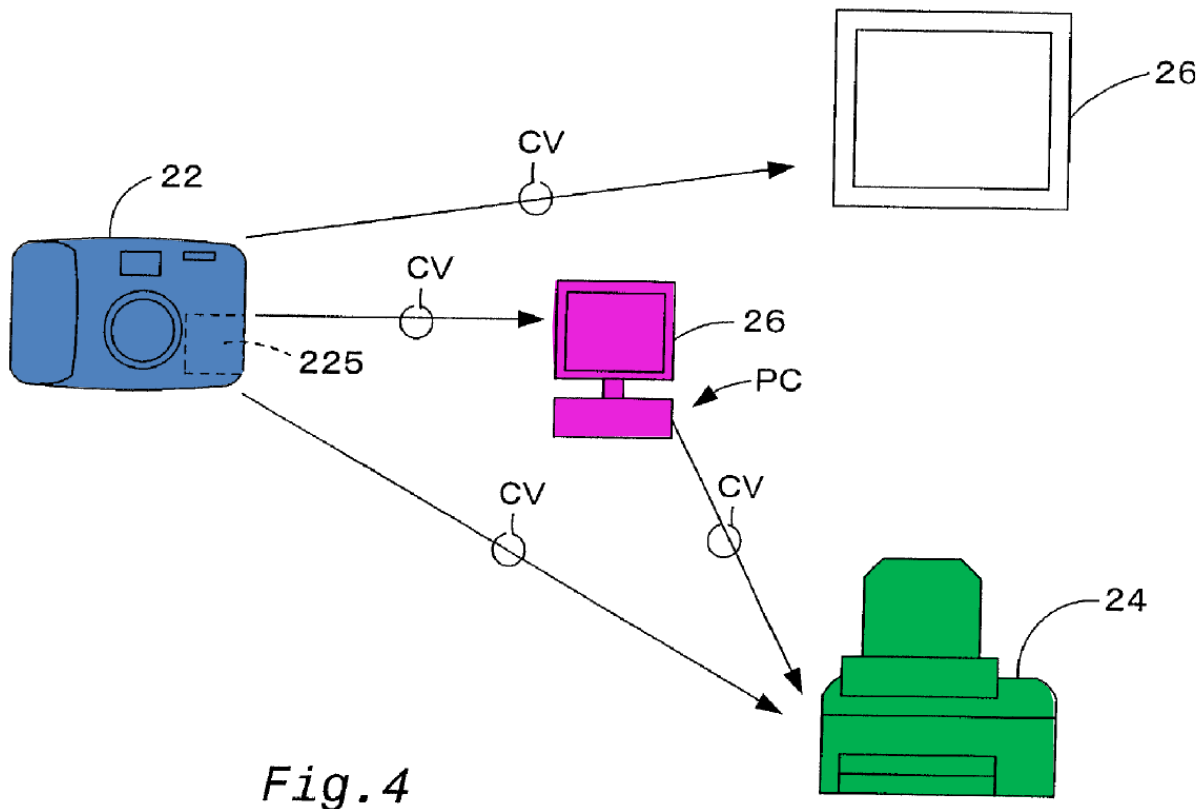


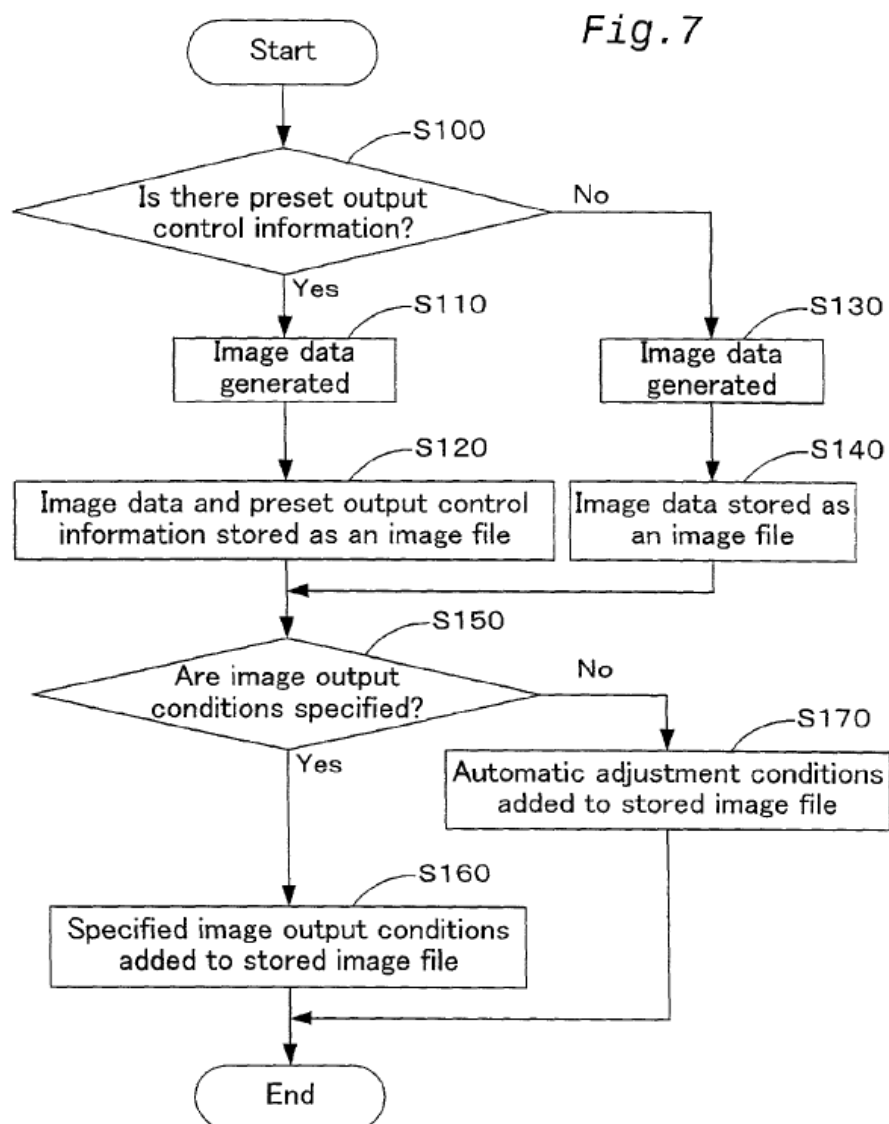
Fig. 4

Kuwata, FIG. 4 (annotated).

66. Kuwata discloses that [DSC 22](#) is a type of “image data generating apparatus” that “generates image data GD” and stores the “image data GD and output control information CI within one” image file GF. Kuwata, [0075], [0080], [0090] This output control information CI includes user-selected output conditions selected from a menu of “preset” output conditions stored “in memory within control circuit 224 of [DSC] 22.” Kuwata, [0083], [0089]. “Preset conditions can be, for example, output conditions to match the output device that outputs the image data GD in an image file GF, output conditions optimized for each manufacturer of printer 24 or for each equipment type of printer 24, or ... general use output conditions that are used fairly often, such as bright, sharp, etc.” Kuwata, [0075], [0077], [0083], [0089]. Like the '082 Patent's image processing control data, Kuwata's “[o]utput control information CI” is “information for controlling image processing at the output device.” Kuwata, [0067].

67. Figure 7, below, “shows the image processing flow” for [DSC 22](#), which is carried out by control circuit 224 within [DSC 22](#). Kuwata, [0088]-[0093], FIG. 7. Control circuit 224 “decides whether preset control information is set by the user before taking a picture.” Kuwata, [0089]. If so, “control circuit 224 generates image data GD ... according to a shooting request” and “stores the generated image data GD and the set preset control information as an image file GF in storage device 225.” Kuwata, [0090]. If not, control circuit 224 “stores the

generated image data GD as an image file GF in storage device 225.” Kuwata, [0091]. Control circuit 224 then determines whether “any image output condition after shooting” has been specified. Kuwata, [0092]. If so, “control circuit 224 adds the specified image output conditions to the image file GF stored in storage device 225,” and if not, “control circuit 224 adds preset automatic adjustment conditions to the stored image file.” Kuwata, [0092].



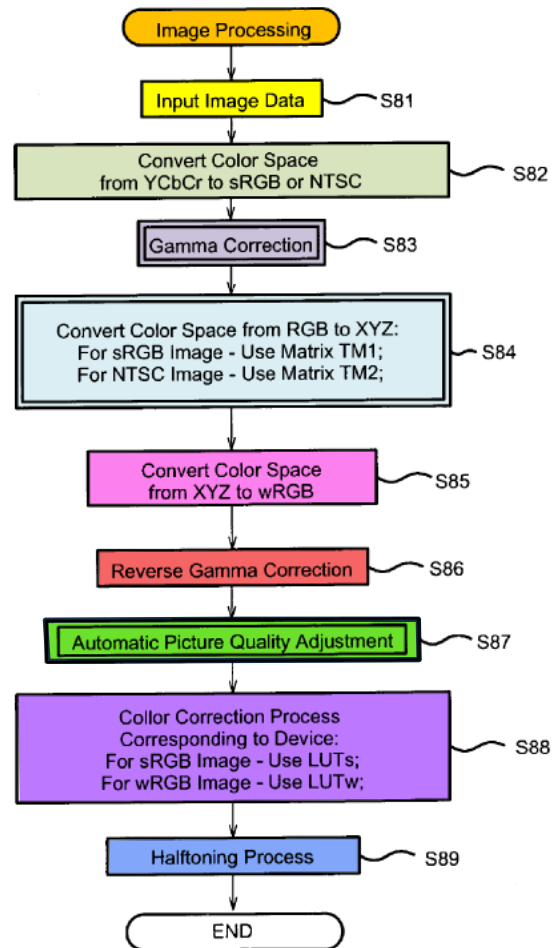
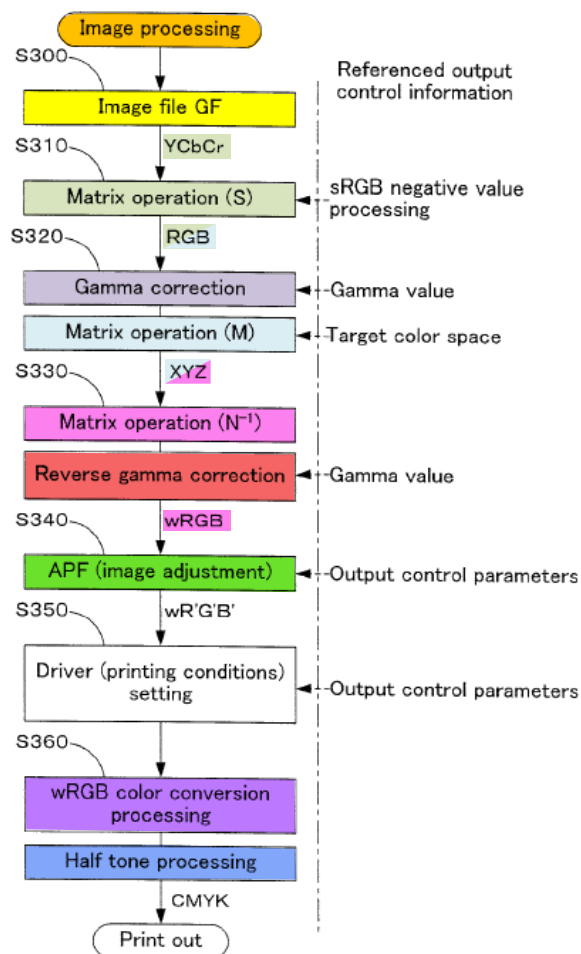
Kuwata, FIG. 7.

68. Kuwata also discloses an alternative embodiment where, instead of carrying out the above steps in DSC 22, some steps are performed using “an application program executed on a personal computer.” Kuwata, [0096], [0115]. “In this case, instead of generating image data GD, image data GD is obtained from a digital camera, and is stored together with the output control information CI generated by the application program in one image file GF.” Kuwata, [0096].

69. Figure 10, below left, depicts one example of “the flow of image processing of printer 24” when it receives the image file from either DSC 22 or the PC. Kuwata, [0098]-[0117]. Printer 24 “executes the image processing ... based on the control parameter values obtained from the analyzed output control information CI, and prints out the processed image data.” Kuwata, [0101]. The steps within the image processing flow of Figure 10 are nearly identical to those for Figure 8 of the '082 Patent, below right, as indicated by the colors below. Compare Kuwata, FIG. 10, [0103]-[0112], with Ex. 1001, FIG. 8, 9:12-10:56.

Fig.8

Fig. 10



Kuata, FIG. 10 (annotated, left); Ex. 1001, FIG. 8 (annotated, right).

70. Kuata is analogous art to the '082 Patent because it is in the same field of endeavor: image processing based on control information related to the image data. Ex. 1001, 1:7-10; Kuata, [0087]-[0119]. Kuata is also analogous art because it is reasonably pertinent to at least one of the problems with which the '082 Patent is involved. Just as the '082 Patent discloses setting image processing control data "according to the type of the image output device,"

including setting data “based on the color reproduction characteristics of the image output device,” Kuwata discloses controlling “the image output status at the output device” and setting “image output conditions considering color reproduction characteristics of the output device.” Ex. 1001, 4:18-27, 10:13-16; Kuwata, [0096].

B. Fisher (Ex. 1006)

71. Fisher relates to “accessing and utilizing ancillary data with an electronic camera device.” Fisher, [0003]. Fisher discloses that “a manufacturer may create various ancillary data files, and make the ancillary data files available on a distributed computer network like the Internet for subsequent downloading and utilization by the camera device.” Fisher, [0008]. The camera device includes “I/O interface(s) 348 to bi-directionally communicate with various types of wireless communications,” including “an effective means to remotely communicate with an external entity such as an Internet server, to thereby download various types of ancillary data files 418 and other information from a wireless data source.” Fisher, [0044]. These ancillary data files 418 may “include any appropriate information data, or instructions to facilitate successful operation of the camera device.” Fisher, [0034].

72. Fisher’s camera device also includes memory 346 that includes “ancillary data module 416, ancillary data files 418, ... and camera menus 424.” Fisher, [0031]. “Camera menus 424 may preferably include any appropriate

listings of information and functionalities pertaining to camera device 110” and “may be displayed upon viewfinder 308 to allow a system user to download, view, manage, and utilize various ancillary data files 418.” Fisher, [0035].

73. The “ancillary data module 416 may preferably control and coordinate ancillary data management procedures to download various types of ancillary data from various external data sources and camera device 110.” Fisher, [0033]. The ancillary data module 416 includes “a download manager 512” that “may access various ancillary data files 418 from a location” like an Internet server and “responsively identify and store the downloaded ancillary data files 418 into memory [346] of camera device 110.” Fisher, [0036]-[0037], [0044]. The ancillary data module 416 also includes a data manager 524 that “manage[s] ancillary data files 418 and captured image data in data storage 422.” Fisher, [0039]. This includes “creat[ing] and restructur[ing] ancillary data files 418 into various directories and folders to effectively facilitate access and utilization of newly-downloaded ancillary data files 418 by a system user.” Fisher, [0039]. It also includes “reorganize[ing] or delet[ing] local ancillary data files 418 in camera device 110, depending upon the particular type of downloaded ancillary data files 418.” Fisher, [0060].

74. Each ancillary data file may include a “descriptor 712,” which “may include information regarding the nature of the associated data 714, such [as] a

data format or a data type.” Fisher, [0049], [0053]. “[A]ncillary data module 416 may advantageously analyze downloaded ancillary data files 418 using descriptors 712 and other means to thereby update camera menus 424, and otherwise provide current information to a system user for effectively utilizing the ancillary data files 418.” Fisher, [0053].

75. Fisher is analogous art to the ’082 Patent because it is in the same field of endeavor: image processing based on control information related to the image data. Ex. 1001, 1:59-62; Fisher, [0008]-[0013], [0050]. Fisher is also analogous art because it is reasonably pertinent to the problems with which the ’082 Patent is involved. Just as the ’082 Patent seeks to solve the problem of acquiring new image processing control data on a camera or computer, Fisher discloses a process for acquiring new image processing control data on a camera or computer. Ex. 1001, 12:30-35; Fisher, [0033], [0036]-[0037], [0039], [0044].

