

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

TRUIST BANK,
Petitioner,

v.

UNITED SERVICES AUTOMOBILE ASSOCIATION,
Patent Owner.

IPR2022-01593
Patent 9,818,090 B1

Before MICHAEL R. ZECHER, STACEY G. WHITE, and
TERRENCE W. McMILLIN, *Administrative Patent Judges*.

ZECHER, *Administrative Patent Judge*.

DECISION
Granting Institution of *Inter Partes* Review
35 U.S.C. § 314

I. INTRODUCTION

Petitioner, Truist Bank (“Truist”), filed a Petition requesting an *inter partes* review (“IPR”) of claims 1–19 of U.S. Patent No. 9,818,090 B1 (Ex. 1001, “the ’090 patent”). Paper 1 (“Pet.”). Patent Owner, United Services Automobile Association (“USAA”), filed a Preliminary Response. Paper 11 (“Prelim. Resp.”). With our authorization, Truist filed a Preliminary Reply (Paper 12, “Prelim. Reply”) and USAA filed a Preliminary Sur-reply (Paper 14, “Prelim. Sur-reply”), each of which were tailored narrowly to address the non-exclusive list of six factors set forth in *Apple Inc. v. Fintiv, Inc.*, IPR2020-00019, Paper 11 (PTAB Mar. 20, 2020) (precedential) (“*Fintiv*”) that we consider in determining whether to exercise our discretion to institute an IPR when there is a related district court case involving the same patent.

Based on the authority delegated to us by the Director under 37 C.F.R. § 42.4(a), we may not institute an IPR unless the information presented in the Petition and any response thereto shows “there is a reasonable likelihood that the petitioner would prevail with respect to at least 1 of the claims challenged in the petition.” 35 U.S.C. § 314(a) (2020). Taking into account USAA’s Preliminary Response, Truist’s Preliminary Reply, and USAA’s Preliminary Sur-reply, we conclude that the information presented in the Petition establishes that there is a reasonable likelihood that Truist would prevail in challenging at least one of claims 1–19 of the ’090 patent as unpatentable. Pursuant to § 314, we hereby institute an *inter partes* review as to these claims of the ’090 patent.

A. Real Party in Interest

Truist identifies itself as the only real party in interest (“RPI”). Pet. 100. Truist also identifies itself as a subsidiary of Truist Financial Corporation, but states that “Truist Financial Corporation is not [an RPI] to this proceeding.” *Id.* n.4. USAA identifies itself as the only RPI. Paper 3, 2 (USAA’s Mandatory Notices).

B. Related Matters

The parties indicate that the ’090 patent is the subject of the following five district court cases: (1) *United Services Automobile Ass’n v. Truist Bank*, No. 2:22-cv-00291 (E.D. Tex.); (2) *United Services Automobile Ass’n v. Wells Fargo Bank, N.A.*, No. 2:18-cv-0245-JRG (E.D. Tex.); (3) *United Services Automobile Ass’n v. PNC Bank, N.A.*, No. 2:20-cv-00319-JRG, 2:21-cv-00110-JRG (consolidated) (E.D. Tex.); (4) *United Services Automobile Ass’n v. BBVA USA*, No. 2:21-cv-00311-JRG (E.D. Tex.); and (5) *Mitek Systems, Inc. v. United Services Automobile Ass’n*, No. 2:20-cv-00115-JRG (E.D. Tex.)). Pet. 100–101; Paper 3, 2–3.

In addition to Truist’s Petition, two other parties filed the following three petitions challenging the ’090 patent: (1) *Wells Fargo Bank, N.A. v. United Services Automobile Ass’n*, CBM2019-00002, Paper 2 (PTAB Nov. 8, 2018) (challenging claims 1–20 of the ’090 patent); (2) *Wells Fargo Bank, N.A. v. United Services Automobile Ass’n*, IPR2019-00815, Paper 2 (PTAB Mar. 20, 2019) (challenging claims 1–19 of the ’090 patent); and (3) *Mitek Systems, Inc. v. United Services Automobile Ass’n*, IPR2020-00882, Paper 1 (PTAB Apr. 30, 2020) (challenging claims 1–19 of the ’090 patent). Paper 3, 2–3. In CBM2019-00002, Wells Fargo’s Petition challenging claims 1–20 of the ’090 patent was dismissed prior to institution. CBM2019-00002,

Paper 16. In IPR2019-00815, Wells Fargo’s Petition challenging claims 1–19 of the ’090 patent was denied on the merits. IPR2019-00815, Paper 17. In IPR2020-00882, Mitek’s Petition challenging claims 1–19 of the ’090 was denied because the non-exclusive list of factors set forth in *General Plastic Industrial Co. v. Canon Kabushiki Kaisha*, IPR2016-01357, Paper 19 (PTAB Sept. 6, 2017) (precedential only as to Section II.B.4.i), and expanded upon in *Valve Corp. v. Electronic Scripting Products, Inc.*, IPR2019-00062, Paper 11 (PTAB Apr. 2, 2019) (precedential), favored discretionary denial under 35 U.S.C. § 314(a). IPR2020-00882, Paper 30 (public version).

C. The ’090 Patent

The ’090 patent is titled “Systems and Methods for Image and Criterion Monitoring During Mobile Deposit.” Ex. 1001, code (54). The ’090 patent generally relates to improving remote deposit of checks by providing feedback about the image of a check to be deposited before the image is captured by a camera and sent to a financial institution. *See, e.g., id.* at code (57) (“Feedback may be provided to the user of the camera regarding the image of the check in the field of view.”), 21:51–22:2 (independent claim 1 recites, in relevant part, “present[ing] feedback information describing an instruction for satisfying the monitoring criterion”).

As way of background, the ’090 patent acknowledges that “depositing a check typically involves going to a local bank branch and physically presenting the check to a bank teller.” Ex. 1001, 1:33–35. The ’090 patent also acknowledges that remote deposit of a check—capturing and sending a digital image of a check to a financial institution for crediting to a payee’s

account—reduces that burden. *Id.* at 1:35–41. The '090 patent states, however, that “such a technique requires the efficient and accurate detection and extraction of the information pertaining to a check in the digital image,” and “[c]apturing a digital image at a mobile device that allows for subsequent detection and extraction of the information from the digital image is difficult.” *Id.* at 1:41–47.

Figures 1 and 2 of the '090 patent are reproduced below.