C. Ohga (Ex. 1007)

76. Ohga discloses “an image processing apparatus and method which can execute appropriate color matching in a network environment.” Ohga, 1:43-45. Ohga discloses a server S1 that includes image files input by digital still cameras, each of which may include image data J1 and an embedded “input profile P1 of the device that inputs the image data J1.” Ohga, 2:27-31, 2:65-3:1, 3:7-15, 4:30-38. Server S1 also includes a color matching module (“CMM”) program M1 and “P2,

a profile of an output device,” such as a monitor or printer. Ohga, 1:16-22, 3:16-19. Ohga discloses that server S1 also includes an HTML document H1, “which is set with a link to an image data file” on the server or another linked computer and “a file link for downloading the CMM program M1.” Ohga, 2:31-36, 3:25-28.

77. Ohga discloses that a PC connected to the server over a network N1 downloads the HTML document H1 and, based on its links, downloads the image file and the CMM program M1. Ohga, 2:42-57, 3:25-28, 3:37-45, 4:30-38. Depending on whether the input profile is embedded in the image file or stored separately on the server, the PC either “demultiplexes the input profile from the downloaded image data” or downloads the input profile “in accordance with the designation of the input profile on the HTML document H1,” respectively. Ohga, 3:42-45, 4:30-38. Then “profile names” corresponding to output devices having an output profile stored on server S1 “are presented to the user,” and the “profile selected by the user is downloaded from the server.” Ohga, 3:48-58, 4:7-12. “The profile names presented to the user, and profiles on the server are associated with each other in advance, and when the user selects a given profile name, the corresponding profile on the server is automatically loaded into the CMM program of the client.” Ohga, 3:54-58. “[T]he CMM program M1 executes color matching for the image data J1 on the basis of the input profile P1” and the selected output profile.” Ohga, 4:3-5.

78. In my opinion, Ohga is analogous art to the '082 Patent because it is in the same field of endeavor—both disclose processing image data in an image file based on the output device (e.g., printer) used to output the image data.

Ex. 1001, 4:18-35; Ohga, 3:48-4:37. Ohga is also analogous art because it is reasonably pertinent to the problems with which the '082 Patent is involved. Both the '082 Patent and Ohga disclose a server that provides data for processing image data based on the type of the image output device. Ex. 1001, 3:56-4:35; Ohga, 3:48-4:37.

X. GROUNDS OF UNPATENTABILITY

79. Based on my review of the materials set forth above, including my application of the knowledge of a POSITA, it is my opinion that claims 1-10 of the '082 Patent would have been obvious to one of ordinary skill in the art as of May 7, 2002, and claim 9 of the '082 Patent is anticipated.

80. In particular, it is my opinion that claims 1-10 of the '082 Patent would have been obvious to a POSITA and claim 9 is anticipated based on the following grounds:

Grounds	Claims Challenged	Basis	Prior Art
1	1-3, 5-6, and 10	obviousness	Kuwata and Fisher
2	1-6 and 10	obviousness	Kuwata, Fisher, and Ohga

Grounds	Claims Challenged	Basis	Prior Art
3	7	obviousness	Kuwata and Ohga
4	8	obviousness	Ohga and Kuwata
5	9	anticipation	Ohga
6	9	obviousness	Ohga

A. Ground 1: Claims 1-3, 5-6, and 10 Are Obvious over Kuwata and Fisher

81. Claim 1 is generally directed to an image related data generator (e.g., a digital still camera) for relating image data and image processing control data (e.g., in an image file), where the image processing control data is to be used in processing of the image data by an image processing device that receives the image data and the image processing control data. As explained in detail below, Kuwata discloses these features by disclosing a digital still camera that stores preset conditions in memory and generates an image file that includes image data and set preset conditions to control the image processing at a device that receives the image file, such as a printer. Claim 1 also discloses updating at least a part of the image processing control stored in the control data storage based on specification data. As explained in detail below, it would have been obvious to combine Kuwata and Fisher to update at least a part of the preset conditions stored in Kuwata's

camera memory, for example, to download and store new or updated preset conditions associated with a particular DSC-printer pair.

1. Independent Claim 1

a. [1pre]: “An image related data generator, connectable to a server, comprising:”

82. If the preamble is limiting,¹ in my opinion, Kuwata and Fisher render obvious [1pre].

83. Kuwata discloses “a [digital still camera 22](#)” (image related data generator), depicted in the image data output system below, that “generates image data based on a subject” by “forming images from light information in a digital device,” like a charge-coupled device (“CCD”), and “sav[ing] the obtained images as digital data.” Kuwata, [0019], [0080]-[0081].

¹ I have no opinion whether the preambles of the claims are limiting. But if they are, it is my opinion that they are disclosed or rendered obvious for the reasons discussed herein.

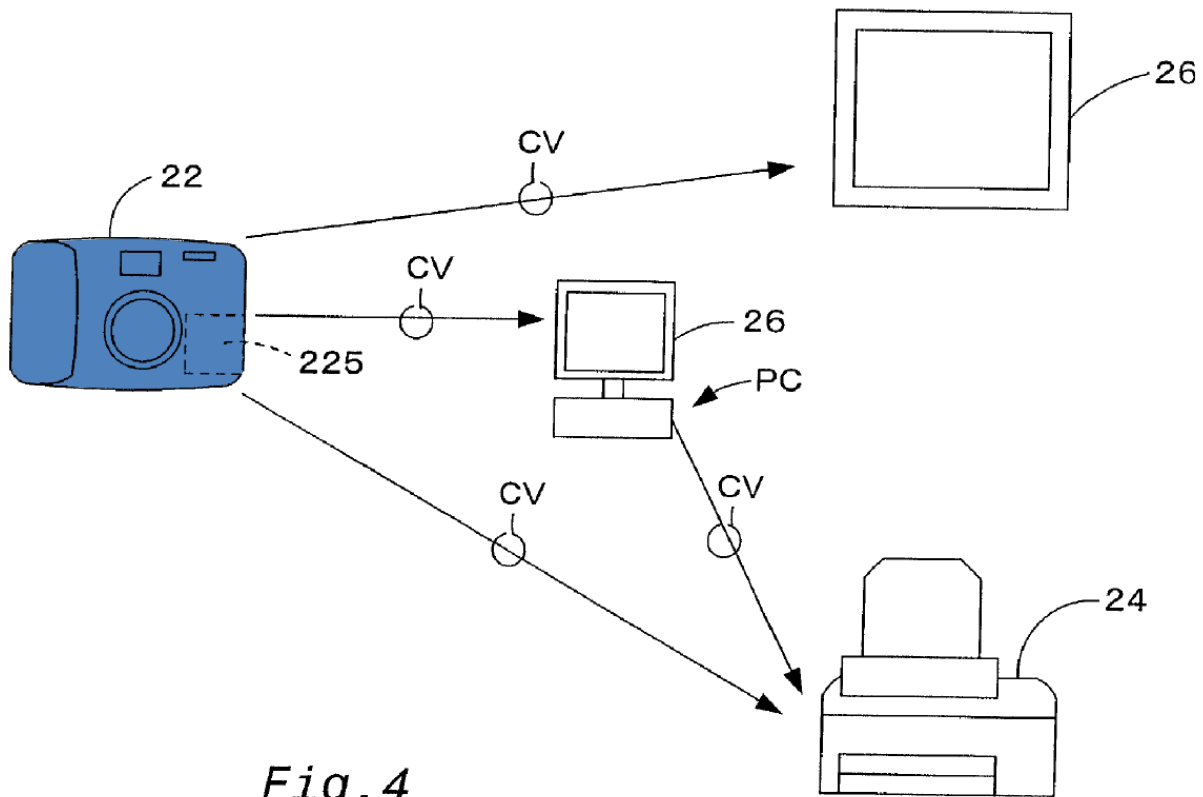


Fig. 4

Kuwata, FIG. 4 (annotated).

84. Kuwata discloses that its camera may include “I/O” and “wireless” ports for communicating via wired or wireless communication channels, “such as IR or RF (e.g., Bluetooth),” but does not expressly disclose that the camera is connectable to a server. Kuwata, [0081], [0085]. Making Kuwata’s camera connectable to a server would have been obvious to a POSITA in view of Fisher. Fisher, like Kuwata, discloses an “electronic camera device” that generates image data using the camera device’s capture subsystem, depicted below, which “capture[s] image data corresponding to target object 112 via reflected light

impacting **image sensor 224**,” including a CCD, “along **optical path 236**.” Fisher, [0023], [0026]-[0028], FIG. 2.

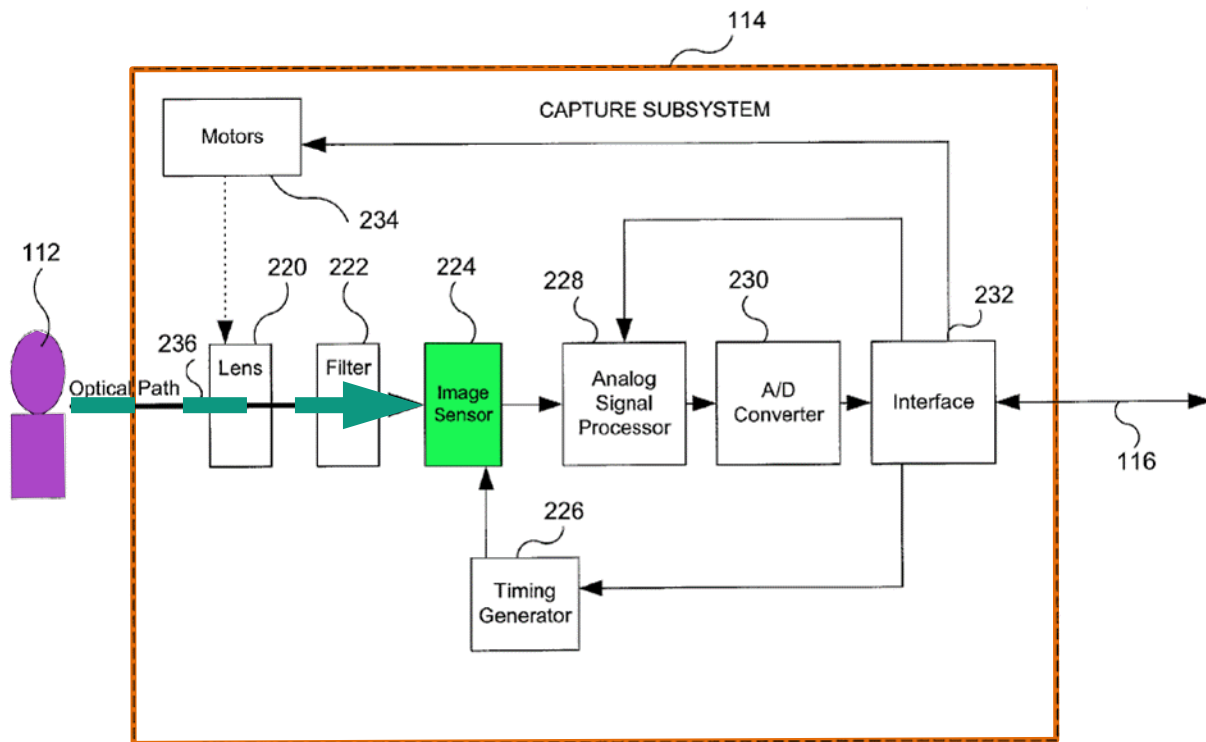


FIG. 2

Fisher, FIG. 2 (annotated).

85. Fisher discloses that the camera uses an I/O interface to communicate using IR or RF transmissions with “an external entity such as an Internet server, to thereby download various types of ancillary data files 418 and other information from a wireless data source.” Fisher, [0042], [0044]. Accordingly, Fisher teaches an electronic camera device (image related data generator) connectable to a server.

86. A POSITA would have found it obvious to implement Fisher's connectivity with a server in Kuwata's camera. A POSITA would have found it obvious to make various "ancillary data files available on a distributed computer network like the Internet for subsequent downloading and utilization by" Kuwata's device so that the data can be updated "to facilitate success operation" of the camera and improve outputs on different output devices. the camera device." Fisher, [0008], [0034], [0042], [0044]. A POSITA would have found it obvious to incorporate this network connectivity into Kuwata's image data output system to allow the camera to download additional data files to facilitate successful operation of the camera. Doing so would have been desirable to ensure that the camera stores the optimum combination of "preset conditions" for a particular printer to accurately reproduce an image captured by the camera. Kuwata, Abstract, [0013]-[0014], [0075], [0077], [0082]-[0083], [0096].

i. Motivation to Combine

87. In my opinion, a POSITA would have been motivated to modify Kuwata's camera to make it connectable to a server so that the camera can access and download ancillary data files to improve outputs across various output devices. Kuwata discloses benefits of storing "preset conditions" corresponding to "the optimum combination of operational characteristics of a DSC-printer pair" in the camera's memory "for later retrieval when the photographer identifies the target

printer to be used for printing.” Kuwata, [0077], [0082]-[0083]. These preset conditions specify the “optimum parameter settings that reflect a combination of both the” DSC’s and the printer’s characteristics. Kuwata, [0013]-[0014]. By having these preset conditions for printing from the camera to a particular printer pre-stored on the camera, “photographers can be guaranteed that the results will be optimal for the DSC-printer pair.” Kuwata, [0077], [0116]. Camera manufacturers are “best suited” to perform the “laborious” process of identifying the optimum combinations of conditions for a particular DSC-printer pair, which are “largely found through a trial and error process.” Kuwata, [0075], [0077], [0082]-[0083].

88. A POSITA would have been motivated to incorporate Fisher’s server connectivity into Kuwata’s camera to allow it to download, add, and update various preset conditions for DSC-printer pairs that are released after the camera was manufactured or not already stored in the camera’s memory, relieving users of the “laborious” process of identifying the conditions that manufacturers are “best suited” to identify. Kuwata, [0075], [0077]. Doing so would have used Fisher’s known technique of making a camera connectable to a server to improve Kuwata’s similar camera in the same way as Fisher, such as to download and utilize ancillary data files that manufacturers make “available on a distributed computer network like the Internet” to improve the images rendered by output devices. Fisher, [0008]. A POSITA would have known and been motivated to apply Fisher’s known

technique of allowing cameras to download manufacturer-created files from a server to improve Kuwata's camera by predictably allowing camera manufacturers to make files corresponding to optimal preset conditions for a DSC-printer pair available for download to a camera from a server. A POSITA would also been motivated to avoid using outdated DSC-printer pair settings that would result in decreased output quality at the printer. Kuwata, [0006], [0011], [0102].

89. Fisher itself also provides a motivation, as it teaches that a camera connectable to a server to "download various types of ancillary data files" is "advantageous[]" to address "factors like the growing demands on system functionality" that led to camera manufacturers needing to "develop[] effective systems for accessing and utilizing information." Fisher, [0007], [0030], [0042], [0044]. Such known advantages would have led a POSITA to combine Fisher's server connectivity with Kuwata's camera to arrive at a camera connectable to a server.

ii. Expectation of Success

90. In my opinion, a POSITA would have had a reasonable expectation of success in making Kuwata's camera connectable to a server, as taught by Fisher, at least because the similarities between Kuwata's and Fisher's cameras render the implementation the use of a known technique implemented in the same way as for other similar devices. For example, Kuwata's digital camera includes "I/O" and

“wireless” ports to communicate via “a wireless communications channel such as IR or RF” that would have provided “one or more effective interfaces for facilitating bi-directional communications between camera device 110 and any external entity,” such as “an Internet server.” Kuwata, [0081], [0085]; Fisher, [0030], [0044]. Using or modifying Kuwata’s ports to communicate with a server (e.g., over the Internet or via a computer connected to the Internet) would have been merely a combination of known elements according to known methods to yield predictable results.

91. A POSITA would have recognized that using Kuwata’s digital camera to communicate with a server, for example, to download, add, and update preset conditions for DSC-printer pairs, would have required the POSITA to apply only conventional techniques for transferring information over a network, as taught by Fisher, as was well known in the art and well within the skill of a POSITA because network communications were conventional, often standardized, and ubiquitous at the earliest priority date of the ’082 Patent. Fisher, [0023], [0044]. Implementing Fisher’s disclosed network-communication functionality between the digital camera and the server in Kuwata’s camera would have been a straightforward application of known, conventional software operations (communicating information over a network between an electronic device and server) used according to their known functions to yield predictable results (retrieving, sending,

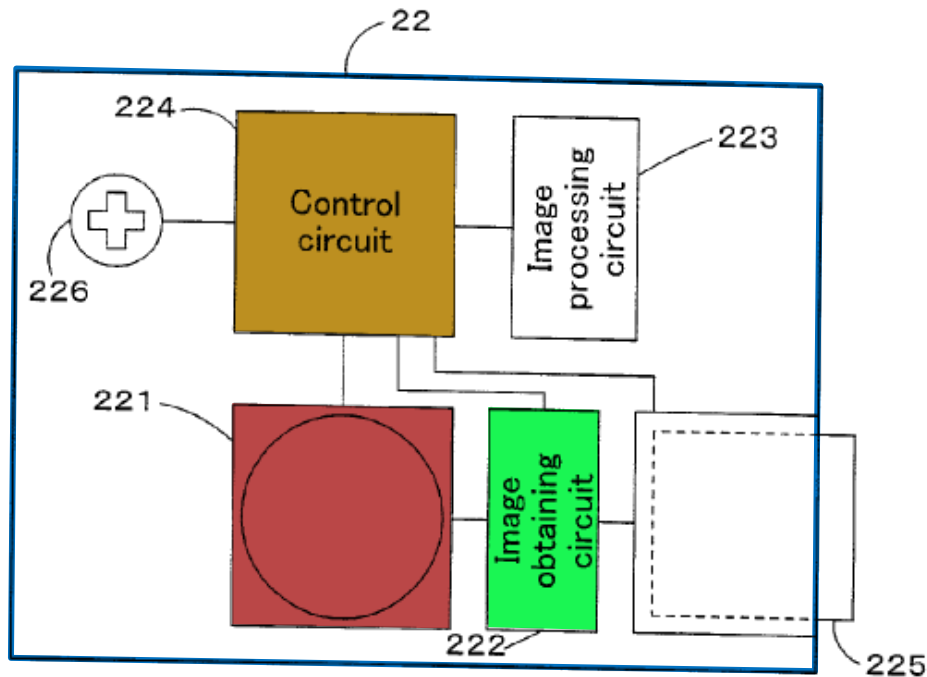
downloading, or otherwise receiving information at the digital camera). Indeed, Kuwata's DSC already communicates using RF, and RF includes conventional Wi-Fi functionality (e.g., IEEE 802.11).

b. [1a]: “an image data generator configured to generate image data;”

92. In my opinion, Kuwata discloses or suggests [1a].

93. Kuwata discloses that [digital still camera 22](#) “obtains images by forming images from light information in a digital device (CCD or photo multiplier)” (an image data generator). Kuwata, [0081]. As shown in Figure 5, below, Kuwata's [camera](#) “obtain[s] an image” (generates image data) using an “[optical circuit 221](#) for gathering light information” and “[image obtaining circuit 222](#) for controlling a digital device,” such as a CCD (e.g., an image data generator), “to obtain an image.” Kuwata, [0081]; *see also* Kuwata, [0015] (“an image data generating mechanism that generates image data”). A [control circuit 224](#) “control[s] each circuit” and “generates image data GD ... according to a shooting request, for example when the shutter button is pressed.” Kuwata, [0081], [0090]. The image data GD is then stored in an image file GF. Kuwata, [0082], [0090].

Fig. 5



Kuwata, FIG. 5 (annotated).

- c. [1b]: “a control data storage module pre-storing image processing control data to control image processing of the image data;”

94. In my opinion, Kuwata discloses or suggests [1b].

95. Kuwata discloses “memory within control circuit 224” (a control data storage module) that pre-stores “preset conditions” (also called control parameter values) (image processing control data to control image processing of the image data). Kuwata, [0082]-[0083], [0089], [0116]. “Preset conditions” include “output conditions” that “match the output device that outputs the image data GD in an image file GF,” are “optimized for each manufacturer of printer 24 or for each

equipment type of printer 24,” or are “general use output conditions that are used fairly often such as bright[ness], sharp[ness], etc.” Kuwata, [0082]-[0083], [0089]. The preset conditions for a particular DSC-printer pair make it “possible to reduce or eliminate the differences between the image data reproduced at DSC 22 that generates image files GF and the image data reproduced at printer 24.” Kuwata, [0075], [0077], [0083], [0116].

96. The camera adds the specified preset conditions as “output control information CI” to the image file GF with image data GD. Kuwata, [0082], [0088]-[0090], [0093]. Image processing of image data GD can be performed “based on the control parameter values obtained from the analyzed output control information CI” (image processing control data to control image processing of the image data). Kuwata, [0082], [0090], [0093], [0101], [0105], [0109], [0116], FIGS. 8, 10; Kuwata, [0030] (image processing device that “performs image processing of the image data based on image process control information contained in the retrieved process control data”). Accordingly, Kuwata explains that “it is possible to use DSC 22 to preset [(e.g., pre-store)] image output conditions [(image processing control data)] considering color reproduction characteristics of the output device, and to control the image output status [(e.g., control image processing)] at the output device.” Kuwata, [0096].

97. I have observed that Kuwata's disclosure is similar to the disclosure of the '082 Patent, which states that "the image processing control data can be set according to the type of the image output device." Ex. 1001, 4:18-27, 14:55-56.

d. [1c]: "a relating module configured to relate the image data to the image processing control data; and"

98. In my opinion, Kuwata discloses or suggests [1c].

99. Kuwata discloses that DSC 22 includes a control circuit 224 (relating module) that relates image data GD (image data) to output control information CI that includes the selected preset conditions (image processing control data) by "generat[ing] image files GF" that contain image data GD and "various types of information relating to the" image data GD, including output control information CI. Kuwata, [0071]-[0073], [0080]-[0082], [0089]-[0093]. For example, control circuit 224 may relate the image data GD generated from taking the picture to the selected output control information CI (preset conditions) in an image file GF. Kuwata, [0082], [0089]-[0092]. The image data GD and output control information CI are related because Kuwata discloses that generating the image file "correlates" the image data and output control information and that they are "provided together" in "image file GF." Kuwata, [0015], [0093].

100. I have observed that Kuwata's disclosure is similar to the disclosure of the '082 Patent, which discloses an image file generator 36 that "generates an

image file that records image data generated by the image data generator 31 and the PIM stored in the control data storage module 33 and related to the image data.” Ex. 1001, 7:29-32; *id.*, 5:58-62 (generating image file relates “image data and image processing control data”).

- e. **[1d]: “a storage manager configured to update at least a part of the image processing control data stored in the control data storage, based on specification data, which specifies the image processing control data to be updated,”**

101. In my opinion, Kuwata and Fisher render obvious [1d].

102. As discussed for [1pre], it would have been obvious to implement Fisher’s connectivity with a server into Kuwata’s camera to allow the camera to download, add, and update preset conditions (image processing control data) for a particular DSC-printer pair. *Supra* § X.A.1.a. For the reasons discussed for [1b], preset conditions are image processing control data. *Supra* § X.A.1.c. Kuwata’s camera as modified by Fisher for [1pre] and as described below renders obvious [1d].

103. For example, Fisher discloses that the camera includes an ancillary data module 416 (storage manager) that updates at least a part of the ancillary data files (image processing control data) stored in the camera’s memory (control data storage) by coordinating “the accessing, selecting, downloading, analyzing, and storing of various types of ancillary data files 418 from any appropriate data

source,” like an Internet server, via the ancillary data module’s download manager 512. Fisher, [0036]-[0037], [0044], [0055], [0057]. The sets of data within these ancillary data files 418, which Fisher describes as “any appropriate information, data, or instructions to facilitate successful operation of camera device 110,” correspond to the preset conditions for a DSC-printer pair (image processing control data to be updated). Fisher, [0008], [0034], [0049]-[0050]; *supra* § X.A.1.a.

104. Ancillary data module 416 downloads an ancillary data file from the Internet server based on specification data, such as a “descriptor” that is associated with a “respective set of data,” that corresponds to the user’s selection. Fisher, [0010], [0023], [0049], [0053]. Once downloaded, ancillary data module 416, via its download manager 512 and data manager 524, updates at least a part of the ancillary data files stored in the camera’s memory by adding the “newly-downloaded ancillary data files 418” to the camera’ memory for later use and may delete “local ancillary data files 418 in camera device 110, depending upon the particular type of downloaded ancillary data files 418.” Fisher, [0037], [0039], [0060].

105. A POSITA would have found it obvious to implement Fisher’s ancillary data module that updates ancillary data files in the camera’s memory based on specification data that specifies new or updated ancillary data files to download in Kuwata’s camera. Fisher teaches that manufacturers make various

ancillary data files available on the Internet “for subsequent downloading and utilization by the camera device,” and a POSITA would have found it obvious to provide Kuwata’s camera with the functionality of Fisher’s ancillary data module to update the preset conditions corresponding to DSC-printer pairs stored in memory with new or updated preset conditions identified by DSC manufacturers. Kuwata, [0075], [0077]; Fisher, [0008], [0055]. Doing so would have been desirable for the reasons described in Section X.A.1.a, including to ensure that the camera stores the optimum combination of “preset conditions” for a particular printer to accurately reproduce an image captured by the camera. Kuwata, Abstract, [0013]-[0014], [0075], [0077], [0082]-[0083], [0096].

i. Motivation to Combine

106. For the reasons described in Section X.A.1.a.i, in my opinion, a POSITA would have been motivated to combine Kuwata and Fisher so that Kuwata’s camera includes the functionality of an ancillary data module (storage manager) to download into Kuwata’s memory new or updated preset conditions for a particular DSC-printer pair (update at least a part of the image processing control data stored in the control data storage) from an Internet server based on, for example, specification data identifying that DSC-printer pair to the server. This combination would have involved using only known data transmission and reception techniques to predictably improve Kuwata’s camera by allowing users to

update the preset conditions stored in “memory within control circuit 224” based on specification data corresponding to a DSC-printer pair. Kuwata, [0082]-[0083], [0089]; Fisher, [0036]-[0037]. Using the ancillary data module to download preset conditions and update the stored preset conditions on Kuwata’s camera would have been a simple substitution of Fisher’s ancillary data files for Kuwata’s preset conditions to obtain predictable results. For updated preset conditions for a particular DSC-printer pair downloaded from the server, a POSITA would have been motivated to incorporate the ancillary data module’s ability to delete “local ancillary data files” in memory “depending upon the particular type of downloaded ancillary data files 418,” to improve Kuwata’s use of memory by correspondingly overwriting the old version of the preset conditions for that DSC-printer pair stored in memory, thereby updating the memory (control data storage) to avoid multiple sets of preset conditions for a single DSC-printer pair. Fisher, [0060].

107. In my opinion, a POSITA would have found it obvious and been motivated to identify the selected preset conditions to be updated (image processing control data to be updated) based on Fisher’s disclosure of “descriptors” that are associated with a “respective set of data” (e.g., preset conditions for a DSC-printer pair) to be updated from the server. Fisher, [0049]-[0050], [0053], [0057], [0059]. Fisher discloses that “descriptors 712 may include any appropriate information related to a corresponding set of data 714,” and a POSITA would have

only needed to apply conventional network-communication techniques to provide a data source, such as an Internet server, with the descriptor of the preset conditions for the desired DSC-printer pair to receive the desired preset conditions in response. Fisher, [0053].

108. A POSITA would have been motivated to look to Fisher's teachings to provide Kuwata's camera with the functionality of an ancillary data module to update and manage the preset conditions stored on the camera to account for printers not stored in the camera's memory, like new printers developed after a camera is sold, or updates to the optimum preset conditions for printing identified by the manufacturer. Additionally, a POSITA would have been motivated to provide the user the ability to add, remove, or update modes on the camera. Indeed, it was known in the art that it was desirable "to customize a digital camera to include only the features desired by the user." Ex. 1009, 1:34-40, 2:3-6. One known way to provide such benefits was "to enable a user to easily add or remove the features that the user wants or does not want, respectively," including to "add a feature to the digital camera after purchase that was not available at the time of purchase." Ex. 1009, 2:7-14. A POSITA would have been motivated to apply Fisher's technique for allowing manufacturers to make various ancillary data files "available on a distributed computer network like the Internet for subsequent downloading and utilization by the camera device," to predictably improve

Kuwata's camera to facilitate adding new files corresponding to preset conditions or new or updated modes in Kuwata's camera. Fisher, [0008].

ii. Expectation of Success

109. In my opinion, a POSITA would have had a reasonable expectation of success in implementing this functionality for the reasons discussed in Section X.A.1.a.ii. Both Kuwata and Fisher disclose manufacturers providing data for subsequent user selection on the camera, and Fisher discloses that manufacturers may make the data "available on a distributed computer network like the Internet for subsequent downloading and utilization by the camera device." Kuwata, [0077]; Fisher, [0008]. A POSITA would have reasonably expected success making this data "available on a distributed computer network" for the camera device to download and use by updating Kuwata's preset conditions because it would have involved only known, conventional networking functionality well within the skill of a POSITA. Fisher, [0008]

110. A POSITA would have recognized that modifying Fisher's digital camera to incorporate the functionality of an ancillary data module that downloads, adds, or updates information, such as DSC-printer pair information, stored on the camera would have required a POSITA to apply only conventional techniques for transferring information over a network, as taught by Fisher, as was well known in the art and well within the skill of a POSITA because network communications

were conventional and ubiquitous at the earliest priority date of the '082 Patent.

Fisher, [0023], [0044]. Implementing this functionality to download updated conditions, such as DSC-printer pairs, would have been a straightforward application of known, conventional software operations (communicating information over a network between an electronic device and server) used according to their known functions to yield predictable results (retrieving, sending, downloading, or otherwise receiving information and storing the information at the digital camera).

- f. **[1e]: “wherein the image processing control data is to be used in processing of the image data by an image processing device that receives the image data and the image processing control data that are transferred from the image related data generator.”**

111. In my opinion, Kuwata discloses or suggests this limitation.

112. Kuwata discloses that [digital camera \(DSC\) 22](#) stores the image file containing “the output control information CI,” including the preset conditions, “that specifies output conditions for [printer 24](#)” and “image data GD” in storage device 225. Kuwata, [0093]. Image file GF “is sent to [printer 24](#)” (image processing device) from [DSC 22](#) via “[cable CV](#)” (depicted in Figure 4), a “wireless communications channel such as IR or RF (e.g., Bluetooth),” or a detachable storage device (transferred from the image related data generator).