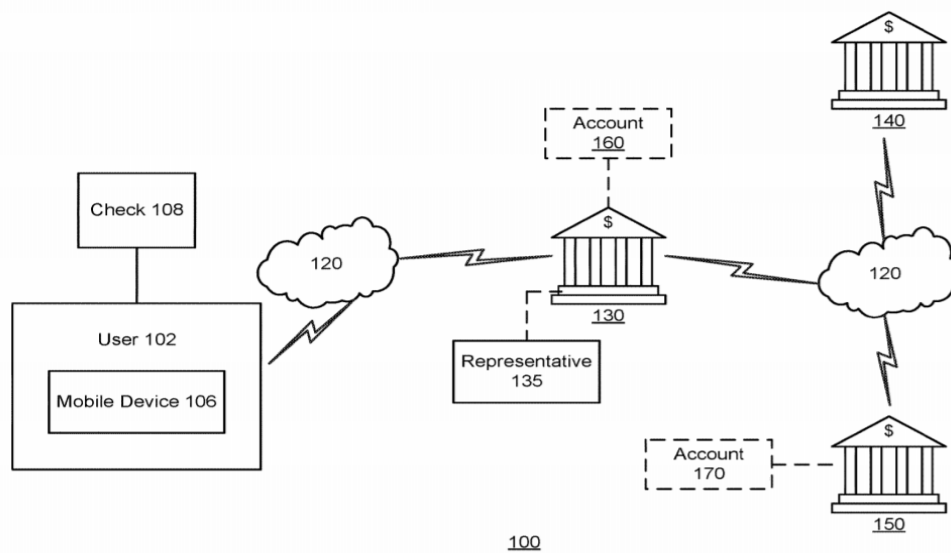


FIG. 1

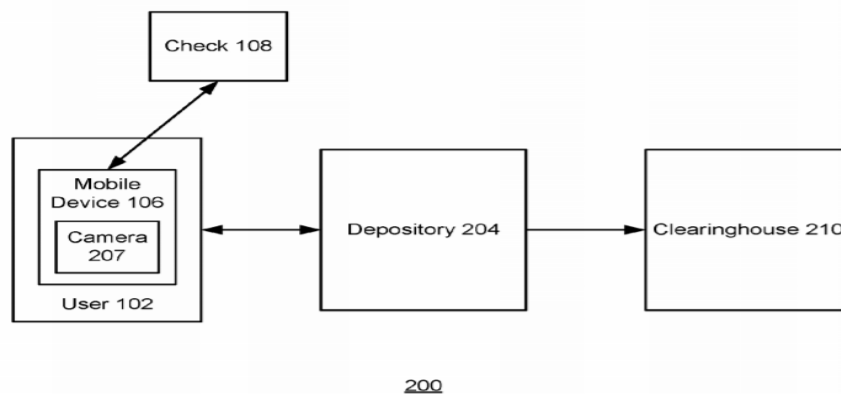


FIG. 2

Figures 1 and 2 illustrate implementations of systems that may be used for depositing a check. Ex. 1001, 2:21–26. Figure 1 illustrates that “user 102 may deposit the check 108 into account 160 by making a digital image of the check 108 and sending the image file containing the digital image to financial institution 130.” *Id.* at 3:61–64, Fig. 1. Figure 2 illustrates mobile device 106 of user 102 as having camera 207. *Id.* at 6:16–21, Fig. 2. The ’090 patent indicates camera 207 may be a digital camera and may be called “a camera phone.” *Id.* at 6:25–27.

“To increase the likelihood of capturing a digital image of the check 108 that may be readable and processed such that the check 108 can be cleared, the image is monitored for compliance with one or more monitoring criteria, prior to the image of the check 108 being captured.” Ex. 1001, 4:6–10. The ’090 patent states that “[t]he monitoring criteria may be directed to proper lighting and/or framing of the check 108 in an image of the check 108 that will be captured and presented for clearing of the check 108.” *Id.* at 4:10–13. In other words, the ’090 patent states that “[t]he monitoring is performed with respect to the image as it appears in the field of view of the camera of the mobile device 106.” *Id.* at 4:16–18. “The field of view is that part of the world that is visible through the camera at a particular position and orientation in space; objects outside the field of view when the image is captured are not recorded in the image.” *Id.* at 4:18–22.

The ’090 patent describes examples of monitoring criteria. Ex. 1001, 4:22–27. According to ’090 patent, “[t]he monitoring criteria may be based on one or more of light contrast on the image, light brightness of the image, positioning of the image, dimensions, tolerances, character spacing, skewing, warping, corner detection, and MICR (magnetic ink character

recognition) line detection, as described further” in the specification. *Id.*

“By ensuring that the image of the check passes monitoring criteria during pre-image capture monitoring, the number of non-conforming images of checks is reduced during presentment of the images to a financial institution for processing and clearing.” *Id.* at 4:37–42. The ’090 patent also states that “feedback may be provided to the user 102 regarding the image of the check in the field of view” and, “[b]ased on the feedback, the user 102 may reposition the check 108 and/or the camera, for example, or may capture an image of the check 108.” *Id.* at 4:42–46.

“When the image of the check 108 in the field of view passes the monitoring criteria, an image may be taken by the camera and provided from the mobile device 106 to a financial institution.” Ex. 1001, 4:34–37. The ’090 patent states that the image of the check may be captured “automatically . . . as soon as the image of the check 108 is determined to pass the monitoring criteria” or, alternatively, may be captured manually when the user instructs the camera to perform the image capture. *Id.* at 4:47–55.

Figure 3 of the ’090 patent is reproduced below.

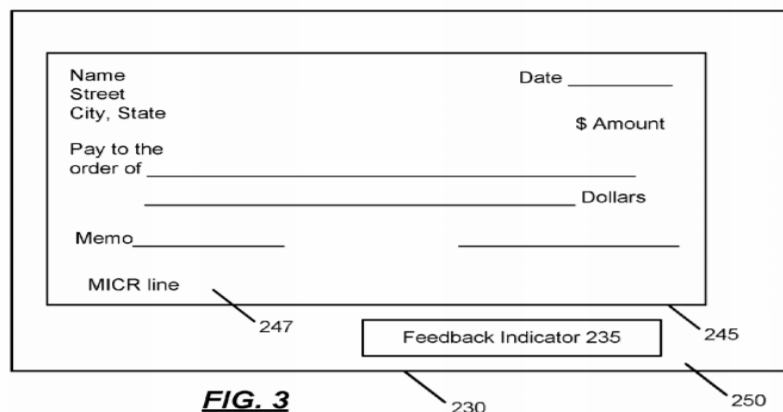


Figure 3 illustrates example image 230 generated by camera 207 in mobile device 106 of user 102. Ex. 1001, 7:19–23. As shown above, image 230 includes check image 247, background image 250, and “feedback indicator 235 providing feedback to the user 102.” *Id.* at 7:19–21.