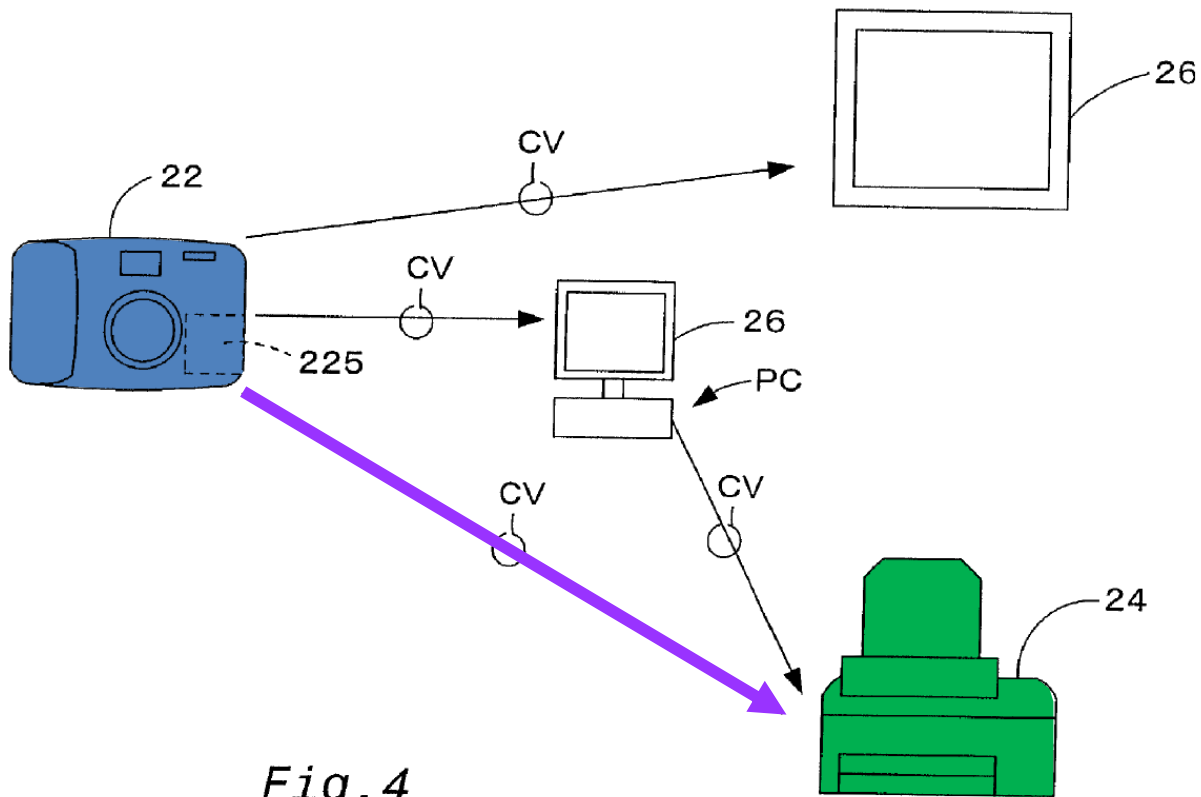


Fig. 4

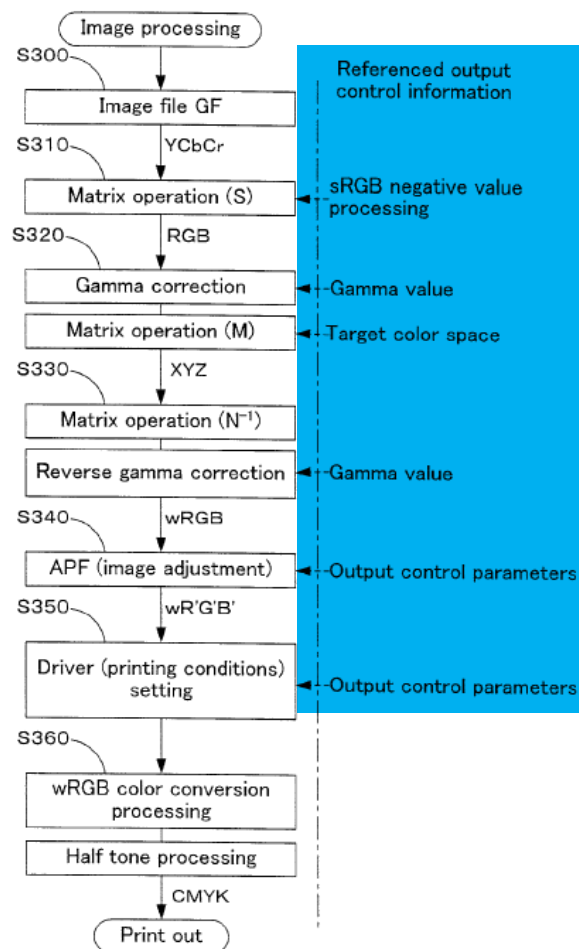
Kuwata, FIG. 4 (annotated).

113. Kuwata explains that the **printer** (image processing device) receives the image file GF containing the image data GD (image data) and output control information CI (image processing control data) from the **camera** (transferred from the image related data generator). Kuwata, [0081]-[0085]. The **printer** “obtains the output control information CI stored” within the image file, “fetches image data GD” from the image file GF, and “executes the image processing” of the image data GD “based on the control parameter values obtained from the analyzed output control information CI” (the image processing control data is to be used in processing of the image data by an image processing device). Kuwata, [0101],

[0103]-[0109]. For example, the printer “executes gamma correction and matrix operation M on the RGB color space image data ... according to the control parameters within output control information CI.” Kuwata, [0103].

114. Figure 10, reproduced below, depicts “the flow of image processing of a printer” that uses the **output control information CI** to “reduce or eliminate the differences between” the way the image data GD is reproduced at the camera and printer. Kuwata, [0055], [0098], [0103]-[0119].

Fig. 10



Kuwata, FIG. 10 (annotated).

115. Accordingly, in my opinion, Kuwata and Fisher render obvious claim 1.

2. Claim 2: “The image related data generator according to claim 1, wherein the storage manager adds the update data into the control data storage.”

116. In my opinion, Kuwata and Fisher render obvious the additional limitations of claim 2.

117. Fisher discloses that ancillary data module 416 (storage manager) “store[s] [(adds)] the downloaded ancillary data files 418” to the camera memory, along with other ancillary data files. Fisher, [0037]. Figure 7, below, depicts one embodiment of the downloaded ancillary files stored in memory, including the [sets of data 714](#) that each may “include any appropriate information, data, or program instructions to facilitate successful operation of camera device 110.” Fisher, [0049]-[0050], FIG. 7. As explained for [1d], Kuwata and Fisher render obvious sets of data 714 (preset conditions (update data)) being added into the control data storage. *Supra* § X.A.1.e.

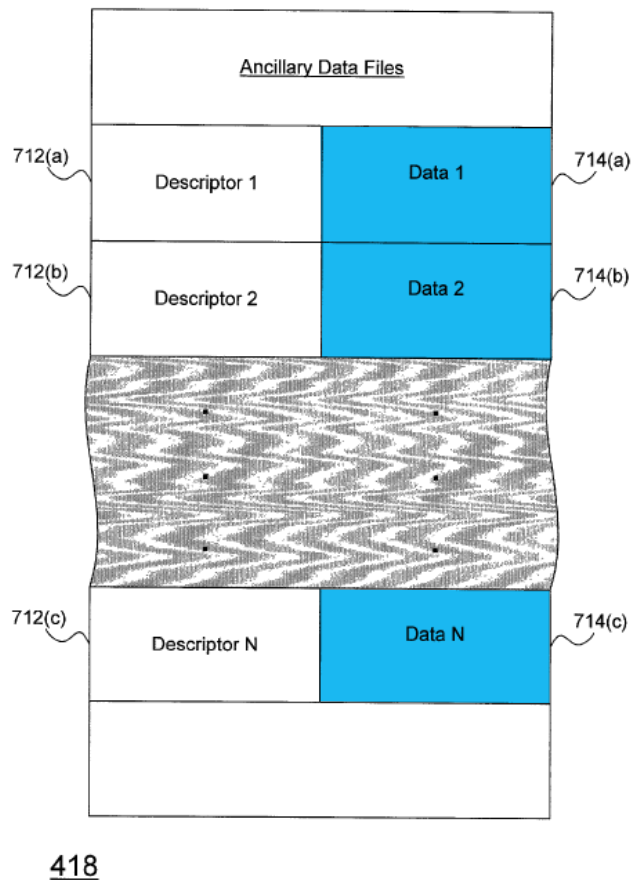


FIG. 7

Fisher, FIG. 7 (annotated).

118. For the reasons explained for [1d], a POSITA would have found it obvious to implement the functionality of Fisher's ancillary data module (storage manager) to add the downloaded preset conditions for a particular DSC-printer (the update data) to the memory within control circuit 224 containing other preset conditions (control data storage), for example, so that new or updated preset conditions for a DSC-printer pair are available to the user. *Supra* § X.A.1.e. A

POSITA would have been motivated to make such a modification with a reasonable expectation of success for the reasons explained for [1d]. *Supra* § X.A.1.e. This modification would have predictably improved Kuwata's camera because adding the downloaded preset conditions into the memory with other preset conditions would have eliminated the need to download the preset conditions again if the user chose to print from the same printer again. This would have allowed Kuwata's camera to print with the optimal preset conditions for the DSC-printer pair even when a network connection to the server is unavailable.

3. Claim 3: "The image related data generator according to claim 1, wherein the storage manager overwrites the image processing control data corresponding to the specification data with the update data."

119. In my opinion, Kuwata and Fisher render obvious the additional limitations of claim 3.

120. As discussed for [1d] and claim 2, Fisher discloses that ancillary data module 416 (storage manager) "store[s] [(adds)] the downloaded ancillary data files 418" into the camera memory, along with other ancillary data files. Fisher, [0037]; *supra* §§ X.A.1.e, X.A.2. Fisher discloses that the ancillary data module may also "delete local ancillary data files 418 in camera device 110, depending upon the particular type of downloaded ancillary data files 418." Fisher, [0060]. A POSITA would have understood that adding the new ancillary data file and

deleting the corresponding old file discloses overwriting the ancillary data file.

This understanding also aligns with the '082 Patent's disclosure of overwriting the image processing control data by "stor[ing] the update data to a different memory area" from the old version and "invalidat[ing] the old-version" of the control data. See Ex. 1001, 11:65-12:3.

121. For the reasons explained for [1d], a POSITA would have found it obvious to combine Kuwata and Fisher to use Fisher's ancillary data module to overwrite old versions of preset conditions for a particular DSC-printer pair (the image processing control data) corresponding to the specification data with the new downloaded preset conditions for that DSC-printer pair (update data), for example, so that the preset conditions for the DSC-printer pair reflect the optimum and most up-to-date values. *Supra* § X.A.1.e. A POSITA would have been motivated to make such a modification with a reasonable expectation of success for the reasons explained for [1d]. *Supra* § X.A.1.e. If a manufacturer changes or updates the preset conditions from those initially identified, a POSITA would have been motivated to allow the storage manager to overwrite the initial preset conditions with the updated preset conditions for a particular DSC-printer pair to implement the manufacturer's changes or updates to the preset conditions. Indeed, it was "well known" that "software [could] be refined to provide higher performance (i.e. better image quality) or more features," and digital cameras

having the ability to “update” functionality via update data from an external device were well known. Ex. 1008, [0030], [0033]-[0037]; Ex. 1010, 2:28-32. A POSITA would have been motivated to provide users the ability to store image processing control data when the update data refines the characteristics to provide better performance and would have reasonably expected success in doing so, as explained in [1d]. Ex. 1010, 2:28-32; *supra* § X.A.1.e.

4. Claim 5

- a. **[5a]: “The image related data generator according to claim 1 further comprising: an identification data storage module configured to store identification data mapped to the image processing control data, the identification data identifying each of the image processing control data,”**

122. Element [5a] does not appear to be specific as to whether “the image processing control data” refers to the image processing control data before or after it has been related to the image data by the relating module in [1c].

123. If [5a] refers to the image processing control data *after* it has been related in [1c] (“the ‘after’ interpretation”), then in my opinion, Kuwata discloses or suggests the additional limitations of [5a]. If [5a] refers to the image processing control data stored in the control data storage module *before* it has been related to the image data in [1c] (“the ‘before’ interpretation”), then in my opinion, Kuwata discloses or Kuwata and Fisher render obvious the additional limitations of [5a].

i. The “after” interpretation

124. If the “after” interpretation applies, then in my opinion, Kuwata discloses that image files GF generated by the camera and containing output control information CI are stored in storage device 225. Kuwata, [0082]. The image files GF include a “PrintMatching data storage area (image output control parameter storage area) 114 that is defined within Makernote data storage area 113.” Kuwata, [0072]. The image files GF also include a PrintMatching tag “allocated” to “output control information CI (each parameter value)” that is stored in storage area 114. Kuwata, [0073]-[0074]. The storage area 114 (identification data storage module) includes a “printMatching identifier that shows a PrintMatching parameter is stored” and a “parameter number allocated in advance for each parameter” (identification data mapped to the image processing control data, the identification data identifying each of the image processing control data). Kuwata, [0074]. For the parameter numbers (identification data), 1, 7, and 9 are mapped to the gamma value parameter, the shadow point parameter, and the contrast point parameter, respectively (image processing control data). Kuwata, [0074]. These parameter numbers are stored in a **identification data storage module** of the storage device 225 and are mapped to the corresponding **image processing control data**, as depicted in Figure 3b, below.

Fig. 3b

Offset	Meaning of Information
0	PrintMatching identifier
8	PIM Version information
12	Reserve
14	Parameter specification count
16	First parameter number
18	First parameter setting value
22	Second parameter number
24	Second parameter setting value
28	Third parameter number
30	Third parameter setting value
-	-
n-2	nth parameter setting value
n	nth parameter number

114
PrintMatching data storage area

Kuwata, FIG. 3b (annotated).

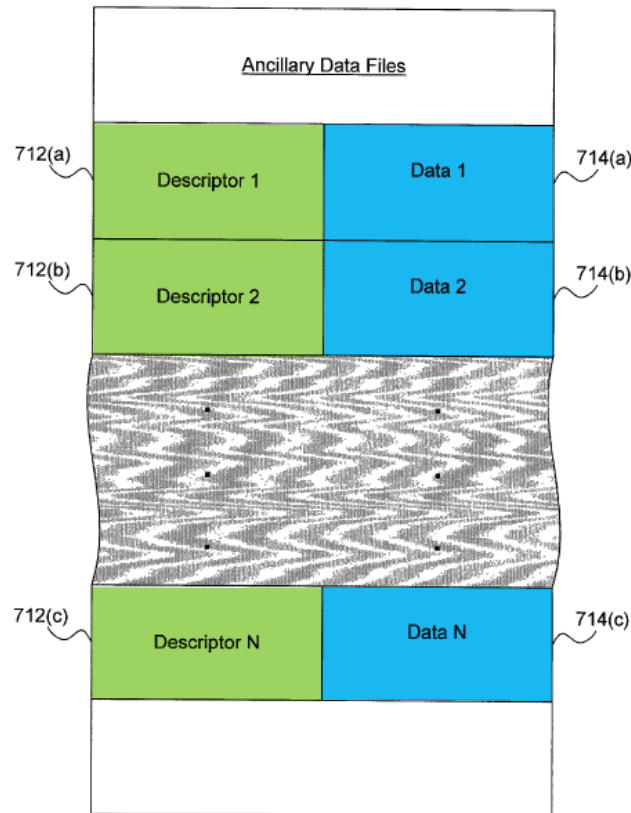
ii. The “before” interpretation

125. If the “before” interpretation applies, then in my opinion, Kuwata discloses that the camera pre-stores preset conditions corresponding to a DSC-printer pair “for later retrieval when the photographer identifies the target printer to be used for printing” and printing using the target printer. Kuwata, [0077], [0082]-[0083]. A POSITA would have understood that this teaches an identification data storage module that stores identification data mapping the available DSC-printer pairs to the corresponding preset conditions (image processing control data). DSC

22 stores identification data that identifies each of the preset conditions for the DSC-printer pair so that, when the photographer “set[s] in advance the [printer] planned for output” prior to the relating in [1c], the corresponding preset conditions corresponding to that DSC-printer pair are automatically related to the image data in an image file upon taking the picture. Kuwata, [0077], [0082]-[0083]. Accordingly, a POSITA would have understood that Kuwata’s camera includes a storage area for storing identification data corresponding to a particular DSC-printer pair so that the preset conditions for that pair can be attached “automatically” to an image file when the image is taken. Kuwata, [0077], [0082]-[0083], [0089]-[0090].

126. Alternatively, a POSITA would have found it obvious to incorporate Fisher’s descriptors (identification data) mapped to corresponding data for an ancillary data file (image processing control data) so that Kuwata’s camera to store identification data (e.g., the names of the DSC-printer pairs) mapped to the corresponding preset conditions (image processing control data) in memory (identification data storage module), where each printer descriptor identifies the associated preset conditions. Fisher discloses memory (identification data storage module) that stores descriptors (identification data) mapped to the sets of data for each ancillary data file—the preset conditions in the combined Kuwata-Fisher camera (image processing control data). Fisher, [0031], [0049], [0053], [0059];

supra § X.A.1.e. Fisher’s descriptors and the sets of data to which they are mapped are depicted in Figure 7, below.



418

FIG. 7

Fisher, FIG. 7 (annotated).

127. When implemented in Kuwata’s camera, the descriptors (identification data) identify each of the preset conditions (image processing control data) because Fisher discloses that each descriptor is “associated with a different respective set of data 714” and is used “to identify” the corresponding

ancillary data file (e.g., Kuwata's preset conditions). Fisher, [0049], [0059], claim 11.

(a) Motivation to Combine

128. In my opinion, a POSITA would have found it obvious to incorporate Fisher's descriptor functionality (identification data) that identifies the DSC-printer pair and store the identification data in memory for the reasons discussed for [1d]. *Supra* § X.A.1.e. Additionally, a POSITA would have been motivated to provide the identification data storage module described in [5a] so that Kuwata's camera could quickly identify the preset conditions associated with a particular DSC-camera pair when selected by a user, which Fisher teaches was "advantageous[]" for various purposes, including "analyz[ing] downloaded ancillary data files" (image processing control data). Fisher, [0053]. Providing this identification data storage module would have been a combination of Fisher's descriptors and Kuwata's preset conditions according to known methods to predictably yield Kuwata's desired result of automatically adding the preset conditions for a DSC-printer pair to an image file based on the selection of that printer. Kuwata, [0082]-[0083]; Fisher, [0059].

(b) Expectation of success

129. In my opinion, a POSITA would have had a reasonable expectation of success in implementing Fisher's descriptors in Kuwata's camera for the reasons

described in [1d]. *Supra* § X.A.1.e.ii. Additionally, a POSITA would have had a reasonable expectation of success in incorporating the identification data and identification data storage module described in [5a] at least because Kuwata already teaches an image file containing identification data. Kuwata, [0074], FIG. 3. And in the combined Kuwata-Fisher camera in [1d], the functionality of Fisher's ancillary data module already uses specification data identifying the DSC-printer pair when retrieving updated preset conditions from a server, giving a POSITA a reasonable expectation of successfully storing this same specification data as identification data in an identification data storage module. *Supra* § X.A.1.e. Moreover, Fisher discloses a similar camera having an identification data storage module performing the limitations of [5a], so the combination or incorporation into Kuwata's camera would have been merely a combination of familiar elements (memory storing identifiers in software) according to known methods to yield predictable results (pointing to related information in memory).

130. A POSITA would have recognized that incorporating fisher's identification data storage module described in [5a] would have required the POSITA to apply only conventional techniques for storing data identifying and mapping to other data, as taught by Fisher, which was well known in the art and well within the skill of a POSITA because storage containing identification data

mapped to parameters in a file were conventional and ubiquitous at the earliest priority date of the '082 Patent. Fisher, [0049]-[0050].

b. [5b]: “wherein the specification data is the identification data.”

131. In my opinion, Kuwata and Fisher render obvious the additional limitations of [5b].

132. For the reasons discussed for [1d], a POSITA would have been obvious to modify Kuwata’s camera to include the functionality of Fisher’s ancillary data module to update the preset conditions in the control data storage based on specification data that identifies the DSC-printer pair to the server. *Supra* § X.A.1.e. For the reasons discussed for [5a], Kuwata discloses, or alternatively Kuwata and Fisher render obvious, a camera storing the available DSC-printer pair descriptors (identification data) corresponding to the preset conditions for the DSC-printer pair. *Supra* § X.A.4.a. Because the combined Kuwata-Fisher camera already uses the DSC-printer pair identifier (specification data) to download the corresponding preset conditions, a POSITA would have found it obvious to, and had a reasonable expectation of success in implementing, storing the DSC-printer pair identifier (identification data) in memory to make later retrieval of the corresponding preset conditions more efficient, as explained for [5a]. *Supra* § X.A.4.a.

5. **Claim 6**

- a. **[6a]: “The image related data generator according to claim 1, wherein the image data generator is connectable to a server via a network, and”**

133. The image data generator is a part of the image related data generator, which is connectable to a network, such as the Internet, as explained in [1pre] and [1a]. *Supra* §§ X.A.1.a-X.A.1.b. Accordingly, in my opinion, Kuwata and Fisher render obvious the additional limitations of [6a] for the reasons discussed for [1pre]. *Supra* § X.A.1.a.

- b. **[6b]: “the storage manager sends specification data which specifies the image processing control data to be updated, to the server and receives update data from the server.”**

134. As discussed for [1d], Fisher’s ancillary data module (storage manager) in the combined Kuwata-Fisher camera renders obvious sending specification data corresponding to a DSC-printer pair that specifies the preset conditions (image processing control data) for that pair to be updated to the server and receives back the corresponding preset conditions (update data) from the server. *Supra* § X.A.1.e. Kuwata and Fisher, therefore, render obvious the additional limitations of [6b] for the reasons discussed for [1d]. *Supra* § X.A.1.e.

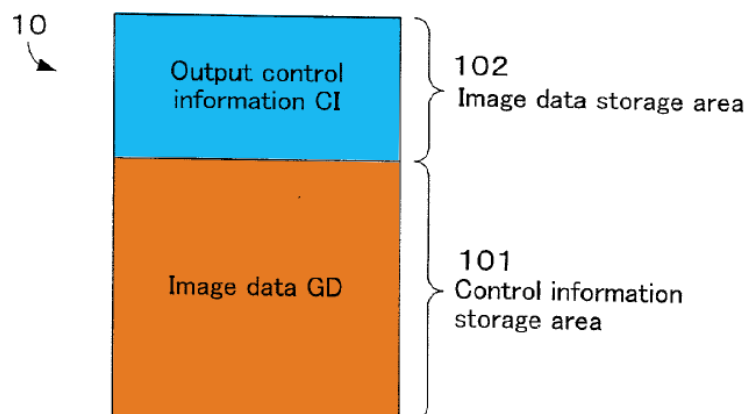
6. Independent Claim 10

- a. [10pre]: “A digital camera for generating an image file including image data and image processing control data, the image processing control data being used for controlling image processing of the image data, the digital camera comprising:”

135. In my opinion, Kuwata discloses or suggests [10pre].

136. Kuwata discloses a “digital still camera 22” (digital camera) that “can generate an image file GF” (for generating an image file) that includes “**image data GD**” (image data) and “**output control information CI**” (image processing control data), as explained in [1pre]-[1c]. Kuwata, [0075], [0079]-[0080]; *supra* §§ X.A.1.a-X.A.1.d. The **output control information CI** discloses image processing control data that is used for controlling image processing of the image data for the reasons described for [1e]. *Supra* § X.A.1.f.

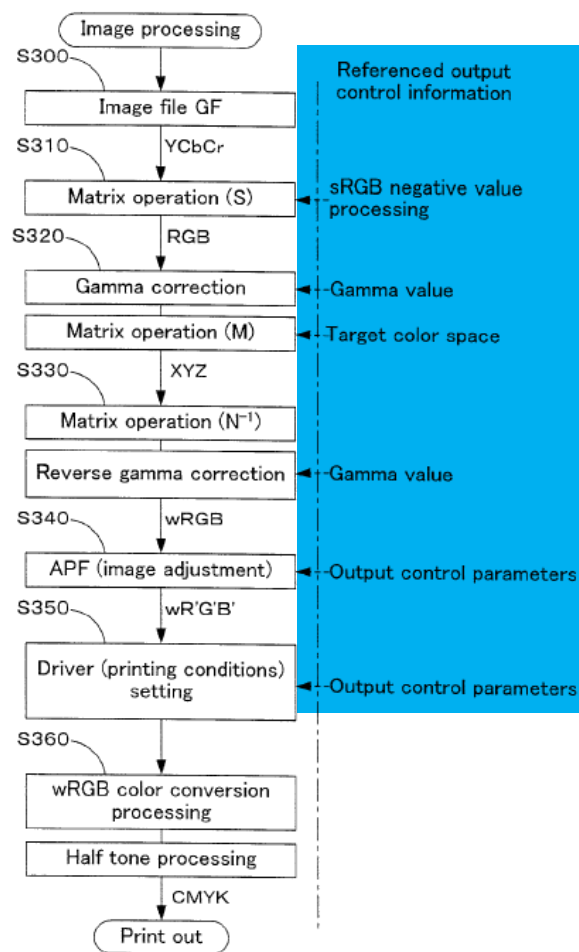
Fig. 1



Kuwata, FIG. 1 (annotated).

137. For example, Figure 10, reproduced below, depicts an example of the **output control information** controlling image processing of image data using a printer, as explained for [1e]. *Supra* § X.A.1.f; Kuwata, [0055], [0098], [0103]-[0119].

Fig. 10



Kuwata, FIG. 10 (annotated).

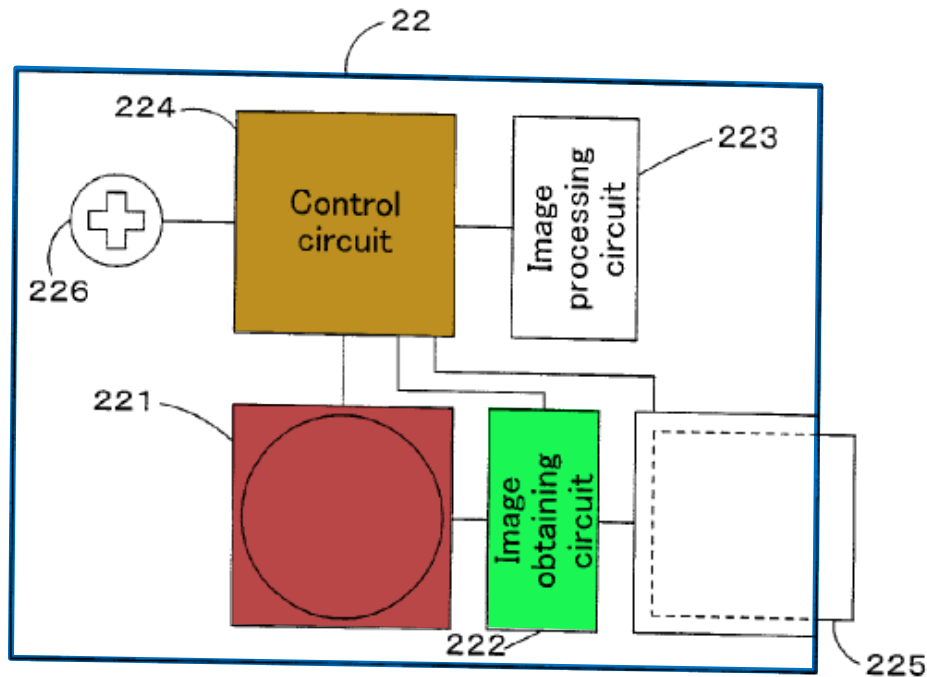
b. [10a]: “an image data generating module configured to generate image data of an image captured by the digital camera;”

138. In my opinion, Kuwata discloses or suggests [10a].

139. For the reasons explained for [1a] that Kuwata’s optical circuit 221 and image obtaining circuit 222 disclose an image data generator configured to generate image data, Kuwata’s optical circuit 221 and image obtaining circuit 222 disclose an image data generating module configured to generate image data of an image captured by the digital camera. Kuwata, [0015], [0081], [0090]; *supra* § X.A.1.b.

140. For example, as shown in Figure 5, below, Kuwata’s digital camera “obtain[s] an image” (generates image data) using an “optical circuit 221 for gathering light information” and “image obtaining circuit 222 for controlling a digital device,” such as a CCD (e.g., an image data generating module), “to obtain an image.” Kuwata, [0081]; *see also* Kuwata, [0015] (“an image data generating mechanism that generates image data”). A control circuit 224 “control[s] each circuit” and “generates image data GD ... according to a shooting request, for example when the shutter button is pressed” (of an image captured by the digital camera). Kuwata, [0081], [0090]. This image data GD is then stored in an image file GF. Kuwata, [0082], [0090].

Fig. 5



Kuwata, FIG. 5 (annotated).

c. [10b]: “a display device;”

141. In my opinion, Kuwata discloses or suggests [10b].

142. For example, Kuwata’s camera includes “a digital still camera monitor” (display device). Kuwata, [0075]. Kuwata explains that the output control information CI included in the image file makes it “possible to reduce the difference in brightness, contrast, etc. between the display image confirmed on a *digital still camera monitor*” of the camera and “the output image output using an output device such as a printer” or other external device. Kuwata, [0075] (emphasis added). A POSITA would have understood that this digital still camera

module is also the display device that displays “an option menu” of preset conditions “to an operator of the DSC” for setting output control information CI via “select and determine button 226” because, for example, Kuwata discloses providing a “display screen and setting buttons to make any desired settings” on a scanner and discloses that this feature can be combined with the camera embodiment. Kuwata, [0081], [0083]-[0084], [0089], [0139], [0146], FIG. 5.

d. [10c]: “a control data storage for storing in advance image processing control data to control image processing of the image data; and”

143. In my opinion, Kuwata discloses or suggests this limitation.

144. [10c] recites substantively the same limitations as [1b], except that [10c] recites “storing in advance,” whereas [1b] recites “pre-storing” the image processing control data. A POSITA would have understood that these recitations to have the same meaning, and therefore [10c] is disclosed for the reasons discussed above for [1b]. *Supra* § X.A.1.c.

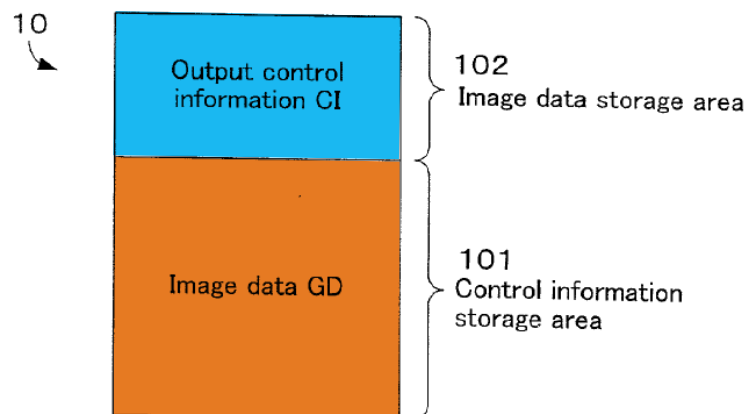
e. [10d]: “an image file generating module configured to generate an image file that includes the image data and the image processing control data; and”

145. In my opinion, Kuwata discloses or suggests [10d] for the reasons discussed for [1c] regarding the relating module that relates image data GD (image data) to output control information CI (image processing control data) by

generating an image file that includes image data GD and output control information CI. *Supra* § X.A.1.d.

146. For example, Kuwata discloses that the digital still camera includes a control circuit 224 (image file generating module) that generates an image file GF (image file) that includes “the generated image data GD” (image data) and output control information CI, including the set preset conditions (image processing control data). Kuwata, [0079]-[0083], [0088]-[0090]; *see also* Kuwata, [0015] (“an image file generating mechanism ... combines and matches the generated image data [GD] and the obtained output process control information [CI] and generates an image file [GF] containing the same”). Figure 1, below, depicts “the internal structure of an image file” that includes the **image data** and the **output control information**. Kuwata, [0066].

Fig. 1



Kuwata, FIG. 1 (annotated).

- f. [10e]: “a memory management module configured to acquire additional image processing control data from an external memory device separate from the digital camera, and to store the additional image processing control data into the control data storage,”

147. In my opinion, The Kuwata- Fisher combination renders obvious this limitation.

148. Although [10e] uses different terminology from [1d] and claim 2, it recites substantively similar limitations, except [10e] explicitly recites “an external memory device separate from the digital camera” and [1d] also requires that the updating be “based on specification data” that is not stated in [10e], as shown below table.

[10e]: “a memory management module configured to acquire additional image processing control data from an external memory device separate from the digital camera, and to store the additional image processing control data into the control data storage,”	[1d]: “a storage manager configured to update at least a part of the image processing control data stored in the control data storage, based on specification data, which specifies the image processing control data to be updated,” [2]: “wherein the storage manager adds the update data into the control data storage.”
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149. As explained for [1d] and claim 2, a POSITA would have found it obvious to combine Kuwata and Fisher so that Kuwata’s camera includes the functionality to acquire additional preset conditions corresponding to a particular

DSC-printer pair or new modes (additional image processing control data) from an external memory device separate from the digital camera, such as an Internet server, and to store the additional output conditions in Kuwata's camera memory (control data storage) of preset conditions. *Supra* §§ X.A.1.e, X.A.2; Fisher, [0008], [0034], [0036]-[0037], [0044], [0055], [0057].