“Feedback regarding the image 230 in the field of view with respect to the monitoring criteria may be generated and provided to the user 102.”

Ex. 1001, 7:36–38. The ’090 patent describes visual and aural examples of feedback that may be provided. *Id.* at 7:36–51. Visual feedback examples include text instructions: “go closer,” “go farther,” “move the check to the right,” “put the check on a darker background,” “tilt the camera down,” and “take the picture now.” *Id.* at 7:38–42. Other feedback examples include “arrows, or other visual indicators or cues (e.g., green lights, red lights, etc.) overlaid on the image 230.” *Id.* at 7:42–43. Aural feedback provided to the user 102 through a speaker associated with mobile device 106 “may advise the user 102 to move the camera 207 or the check 108 or adjust the lighting or the background.” *Id.* at 7:44–49. “The feedback may also advise the user 102 when the image 230 passes the one or more monitoring criteria and to capture the image of the check 108.” *Id.* at 7:49–51.

D. Challenged Claims

Of the challenged claims, claims 1 and 11 are independent. Independent claim 1 is directed to “[a] system,” whereas independent claim 11 is directed to “[a] method for capturing an image of a target document by a mobile computing device.” Ex. 1001, 21:51, 22:47–48. Claims 2–10 directly or indirectly depend from independent claim 1, and claims 12–19 directly or indirectly depend from independent claim 11. *Id.* at 22:3–46,

22:64–24:10. Independent claim 1 is illustrative of the challenged claims and is reproduced below.

1. A system comprising:
an image capture device;
a presentation device; and
a processor in communication with the image capture device and the presentation device, the processor configured to:
 - monitor a target document in a field of view of the image capture device with respect to a monitoring criterion;
 - control the presentation device to present feedback information describing an instruction for satisfying the monitoring criterion;
 - determine whether the monitoring criterion is satisfied based on the target document in the field of view of the image capture device; and
 - when the monitoring criterion is determined to be satisfied, control the image capture device to capture an image depicting the target document in the field of view of the image capture device.

Ex. 1001, 21:51–22:2.

E. Asserted Prior Art References

Truist relies on the prior art references set forth in the table below.

Name¹	Reference	Dates	Exhibit Nos.
Zhu	CN 1967565A (with English translation)	published May 23, 2007; filed Nov. 22, 2006	1005, 1006
Parulski	US 6,930,718 B2	issued Aug. 16, 2005; filed July 17, 2001	1007
Li	US 8,064,729 B2	issued Nov. 22, 2011; filed Apr. 3, 2008	1008
Dance	US 2003/0086615 A1	published May 8, 2003; filed Nov. 2, 2001	1009
Sakurai	US 2005/0078192 A1	published Apr. 14, 2005; filed Oct. 13, 2004	1010
Watanabe	US 7,027,171 B1	issued Apr. 11, 2006; filed Mar. 29, 2000	1011

F. Asserted Grounds of Unpatentability

Truist challenges claims 1–19 of the '090 patent based on the asserted grounds of unpatentability set forth in the table below. Pet. 2, 4–94.

Claim(s) Challenged	35 U.S.C. §	References
1–5, 7, 10, 11–15, 17	102(b) ²	Zhu
2, 3, 6, 12, 13, 16	103(a)	Zhu, Parulski
8, 9, 18, 19	103(a)	Zhu, Li
10	103(a)	Zhu, Sakurai
1, 4, 5, 7, 11, 14, 15, 17	103(a)	Watanabe, Dance
2, 3, 6, 12, 13, 16	103(a)	Watanabe, Dance, Parulski
8, 9, 18, 19	103(a)	Watanabe, Dance, Li
10	103(a)	Watanabe, Dance, Sakurai

¹ For clarity and ease of reference, we only list the first named inventor.

² The Leahy-Smith America Invents Act (“AIA”), Pub. L. No. 112-29, 125 Stat. 284, 287–88 (2011), amended 35 U.S.C. §§ 102 and 103, effective March 16, 2013. Because the '090 patent claims priority to an application that was filed before this date, the pre-AIA version of §§ 102 and 103 apply. Ex. 1001, code (63).