150. Moreover, Fisher discloses that “menus 424 may be displayed upon viewfinder 308 to allow a system user to download, view, manage, and utilize various ancillary data files 418.” Fisher, [0035]. And, “depending upon the particular type of downloaded ancillary data files 418,” the ancillary data module 418 may “delete local ancillary data files 418 in camera device 110.” Fisher, [0059]. A POSITA would have found it obvious to combine Kuwata and Fisher to incorporate Fisher's acquisition and storage of additional image processing control data into Kuwata's camera for the reasons explained for [1d] and claim 2. *Supra* §§ X.A.1.e, X.A.2.

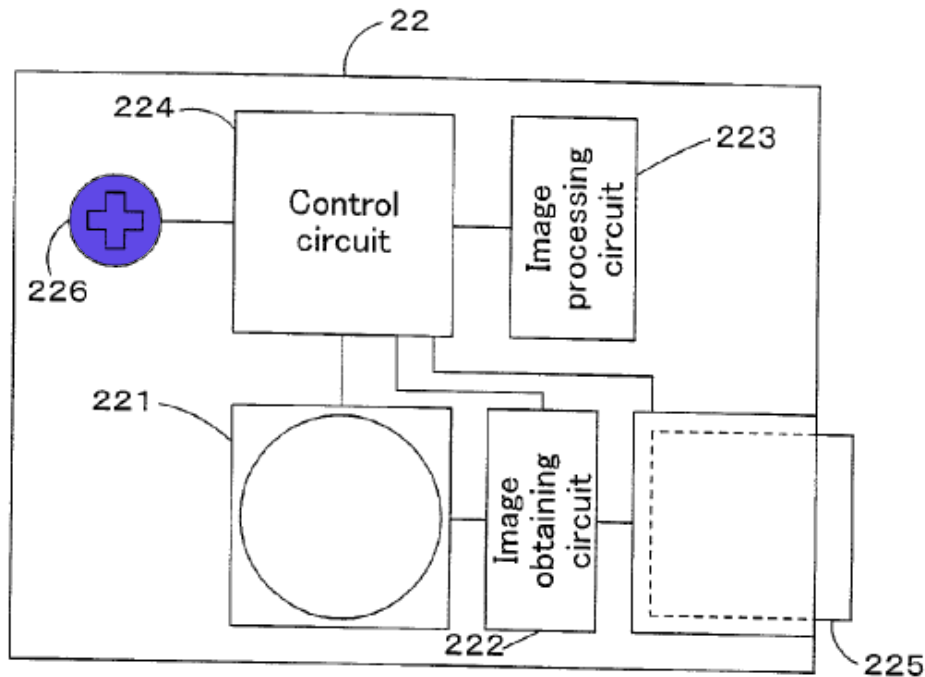
- g. [10f]: “wherein the image file generating module displays a user interface screen including a plurality of processing modes on the display device to enable a user to select one of the plurality of processing modes, and generates the image file using specific image processing control data associated with the selected processing mode, and”**

151. In my opinion, Kuwata suggests or renders obvious [10f].

**i. Kuwata discloses or renders obvious the
“displays” limitation**

152. For the reasons discussed for [10b], Kuwata discloses a display device. *Supra* § X.A.6.c. Kuwata discloses that preset conditions held in memory may be “presented in an option menu” (a user interface screen including a plurality of processing modes) on the display device “to an operator of the DSC,” who selects from these preset conditions using the “select and determine button 226” on the camera (to enable a user to select one of the plurality of processing modes). Kuwata, [0077], [0081], [0082]-[0083], [0089]-[0090], [0139], [0146]. A POSITA would have understood that the camera’s select and determine button 226, shown below as having up, down, left, and right options, is a “D-pad” and has a “select” function. Kuwata, [0081], [0139], [0146], FIG. 5. The select and determine button 226 would have allowed a user to navigate and select from choices on a user interface screen because this was the typical use of the type of button depicted in Figure 5. Kuwata, [0081], [0139], [0146], FIG. 5. This is confirmed by Kuwata’s description of “setting buttons” used “to make any desired settings” displayed on a “display screen” (a user interface screen) that Kuwata discloses “may be combined with” the digital camera embodiment. Kuwata, [0081], [0139], [0146], FIG. 5.

Fig. 5



Kuwata, FIG. 5 (annotated).

153. The preset conditions presented in the option menu, also called “choices prepared in advance,” disclose a plurality of processing modes because Kuwata discloses that each of the options corresponds to a set of output conditions, like “the **gamma value**, **target color space**, **contrast**, and **sharpness**” (highlighted below) that “control” the image processing “at the output device.” Kuwata, [0082]-[0084], [0088]-[0089], [0093], [0096]. Figure 8 depicts an example set of conditions and corresponding values set at the camera, some of which are highlighted, as the output control information CI for an image file GF. Kuwata, [0088], [0093], FIG. 8. By selecting one or more of the “choices prepared in

advance,” “there is no requirement for the user to make fine settings,” meaning the selected processing mode determines the conditions and corresponding values.

Kuwata, [0089].

Fig. 8

Control Parameters	Specified Value
Gamma value	2. 2
Target color space	NTSC
sRGB negative value processing	1 (valid)
Shadow	5
Highlight	2
Contrast	0
Brightness	4
RGB color balance	R0/G-1/B2
Saturation	0
Sharpness	Threshold value 2 Applied volume 3
Stored color correction	Green 0, 0, 0 (unspecified), Light blue 0, 0, 0 (unspecified) Flesh 0, 0, 0 (unspecified), Red 0, 0, 0 (unspecified)
Automatic adjustment	5
Paper	3 (photographic paper)
Resolution	4 (photograph)
Bi-directional printing	1 (on)

Kuwata, FIG. 8 (annotated).

154. If the Patent Owner argues that Kuwata does not expressly disclose the image file generating module displaying the user interface screen described above, a POSITA would have found it obvious to have Kuwata’s image file

generating module display a user interface screen to allow the user to select one of the preset conditions for inclusion in the image file GF's output control information CI to facilitate Kuwata's goal of allowing the user to improve image output at external devices "without doing photo retouching work." Kuwata, [0116]-[0117]. As described for [10d], Kuwata's image file generating module is the portion of control circuit 224 that generates an image file GF that includes "the generated image data GD" and output control information CI, including the set preset conditions (image processing control data) for the processing mode. *Supra* § X.A.6.e.

1. Motivation to Combine

155. In my opinion, a POSITA would have been motivated to have Kuwata's image file generating module display the user interface screen providing an option menu of preset conditions (processing modes) because storing this functionality into a single software module containing the options would have allowed the camera to efficiently organize and present the options in the user interface for selection and determine when preset conditions are set before taking a picture or selected by a user using the user interface and adding the corresponding set of conditions to the image file. Kuwata, [0089]-[0090]; *supra* § X.A.6.e ([10d]). Storing different function options in a module would have been an

application of known computer storage and display techniques to predictably improve Kuwata's camera by facilitating retrieval and display of menu options.

156. A POSITA would have also been motivated to have the image file generating module display each of the choices for selectable processing modes (preset conditions) using a user interface screen to allow the user to easily select one of the choices and to make the selection process more user friendly, such as with "select and determine button 226." Kuwata, [0081]. Using the directional and selection control 226 was a well-known and conventional control operation known as a "D-pad" to navigate through menus and select options, and would have been merely a combination of familiar elements used according to their known methods to yield predictable results. A POSITA would have chosen this well-known design that allows the camera to display different numbers of processing modes as they are added or removed from the camera, which provides greater flexibility and ease of use than a fixed number of selection buttons.

2. Expectation of Success

157. In my opinion, a POSITA would have had a reasonable expectation of success in displaying the user interface of preset conditions stored in the image file generating module. A POSITA would have recognized that using Kuwata's image file generating functionality to store and display the available option menus of preset conditions would have only required the POSITA to apply only

conventional techniques for organizing software and displaying information, which were well known in the art and well within the skill of a POSITA. Kuwata, [0096]; Fisher, [0035]. Configuring Kuwata's image file generating module to display the option menus that allow the user to select from the preset conditions would have been a straightforward application of known, conventional software operations (grouping related software functionality into a single module) used according to their known functions to yield predictable results (storing and displaying the menu options).

ii. Kuwata discloses the “generates” limitation

158. Kuwata discloses that, when the user selects one of the presented options, control circuit 224 (image file generating module) generates the image file GF that includes the output conditions for output control information CI corresponding to the presented option selected by the user (generates the image file using specific image processing control data associated with the selected processing mode). Kuwata, [0089]-[0090], [0093], [0096]. For example, “the output control information CI that specifies output conditions” for the printer “is provided together with image data GD to image file GF.” Kuwata, [0093].

159. I have observed that Kuwata's disclosure of selecting one of the presented options (processing mode) to generate an image file with output conditions corresponding to the selected option aligns with the '082 Patent's

disclosure that “[t]he selection of the processing mode defines the [image processing control data] to be used when the image file is generated.” Ex. 1001, 9:2-3. Indeed, the “Parameters” associated with various presets in Figure 7 of the '082 Patent correspond with parameters included in Kuwata’s output control information CI based on the set preset conditions. Ex. 1001, FIG. 7; Kuwata, [0089]-[0093].

Fig. 8

Control Parameters	Specified Value
Gamma value	2. 2
Target color space	NTSC
sRGB negative value processing	1 (valid)
Shadow	5
Highlight	2
Contrast	0
Brightness	4
RGB color balance	R0/G-1/B2
Saturation	0
Sharpness	Threshold value 2 Applied volume 3
Stored color correction	Green 0, 0, 0 (unspecified), Light blue 0, 0, 0 (unspecified) Flesh 0, 0, 0 (unspecified), Red 0, 0, 0 (unspecified)
Automatic adjustment	5
Paper	3 (photographic paper)
Resolution	4 (photograph)
Bi-directional printing	1 (on)

Fig. 7

Preset No.	Parameters				Suitable Situations
	Gamma Correction	Color Space	Contrast	Color Balance	
1	OFF	NTSC	Standard	Standard	Standard
2	1.2	sRGB	Slightly Lower	Standard	Portrait
3	0.9	sRGB	Slightly Higher	Standard	Landscape
4	1.1	NTSC	Standard	OFF	Sunset

Kuwata, FIG. 8 (annotated, left); Ex. 1001, FIG. 7 (annotated, right).

- h. [10g]: “when the additional image processing control data has been stored in the control data storage, the image file generating module displays on the display device a plurality of processing modes which includes an additional processing mode related to the additional image processing control data.”**

160. In my opinion, Kuwata and Fisher render obvious this limitation.

161. For the reasons discussed for [10f], Kuwata suggests or renders obvious the image file generating module displaying a user interface screen including a plurality of processing modes on the display device. *Supra* § X.A.6.g. For the reasons discussed for [10e], a POSITA would have found it obvious to store additional preset conditions (image processing control data) in the control data storage. *Supra* § X.A.6.f.

162. For example, after the ancillary data files or preset conditions (additional image processing control data) have been added to the camera’s memory (has been stored in the control data storage), Fisher discloses that “[a] display manager may responsively *update camera device menus* [(user interface)] *for display* in a camera viewfinder to thereby *include any changes in the locally-stored ancillary data files*.” Fisher, [0012], [0035], [0060] (emphases added). The camera menus “may be displayed upon viewfinder 308 to allow a system user to ... utilize various ancillary data files 418” (additional image processing control

data) and “include any appropriate listings of information and functionalities pertaining to camera device 110.” Fisher, [0035].

163. A POSITA would have found it obvious to incorporate Fisher’s updating of available user-interface menu options to show newly downloaded preset conditions when additional preset conditions are added to the control data storage to provide a user with all of the available options to select the appropriate preset conditions for the user’s situation, including for the reasons discussed for [10e] and [10f]. *Supra* §§ X.A.6.f-X.A.6.g. For the reasons discussed for [10f], the preset conditions available for selection by a user disclose a plurality of processing modes, where each of the preset conditions is related to a set of conditions that control image processing, meaning the additional preset conditions added to the menu similarly are related to the additional image processing control data discussed for [10e]. *Supra* §§ X.A.6.f-X.A.6.g.

i. Motivation to Combine

164. In my opinion, a POSITA would have been motivated to have the image file generating module display an updated list of preset conditions (processing modes) to include newly downloaded conditions (additional image processing control data) in the user interface discussed for [10f] so that the user can “utilize [the] various ancillary data files” for a given output device. Fisher, [0035]; *supra* § X.A.6.g. Doing so would have allowed a user to select the

processing mode for a DSC-printer pair added by downloading the ancillary data files. A POSITA would have been motivated to apply Fisher's known menu-updating technique to improve Kuwata's camera by allowing users to "obtain the optimum image output results" using new or updated DSC-printer pairs not originally stored on the camera. Kuwata, [0067]; *see* Kuwata, [0007]-[0008].

ii. Expectation of Success

165. In my opinion, a POSITA would have had a reasonable expectation of success in displaying new or updated preset conditions in the user interface menu using the image file generating module. A POSITA would have recognized that updating the user interface menu to show the stored preset conditions, including additional preset conditions added to memory, as Fisher teaches, would have only required the POSITA to apply only conventional techniques for displaying stored data in a menu, as was well known in the art and well within the skill of a POSITA because this was conventional and ubiquitous at the earliest priority date of the '082 Patent. Fisher, [0035]. Configuring Kuwata's image file generating module to display the additional preset conditions in the user interface menu would have been a straightforward application of known, conventional software operations (displaying a menu) used according to their known functions to yield predictable results (displaying the updated menu showing available options).

B. Ground 2: Claims 1-6 and 10 Are Obvious over Kuwata, Fisher, and Ohga

1. Independent Claim 1

a. [1pre]-[1c], [1e]

166. For the reasons explained in Sections X.A.1.a-X.A.1.d and X.A.1.f, Kuwata discloses or suggests [1pre], [1a], [1b], [1c], and [1e], respectively.

b. [1d]: “a storage manager configured to update at least a part of the image processing control data stored in the control data storage, based on specification data, which specifies the image processing control data to be updated,”

167. For the reasons explained in Section X.A.1.e (Ground 1, [1d]), Kuwata and Fisher render obvious [1d]. If the Patent Owner argues that Kuwata and Fisher do not render obvious updating “based on specification data, which specifies the image processing control data to be updated,” then, in my opinion, a POSITA would have found this limitation obvious in further view of Ohga.

168. Ohga, like Kuwata, discloses processing image data based on an identified input device, such as a digital camera, and output device, such as a printer. Ohga, 2:58-3:1, 4:3-12. Ohga discloses a color-matching-module program that “executes color matching for the image data J1 on the basis of the input profile P1 and [the output] profile [P2].” Ohga, 3:16-19, 4:3-12. A PC, the device that executes color matching, acquires these profiles from a server by extracting input profile P1 (image processing control data) “from the downloaded image data” or

downloading input profile P1 “in accordance with the designation of the input profile on the HTML document H1” (specification data) previously acquired and by downloading output profile P2 (image processing control data) based on a user selecting “a given profile name” (specification data) associated with the desired profile from a list of profile names presented to the user. Ohga, 3:16-19, 3:37-58, 4:30-37. The specification data corresponding to the designation of the input profile and the output profile name specify the image processing control data to be downloaded.

169. A POSITA would have found it obvious to combine Kuwata, Fisher, and Ohga so the storage manager provides specification data identifying the desired preset conditions to be updated to the server, for similar reasons to those described for Ground 1, [1d]. *Supra* Section X.A.1.e

i. Motivation to Combine

170. In my opinion, a POSITA would have been motivated to provide a manufacturer server with identification information (specification data), as taught by Ohga, that identifies new or updated preset conditions for a DSC-printer pair, so the server would easily and efficiently identify and transmit the desired preset conditions for that pair to the camera to add to memory for future use. Ohga teaches that its system improves “use efficiency of the entire network,” suggesting

to a POSITA to similarly use specification data to identify the desired preset conditions for download from the server. Ohga, 4:41-44.

ii. Expectation of Success

171. In my opinion, a POSITA would have had a reasonable expectation of success in updating the control data stored on the camera based on specification data provided to a server. Using specification data to specify target information for download was well known and typical of network, including Internet, communications. Fisher teaches that the ancillary data module downloads a selected ancillary data file from a server, and using specification data to identify the selected file would have used only familiar elements according to known methods to yield predictable results.

172. A POSITA would have recognized that downloading files from a server by providing information that identifies those files, as Ohga teaches, would have applied only conventional network communications techniques that were well known in the art and well within the skill of a POSITA. Ohga, 3:6-61. Configuring the ancillary data module functionality to provide specification data to a server and receive the corresponding preset conditions would have been a straightforward application of known, conventional software operations (network communications) used according to their known functions to yield predictable results (obtaining selected information from a remote server).

2. Claims 2-3

173. For the reasons explained in Sections X.A.2 and X.A.3 (Ground 1, claims 2 and 3), Kuwata discloses or suggests, or Kuwata and Fisher render obvious, the additional limitations of claims 2 and 3, respectively.

3. Claim 4: “The image related data generator according to claim 1, wherein the specification data is at least a part of the image processing control data.”

174. In my opinion, Kuwata, Fisher, and Ohga render obvious the additional limitation of claim 4.

175. As explained for [1d] in Grounds 1 and 2 (Sections X.A.1.e and X.B.1.b), a POSITA would have found it obvious to access and download from an Internet server updated profiles for a particular DSC-printer pair based on specification data.

176. Ohga teaches a server that stores profile names associated with the corresponding profile because it discloses that, when the user selects one of the presented profile names, the server transmits the corresponding output profile P2, which “is automatically loaded into the CMM program.” Ohga, 3:54-58, FIG. 4. Alternatively, Ohga discloses that the user’s device may obtain an output profile P2 by designating “color space characteristics, i.e., the XYZ values of RGB primary colors, gamma coefficient, and XYZ value of white point, and [an output]

profile is created based on these data” (at least part of the image processing control data). Ohga, 3:48-50, 3:62-65.

177. A POSITA would have found it obvious to combine Kuwata, Fisher, and Ohga to allow a user to specify output conditions (specification data is at least a part of the image processing control data) at the camera to obtain corresponding updated preset conditions for later user access based on conditions specified by the user.

i. Motivation to Combine

178. In my opinion, a POSITA would have been motivated to combine Kuwata, Fisher, and Ohga to update preset conditions in the control data storage module based on output conditions specified by the user, for example, so that the camera stores preset conditions for easy later access by the photographer. Kuwata already discloses that preset conditions may be “general use output conditions that are used fairly often,” and Kuwata’s camera allows a user to specify information “such as the gamma value, target color space, contrast, and sharpness” using preset conditions. Kuwata, [0083]-[0084]. Ohga teaches that this information may be used to create an output profile for processing the image data. Ohga, 3:48-50, 3:62-65. A POSITA would have combined Ohga’s profile generation based on specified output conditions according to known methods to predictably improve Kuwata’s

camera by providing functionality that allows the user to create additional preset conditions for later selection.

179. Moreover, in addition to the reasons explained in Section X.B.1.b (Ground 2, [1d]), a POSITA would have been motivated to combine Kuwata, Fisher, and Ohga to allow the server to determine whether to provide an updated profile for a particular DSC-printer pair based on output conditions of the DSC-printer pair (at least a part of the image processing control data) to conserve network and camera resources. For example, a POSITA would have sought to avoid having the server transmit a profile corresponding to a particular DSC-printer pair if the identical profile was already stored on the camera, as doing so would have been a waste of network and camera resources.

180. One well-known way to check whether an updated profile was available and to only transmit the profile if the update exists was to provide the server with at least part of the output conditions in the profile. At a minimum, implementing this would have been obvious to try because only a finite number of options existed for ways to check for an update and avoid sending a duplicate profile if no update exists (e.g., transmitting a version number or transmitting at least part of the output conditions in the profile), motivating a POSITA to try each of the options. By associating profile names with the corresponding profiles on the server, as Ohga teaches, a POSITA would have recognized that transmitting at

least part of the output conditions in the profile from the camera to the server would have allowed the server to determine whether an update existed by comparing the transmitted output conditions to those within the profile stored on the server and to only transmit the updated profile if they differ.

ii. Expectation of Success

181. In my opinion, a POSITA would have had a reasonable expectation of success in such a combination. A POSITA would have recognized that both creating new preset conditions from user-selected information for later use and obtaining updated DSC-printer profiles based on at least a part of the conditions in the corresponding profile would have required the POSITA to apply only conventional techniques for creating data structures in memory and comparing data in existing data structures, as was well known in the art and well within the skill of a POSITA. Fisher, [0023], [0039], [0044], [0055]-[0057]. Applying Ohga's creation of profiles based on selected parameters and organized storage of output profiles on a server for later identification of updated profiles would have been a straightforward application of known, conventional software operations (creating data structures and searching data structures) used according to their known functions to yield predictable results (obtaining updated preset conditions for the camera's control data storage module).

4. Claim 5

- a. [5a]: “The image related data generator according to claim 1 further comprising: an identification data storage module configured to store identification data mapped to the image processing control data, the identification data identifying each of the image processing control data,”**

182. For the reasons explained in Section X.A.4.a (Ground 1, [5a]), Kuwata discloses or suggests or Kuwata and Fisher render obvious the additional limitations of [5a].

- b. [5b]: “wherein the specification data is the identification data.”**

183. In my opinion, Kuwata and Fisher or Kuwata, Fisher, and Ohga render obvious this limitation.

184. For the reasons discussed for Ground 2, [1d], a POSITA would have found it obvious to update the preset conditions in the control data storage based on specification data, where the specification data identifies (identification data) the DSC-printer pair to the server, as taught by Ohga. *Supra* § X.B.1.b. For the reasons discussed for Ground 2, [5a], Kuwata discloses, or alternatively Kuwata and Fisher render obvious, a camera storing the available DSC-printer pairs (identification data) corresponding to the preset conditions for the DSC-printer pair. *Supra* § X.B.4.a. Because the identification data identifies the desired preset

conditions for the DSC-printer pair, and POSITA would have found it obvious to use this identification data as the specification data. *Supra* § X.B.4.a.

5. Claim 6

- a. [6a]: “The image related data generator according to claim 1, wherein the image data generator is connectable to a server via a network, and”**

185. For the reasons explained in Section X.A.5.a (Ground 1, [6a]), Kuwata and Fisher render obvious the additional limitations of [6a].

- b. [6b]: “the storage manager sends specification data which specifies the image processing control data to be updated, to the server and receives update data from the server.”**

186. For the reasons explained in Section X.B.1.b (Ground 2, [1d]), Kuwata, Fisher, and Ohga render obvious the additional limitations of [6b] for sending specification data that identifies the image processing control data to be updated and receiving the update data from the server.

6. Independent Claim 10

- a. [10pre]-[10d] and [10f]-[10g]**

187. For the reasons explained in Sections X.A.6.a-X.A.6.e and X.A.6.g-X.A.6.h (Ground 1, [10pre]-[10d], [10f]-[10g]), Kuwata discloses or suggests or Kuwata and Fisher render obvious [10pre], [10a], [10b], [10c], [10d], [10f], and [10g], respectively.

- b. **[10e]: “a memory management module configured to acquire additional image processing control data from an external memory device separate from the digital camera, and to store the additional image processing control data into the control data storage,”**

188. For the reasons explained in Section X.A.6.f (Ground 1, [10e]), Kuwata and Fisher render obvious [10e]. If the Patent Owner argues that Kuwata and Fisher do not render obvious this limitation, then, in my opinion, the Kuwata-Fisher-Ohga combination renders obvious [10e] for the reasons explained in Section X.B.1.b (Ground 2, [1d]). For example, a POSITA would have found it obvious to combine Kuwata, Fisher, and Ohga so the memory management module acquires additional preset conditions corresponding to a DSC-printer pair (additional image processing control data) from a server (an external memory device separate from the digital camera) and stores the additional preset conditions in the control data storage. *Supra* §§ X.A.6.d, X.B.1.b.

C. Ground 3: Claim 7 Is Obvious over Kuwata and Ohga

1. Independent Claim 7

- a. **[7pre]: “An image related data editor, connectable to a server, comprising:”**

189. In my opinion, Kuwata alone or Kuwata and Ohga render obvious [7pre].

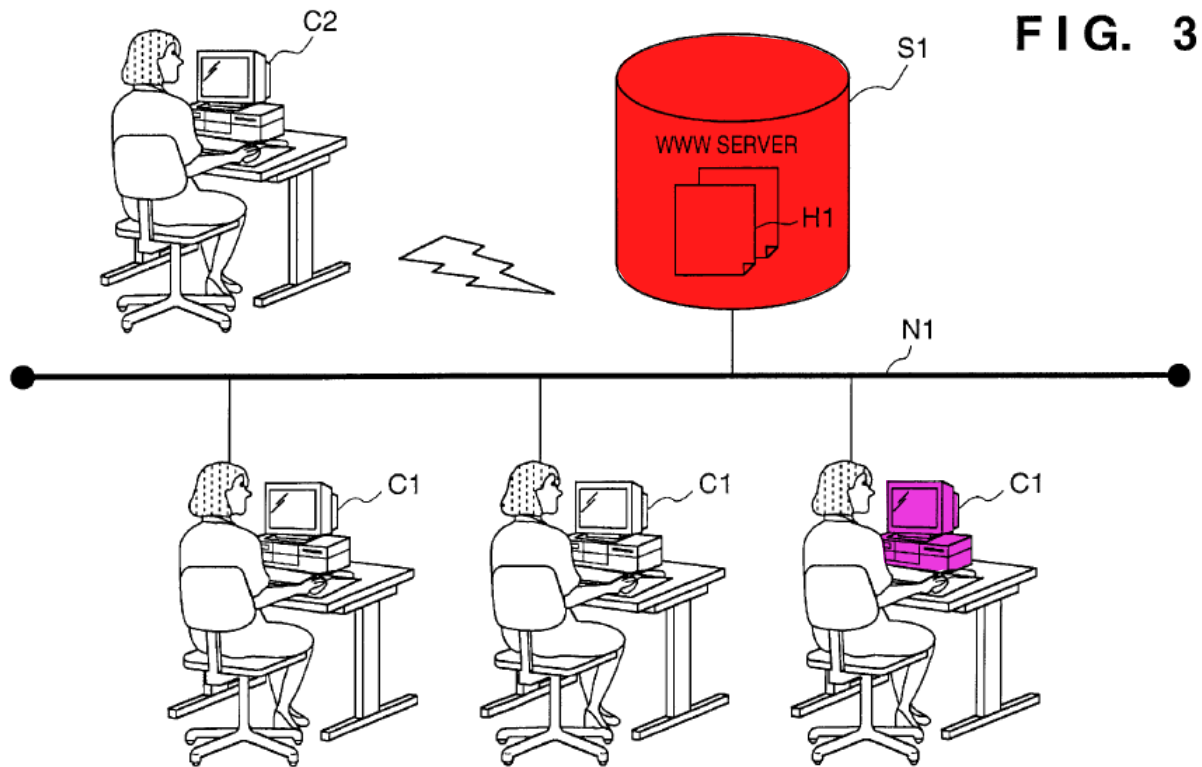
190. Kuwata discloses a “personal computer” (“PC”) (image related data editor) that includes an “application program” used to obtain image data GD from

a digital camera, generate output control information CI, and store the image data GD and output control information CI “in one image file GF.” Kuwata, [0096]. Kuwata also discloses performing “image processing functions” using an “image data processing application installed in the hard disk, etc. of the computer.” Kuwata, [0115].

191. Kuwata suggests that the PC is connectable to a server because PCs at the time were conventionally connectable to a server, for example, via the Internet.

192. If the Patent Owner argues that Kuwata does not disclose or suggest [7pre], then, in my opinion, making a computer PC connectable to a server would have been obvious to a POSITA, for example, to enable the downloading of programs/information from a server over a network based on Ohga. *See supra* § X.A.1.a.

193. Ohga discloses an image editing computer that is connectable to a server because it discloses a **computer PC** (image related data editor) that is connected (connectable) to a “**server S1**” (server) by “a network N1.” Ohga, 2:27-41, 2:55-57, FIGS. 3, 8. Ohga’s computer is connectable to the server to download various data via a browser and uses the data to “execute[] color matching for the image data J1.” Ohga, 3:19-61, 4:3-12, FIG. 7.



Ohga, FIG. 3 (annotated).

i. Motivation to Combine

194. A POSITA would have been motivated to combine Ohga's PC-server connectivity with Kuwata's PC to allow customization of the PC, including downloading programs and preset conditions to facilitate image processing. *Supra* § X.A.1.a (Ground 1, [1pre]). This would have been advantageous, for example, to allow Kuwata's computer to easily download or update the program or preset conditions used for image processing and output. Ohga discloses that PCs communicating with a server beneficially distribute "the load on the entire network," thereby motivating a POSITA to allow connectivity with Kuwata

because preset conditions would be accessible to PCs via the server as needed.

Ohga, 4:38-44. Accordingly, it would have been a combination of familiar elements (a PC connectable to a server) according to known methods (e.g., network interface card) to yield predictable results (network communications).

ii. Expectation of Success

195. A POSITA would have had a reasonable expectation of success in making Kuwata's PC connectable to a server for the reasons discussed regarding Kuwata's camera for Ground 1, [1pre], which also apply to Ohga. *Supra* § X.A.1.a. Additionally, Kuwata and Ohga both disclose similar PCs, and PCs were commonly understood to be connectable to a server via a network. A POSITA would have recognized that connecting Kuwata's PC to a server, for example, to download programs and preset conditions for DSC-printer pairs, would have required only conventional networking techniques for transferring information, as taught by Ohga and was well known in the art and well within the skill of a POSITA. Ohga, 2:27-57. Applying Ohga's disclosed network communication between the PC and the server would have been a straightforward application of known, conventional software operations (communicating information over a network between a PC and server) used according to their known functions to yield predictable results (retrieving, sending, downloading, or otherwise receiving information by the PC).

- b. [7a]: “an input module configured to input image data and attribute data related to the image data, the attribute data including at least one of image processing control data to control image processing of the image data and identification data to identify the image processing control data;”**

196. In my opinion, Kuwata discloses or suggests or the Kuwata-Ohga combination renders obvious [7a].

197. For example, Kuwata discloses that a PC obtains an image file GF generated by a digital camera via “cable CV” or “storage device 225” (input module) and subsequently reads the image file via a software application. Kuwata, [0085], [0115]. The image file GF may include “image data GD” (image data) and “output control information CI” (attribute data related to the image data). Kuwata, [0096], [0115]. Because “attribute data includ[es] at least one of image processing control data ... and identification data,” Kuwata’s preset conditions included in the output control information CI disclose attribute data related to the image data, including image processing control data to control image processing of the image data, for the reasons discussed for Ground 1, [1b]-[1c]. *Supra* §§ X.A.1.c-X.A.1.d. The output control information CI also discloses attribute data because it includes “PIM Version information” and parameter numbers (identification data) that identify corresponding parameter values (the image processing control data) stored in the output control information CI. Kuwata, [0074], FIG. 3b.

198. If the Patent Owner argues that Kuwata does not disclose [7a], then, in my opinion, this limitation would have been obvious in view of Ohga. Ohga, like Kuwata, discloses performing image processing using characteristics of the input device and the output device. Ohga, 4:3-12. Ohga discloses an “input interface 103” (input module) for connecting to an “input device 104,” such as a digital still camera, and a “network interface card (NIC) 111” (input module) for connecting to a server S1 via the network N1. Ohga, 2:37-61, FIGS. 3, 8. For example, Ohga discloses downloading an “image data file” that includes “image data J1” (image data) and downloading an “input profile P1 of the device that inputs the image data J1” (e.g., camera) according to attribute data that identifies this input profile to the PC from server S1. Ohga, 2:31-36, 3:6-15, 3:37-45, 4:30-38, 4:63-67, FIGS. 3-4, 6-8.