II. ANALYSIS

A. Discretionary Denial Arguments Under § 314

1. Relevant Background

In its Petition, Truist contends that none of the *Fintiv* factors weigh in favor of exercising our discretion to deny institution under § 314(a) “because no trial date has been set in the [related district court case].” Pet. 98. After Truist filed its Petition on October 11, 2022, but before USAA filed its Preliminary Response on March 20, 2023, the U.S. District Court for the Eastern District of Texas issued a “Docket Control Order” on December 2, 2022, setting a trial date of March 18, 2024. Ex. 2007, 1; *see also* Prelim. Resp. 18–20 (arguing that the related district court case involving the ’090 patent “is set for trial on March 18, 2024”). In its Preliminary Response, USAA contends that each of the *Fintiv* factors support exercising our discretion to deny institution under § 314(a). Prelim. Resp. 18–22. In its Preliminary Reply, Truist provides a stipulation stating that “it will not pursue in the related district court litigation . . . ‘any ground that [Truist] raised or reasonably could have raised’ during this proceeding,” which is consistent with *Sotera Wireless, Inc. v. Masimo Corp.*, IPR2020-01019, Paper 12 (PTAB Dec. 1, 2020) (precedential as to Section II.A). Prelim. Reply 1 (citing Ex. 1028).

2. Fintiv Analysis

It is well-settled that institution of an IPR is discretionary. *Harmonic Inc. v. Avid Tech., Inc.*, 815 F.3d 1356, 1367 (Fed. Cir. 2016) (“[T]he [U.S. Patent and Trademark Office] is permitted, but never compelled, to institute an IPR proceeding.”); 35 U.S.C. § 314(a) (2018) (“The Director *may not* authorize an inter partes review to be instituted unless the Director

determines that the information presented in the petition filed under section 311 and any response filed under section 313 shows that there is a reasonable likelihood that the petitioner would prevail with respect to at least 1 of the claims challenged in the petition.” (emphasis added)). In *Fintiv*, the Board discussed potential applications of *NHK Spring Co. v. Intri-Plex Techs., Inc.*, IPR2018-00752, Paper 8 (PTAB Sept. 12, 2018) (precedential), as well as a number of other cases dealing with discretionary denial under § 314(a). *Fintiv* identifies a non-exclusive list of six factors parties may consider addressing, particularly where there is a related district court case involving the same patent and whether such a case provides any basis for discretionary denial. *Fintiv* at 5–16. Those factors include the following:

1. whether the court granted a stay or evidence exists that one may be granted if a proceeding is instituted;
2. proximity of the court’s trial date to the Board’s projected statutory deadline for a final written decision;
3. investment in the parallel proceeding by the court and the parties;
4. overlap between issues raised in the petition and in the parallel proceeding;
5. whether the petitioner and the defendant in the parallel proceeding are the same party; and
6. other circumstances that impact the Board’s exercise of discretion, including the merits.

Id. at 5–6.

On June 21, 2022, the Under Secretary of Commerce for Intellectual Property and Director of the U.S. Patent and Trademark Office (“Director”)

issued a memo that further clarifies how we should approach analyzing the *Fintiv* factors. Interim Procedure for Discretionary Denials in AIA Post-grant Proceedings with Parallel District Court Litigation, *available at* https://www.uspto.gov/sites/default/files/documents/interim_proc_discretionary_denials_aia_parallel_district_court_litigation_memo_20220621_.pdf. (“Director Memo”). Notably, the Director stated that “the PTAB [Patent Trial and Appeal Board] will not discretionarily deny institution in view of parallel district court litigation where a petitioner presents a stipulation not to pursue in a parallel proceeding the same grounds or any ground that could have been reasonably raised before the PTAB.” Director Memo at 3. With this guidance in mind, we decline to exercise our discretion to deny institution of this proceeding based on *Fintiv* because Truist has provided a *Sotera* stipulation. Ex. 1028; *see also* Prelim. Sur-reply 1–2 (USAA acknowledging receipt of the Truist’s *Sotera* stipulation, and then stating “USAA understands that under the June 21, 2022 Memorandum issued by Director Vidal, such a stipulation is dispositive of the *Fintiv* analysis”).