199. A POSITA would have found it obvious to incorporate Ohga’s input module configured to input image data and attribute data into Kuwata’s PC. A POSITA would have found it obvious to provide an input module to Kuwata’s PC to receive image data for processing and attribute data necessary to identify the desired preset conditions to include in the output control information CI based on, for example, the type of camera used to generate the image data and/or the type of printer used to output the image data. Doing so would have been desirable because it would have facilitated carrying out Kuwata’s disclosure that the PC receives

image data GD and generates output control information CI that considers the “color reproduction characteristics of the output device” and “effectively use[s] the color reproduction capability of DSC 22.” Kuwata, [0096].

i. Motivation to Combine

200. A POSITA would have been motivated to combine Kuwata and Ohga to have Kuwata’s camera provide the computer with the image data and attribute data that includes identification information, such as camera identification information and/or printer identification information, like Ohga teaches. A POSITA would have understood that sending an image file GF with the image data GD and attribute data, like the names of the DSC and target printer, would have allowed the PC to acquire the optimum preset conditions for a particular DSC-printer pair based on the camera and printer information and add these preset conditions to the image file provided by the digital camera. *See* Kuwata, [0096]. This combination would have been beneficial because it would have allowed access to a greater range of preset conditions for DSC-printer pairs, either stored locally on the computer or remotely on a server, compared to the preset conditions stored locally on the camera, which, at the earliest priority date of the ’082 Patent, had limited memory space. Additionally, absent any software updates, Kuwata’s camera may have lacked preset conditions for printers created after the camera was manufactured because these conditions would not have existed during

manufacturing. Including the identification information of the camera and/or printer (identification/attribute data) with the image data provided to the computer would have allowed the optimum conditions to be added to the image file by the computer for any DSC-printer pair available at a manufacturer server, which would have included substantially more memory than the digital camera, thereby allowing the digital camera to use its own memory more efficiently.

201. Ohga provides motivations for this combination because it discloses that permitting the computer to obtain the necessary information to process the image data from a server distributes the load on the entire network and improves “use efficiency of the entire network.” Ohga, 4:41-44.

ii. Expectation of Success

202. A POSITA would have had a reasonable expectation of success in providing Kuwata’s PC with an input module configured to input image data and attribute data that identifies the camera and/or printer because Kuwata already describes the user selecting the output device on the camera and generating an image file storing “various types of information relating to” image data in an “additional information storage area 112” of image file GF. Kuwata, [0071], [0077], [0082]. This area commonly included details on the camera used to generate the image data. Accordingly, the combination would have been a

combination of familiar elements according to known methods to yield predictable results.

203. A POSITA would have recognized that including an input module configured to input image data and attribute data that identifies the camera and/or printer in Kuwata's PC would have required applying only conventional techniques for storing image files and information and including an interface for inputting information, as taught by Ohga, as was well known in the art and well within the skill of a POSITA. Kuwata, [0070]-[0071]; Ohga, 2:47-61. Applying Ohga's teaching of attribute data to identify the input profile to Kuwata's PC would have been a straightforward application of known, conventional software operations (including information in an image file) used according to their known functions to yield predictable results (the PC receiving the information it needs to generate the output control information CI).

- c. **[7b]: "an update data acquiring module configured to acquire update data of the image processing control data based on the attribute data from the server; and"**

204. In my opinion, the Kuwata-Ohga combination renders obvious [7b].

205. Kuwata discloses an application executed on a computer that can read an image file and analyze output control information stored in the image file. Kuwata, [0115]. As discussed for [7a], it would have been obvious to combine

Kuwata and Ohga to have Kuwata's camera provide the computer with an image file comprising the image data and attribute data that include identification information, such as camera identification information and/or printer identification information. *Supra* § X.C.1.b.

206. Ohga discloses "a download unit" that can acquire a profile for each of the input and output devices (update data of the image processing control data) based on the names of the devices (attribute data) from a server. Ohga, 3:37-58, 6:9-15. For example, Ohga discloses that input profile is either "embedded in the image data J1" or downloaded "in accordance with the designation" in an HTML document. Ohga, 3:37-45, 4:30-38. For the output profile, Ohga discloses that when a "user selects a given profile name" presented at the PC, the PC downloads "the corresponding [output] profile on the server." Ohga, 3:51-58. Accordingly, Ohga discloses that the PC via the download unit can provide a device name (attribute data) to the server to download a profile associated with that device (update data of the image processing control data).

207. For the reasons explained for [7a], a POSITA would have found it obvious to combine Kuwata and Ohga to provide an update data acquiring module configured to extract the identification data from the attribute data image file, send the identification data (e.g., camera and printer names (attribute data)) to the server, and receive update data from the server for acquiring the preset conditions

(image processing control data) associated with a particular DSC-printer pair based on the camera and printer names (attribute data). *Supra* § X.C.1.b.

d. [7c]: “a relating module configured to relate the image data to the update data,”

208. In my opinion, Kuwata discloses or suggests [7c].

209. Kuwata discloses applying the process described above for Ground 1, [1c] “to an application program executed on a personal computer,” where “image data GD is obtained from a digital camera, and is stored together with the output control information CI” acquired from the server as update data “in one image file GF.” Kuwata, [0096]; *supra* §§ X.A.1.d (Ground 1, [1c]), X.C.1.c ([7b]).

Accordingly, Kuwata discloses or suggests this limitation for the reasons stated for [1c]. *Supra* § X.A.1.d.

e. [7d]: “wherein the image processing control data is to be used in processing of the image data by an image processing device that receives the image data and the image processing control data that are transferred from the image related data editor.”

210. In my opinion, Kuwata discloses or suggests [7d].

211. Kuwata discloses that, instead of sending the image file directly from the camera to the printer, the image file can be “sent to printer 24 via a personal computer (PC).” Kuwata, [0085]. Accordingly, Kuwata discloses or suggests this limitation for the reasons discussed for [1e]. *Supra* § X.A.1.f.

D. Ground 4: Claim 8 Is Obvious over Ohga and Kuwata

1. Independent Claim 8

- a. [8pre]: “An update data transmit apparatus, connectable to a predetermined peripheral device, comprising:”**

212. In my opinion, Ohga discloses or suggests [8pre].

213. Ohga discloses a server s1 (update data transmit apparatus) connectable to a computer (predetermined peripheral device) via a network connection. Ohga, 2:27-41, 2:55-57.

- b. [8a]: “an update data storage module for storing in advance update data for image processing control data to control image processing of image data, the update data being associated with at least one of the image processing control data and identification data to identify the image processing control data;”**

214. In my opinion, Ohga discloses or suggests [8a].

215. Ohga discloses server s1 including storage such as a hard disk, ROM, and RAM (update data storage module) like the computer in Figure 8. Ohga, 2:47-55, 3:4-5 (disclosing that “the arrangement of the server S1 is nearly the same as that of the client computer shown in FIG. 8”), FIG. 8. The server includes profiles P1 and P2 associated with input and output devices, respectively (update data for image processing control data). Ohga, 3:16-19, 3:37-58, 4:63-67. These profiles are associated with the names of the devices (identification data). Ohga, 3:37-58, 4:63-67, 7:22-27. For example, the computer downloads an input profile P1

“associated with the image data J1 ... in accordance with the designation of the input profile on the HTML document H1” and an output profile P2 corresponding to the image output device to which the image data is to be outputted. Ohga, 3:16-19, 3:37-58, 4:3-12. Alternatively, the computer downloads “a list of profiles required for a plurality of images that belong to one frame” when it downloads the image data and then downloads the profiles “from the server on the basis of the prepared profile list.” Ohga, 4:63-5:4, FIG. 6. Accordingly, Ohga teaches downloading the input and output profiles by identifying the name of the corresponding device. Ohga, 3:51-58, 4:63-67, 7:22-27. A color-matching-module program M1, also provided by the server, “executes color matching for the image data J1 on the basis of the input profile P1 and [output] profile” (to control image processing of image data). Ohga, 3:16-29, 4:3-5.

- c. **[8b]: “an input module configured to input predetermined data from the peripheral device, the predetermined data including the image processing control data to be updated or the identification data; and”**

216. In my opinion, Ohga discloses or suggests [8b].

217. Ohga discloses that the server includes an interface card for connecting it to a network and a CPU that controls the server in accordance with a program configured to input identification data (predetermined data) from the computer (peripheral device) corresponding to the name of an input or output

device (an input module configured to input predetermined data, the predetermined data including the identification data). Ohga, 2:47-57, 3:4-5, FIG. 8; *supra* § X.D.1.b (Ground 4, [8a]).

218. Ohga discloses that, when the user selects at the computer a given profile name, identification data that identifies the output profile to be downloaded is input from the computer into the server via the server's interface card. Ohga, 3:48-58, 4:3-12. The profile name identifies the desired profile because "[t]he profile names presented to the user, and profiles on the server are associated with each other in advance." Ohga, 3:48-58, 4:3-12. Similarly, Ohga discloses that identification data is input from the computer to the server via the server's interface card based on the name of the input profile "stated in advance in the HTML document H1" or based on a downloaded profile list so that the computer can acquire the input profile. Ohga, 3:37-45, 4:63-67, 7:22-27.

d. [8c]: "an update data transmission module configured to transmit the update data corresponding to the predetermined data to the peripheral device,"

219. In my opinion, Ohga discloses or suggests [8c].

220. Ohga discloses that the server includes a network interface card for connecting it to a network and a CPU that controls the server in accordance with a program configured to transmit profiles (update data) corresponding to the names of the input and output devices (the predetermined data) to the computer (the

peripheral device) based on the predetermined information. Ohga, 2:47-57, 3:4-5, FIG. 8; *supra* § X.D.1.b (Ground 4, [8a]). For example, Ohga discloses that the server transmits profiles P1, P2 corresponding to the input device specified in the HTML file and the output device selected by the user. Ohga, 3:16-19, 3:37-58, 4:3-12.

221. For the input profile, the computer downloads an input profile from the server “in accordance with the designation of the input profile on the HTML document H1.” Ohga, 3:37-45. Alternatively, profiles are downloaded from the server based on “a list of profiles required for a plurality of images that belong to one frame.” Ohga, 4:63-67, 7:22-27. For the output profile, “when the user selects a given profile name, the corresponding profile on the server is automatically loaded into the CMM program of the client.” Ohga, 3:54-58, 4:3-12. The input and output profiles are determined based on the identification data corresponding to the names of the devices because, for example, Ohga discloses that “profile names” (identification data) and “profiles on the server are associated with each other in advance.” Ohga, 3:54-58, 4:63-67, 7:22-27.

- e. **[8d]: “wherein the image processing control data is to be used in processing of the image data by an image processing device that receives the image data and the image processing control data that are transferred from the peripheral device.”**

222. In my opinion, the Ohga-Kuwata renders obvious [8d].

223. In Ohga, the PC uses the input and output profiles (image processing control data) to process the image data (received image data and image processing control data transferred from the peripheral device). Ohga, 4:3-12. For example, Ohga discloses that “the image data J1 is downloaded [to the computer] based on the set link” in the HTML document H1, and a “CMM program M1 executes color matching for the image data J1 on the basis of the input profile P1 and [output device] profile.” Ohga, 3:16-19, 4:3-12. “The image data J1 that has undergone color matching is” then sent to a printer, for example. Ohga, 4:3-12. Ohga does not explicitly disclose that the printer receives the input and output profiles or uses them to process image data. However, this would have been obvious in view of Kuwata.

224. Kuwata discloses that performing image processing on a computer and on a printer are alternatives. Kuwata, [0115]. In the embodiment where processing is executed at the printer, Kuwata discloses that the computer obtains “image data GD” and stores the image data “together with the output control information CI generated by the application program [executed on the computer] in one image file GF.” Kuwata, [0096]. The image file is then “sent to printer 24” for processing. Kuwata, [0079], [0085], [0115]. Kuwata discloses that “simply by sending the image file to the output device side, it is possible to apply any characteristics for output images at the output device.” Kuwata, [0141].

225. A POSITA would have found it obvious to combine Kuwata's image processing at the printer with Ohga. Both Ohga and Kuwata teach processing images using profiles based on the input and output devices. Ohga, 1:8-22, 4:3-12; Kuwata, [0022], [0094]. Kuwata teaches that performing the processing at the computer or the printer are design alternatives, and a POSITA would have found both alternatives obvious. Kuwata, [0115]. Using a printer with special purpose or more efficient processors to process the image would have desirably improved the image processing while freeing up processing on Ohga's PC.

i. Motivation to Combine

226. In my opinion, a POSITA would have been motivated to apply Kuwata's output-device-side image processing to Ohga to consolidate the image processing at the printer. Kuwata, [0071]. Kuwata's teaching that the image processing can achieve similar results whether performed on the computer or the printer would have been a combination of familiar elements according to known methods to yield predictable results, with the only change being the location of the processing that was a familiar design alternative. Kuwata, [0115]. At a minimum, a POSITA would have found this obvious to try, given the two available devices for performing image processing. Image file formats were standardized at the time, making it well-understood how to transmit image data and image processing control data to the printer and process the format. Kuwata, [0070]-[0074]. These

standard image file formats would have further motivated a POSITA to perform the image processing at the printer instead of the computer, for example, to use more efficient, special-purpose processors at the printer and to free up processing power on the computer.

ii. Expectation of Success

227. In my opinion, a POSITA would have had a reasonable expectation of success in performing the image processing using the input and output profiles on the printer at least because Ohga's color-matching module program is provided from the server "in the intermediate code format which is independent of CPUs, OSs, and the like" so that, regardless of the device processing the image data, it "can obtain identical color matching results." Ohga, 3:30-36, 4:45-50. Kuwata similarly teaches that processing at the computer or printer are known design alternatives and thus the same processing can be performed at either device. Kuwata, [0115]. Accordingly, a POSITA would have reasonably expected success in such a design, as the CMM program would be expected to work the same on the printer as it does on the computer.

228. A POSITA would have recognized that modifying Ohga to perform the image processing on the printer would have required the POSITA to apply only conventional techniques for transferring information from a computer to a printer, as taught by Kuwata, as was well known in the art and well within the skill of a

POSITA because information transfer and image file format standards were conventional and ubiquitous at the earliest priority date of the '082 patent. Kuwata, [0070]-[0071], [0085]. Performing image processing on the printer would have been a straightforward application of known, conventional software operations (transmitting image data and related information between devices) used according to their known functions to yield predictable results (processing the image data using the same method).

E. Grounds 5-6: Claim 9 Is Anticipated or Rendered Obvious by Ohga

1. Independent Claim 9

- a. [9pre]: “A method for transmitting update data for image processing control data, which is used to control image processing of image data, to a peripheral device, the method comprising steps of:”**

229. In my opinion, Ohga discloses or suggests [9pre] for the reasons explained for Ground 4, [8a]-[8c]. *Supra* § X.D.1.b-X.D.1.d.

- b. [9a]: “providing the update data associated with at least one of the image processing control data and identification data to identify the image processing control data;”**

230. Ohga discloses or suggests [9a] for the reasons explained for Ground 4, [8a]. *Supra* § X.D.1.b.

- c. **[9b]: “inputting predetermined data from the peripheral device, the predetermined data including the image processing control data to be updated or the identification data corresponding to the image processing control data to be updated; and”**

231. Ohga discloses or suggests [9b] for the reasons explained for Ground 4, [8b]. *Supra* § X.D.1.c.

- d. **[9c]: “transmitting the update data corresponding to the predetermined data to the peripheral device.”**

232. Ohga discloses or suggests [9c] for the reasons explained for Ground 4, [8c]. *Supra* § X.D.1.d.

XI. CONCLUSION

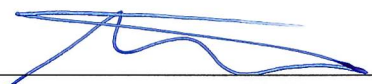
233. For the reasons set forth in Section X, it is my opinion that one skilled in the art would have found claims 1-10 of the '082 obvious and claim 9 anticipated.

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

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

Date: 6/13/24

Respectfully submitted,



Robert Stevenson, Ph.D.