B. Claim Construction

In an IPR based on a petition filed on or after November 13, 2018, such as here, claim terms are construed using the same claim construction standard as in a civil action under 35 U.S.C. § 282(b). *See* 37 C.F.R. § 42.100(b) (2019). That is, claim terms generally are construed in accordance with their ordinary and customary meaning, as would have been understood by a person of ordinary skill in the art, and the prosecution history pertaining to the patent at issue. *Id.* The ordinary and customary meaning of a claim term “is its meaning to the ordinary artisan after reading the entire patent,” and “as of the effective filing date of the patent

application.” *Phillips v. AWH Corp.*, 415 F.3d 1303, 1313, 1321 (Fed. Cir. 2005) (en banc).

For purposes of this proceeding, Truist contends that “the plain meaning of each claim term can be applied.” Pet. 4 (citing Ex. 1002 ¶ 30 (Declaration of Dr. David Doermann in support of Petition)). For purposes of its Preliminary Response only, “[USAA] does not assert that any claim terms need to be construed” to determine whether the Petition meets the reasonable likelihood threshold standard for institution. Prelim. Resp. 18.

Based on the preliminary record, there is no readily discernible controversy between the parties that requires us to construe any claim terms at this time. *See Nidec Motor Corp. v. Zhongshan Broad Ocean Motor Co.*, 868 F.3d 1013, 1017 (Fed. Cir. 2017) (noting that “we need only construe terms ‘that are in controversy, and only to the extent necessary to resolve the controversy’” (quoting *Vivid Techs., Inc. v. Am. Sci. & Eng’g, Inc.*, 200 F.3d 795, 803 (Fed. Cir. 1999))).

C. Anticipation by Zhu

Truist contends that claims 1–5, 7, 10, 11–15, and 17 of the ’090 patent are unpatentable under 35 U.S.C. § 102(b) as anticipated by Zhu. Pet. 4–25. Truist contends that Zhu discloses or describes the subject matter of each challenged claim. *Id.* Truist also relies on the testimony of Dr. Doermann to support its positions. *See* Ex. 1002.

Based on the preliminary record, we determine that Truist has shown that there is a reasonable likelihood that it would prevail in challenging at least one of claims 1–5, 7, 10, 11–15, and 17 the ’090 patent as unpatentable. We begin our analysis with the principles of law that generally apply to an asserted ground based on anticipation, followed by an assessment of the

level of skill in the art, an overview of Zhu, and then we address the parties' contentions with respect to the challenged claims.

1. Principles of Law

To establish anticipation, “all of the elements and limitations of the claim must be shown in a single prior reference, arranged as in the claim.” *Karsten Mfg. Corp. v. Cleveland Golf Co.*, 242 F.3d 1376, 1383 (Fed. Cir. 2001). When evaluating a single prior art reference in the context of anticipation, the reference must be “considered together with the knowledge of one of ordinary skill in the pertinent art.” *In re Paulsen*, 30 F.3d 1475, 1480 (Fed. Cir. 1994) (citing *In re Samour*, 571 F.2d 559, 562 (CCPA 1978)). “[T]he dispositive question regarding anticipation[, therefore, i]s whether one skilled in the art would reasonably understand or infer from the [prior art reference’s] teaching’ that every claim element was disclosed in that single reference.” *Dayco Prods., Inc. v. Total Containment, Inc.*, 329 F.3d 1358, 1368 (Fed. Cir. 2003) (alterations in original) (quoting *In re Baxter Travenol Labs.*, 952 F.2d 388, 390 (Fed. Cir. 1991)). We analyze the asserted ground based on anticipation with the principles we identify above in mind.

2. Level of Skill in the Art

Factors pertinent to a determination of the level of ordinary skill in the art include “(1) the educational level of the inventor; (2) type of problems encountered in the art; (3) prior art solutions to those problems; (4) rapidity with which innovations are made; (5) sophistication of the technology; and (6) educational level of active workers in the field.” *Envtl. Designs, Ltd. v. Union Oil Co. of Cal.*, 713 F.2d 693, 696 (Fed. Cir. 1983) (citing *Orthopedic Equip. Co. v. All Orthopedic Appliances, Inc.*, 707 F.2d 1376, 1381–82 (Fed.

Cir. 1983)). “Not all such factors may be present in every case, and one or more of these or other factors may predominate in a particular case.” *Id.* at 696–97.

For purposes of institution, there is sufficient evidence in the record that enables us to determine the knowledge level of a person of ordinary skill in the art. Relying on the testimony of Dr. Doermann, Truist argues the following:

[a] person of ordinary skill in the art . . . would have [had] at least a bachelor’s degree in Electrical Engineering, Computer Science, Computer Engineering, or equivalent, and at least two years of prior experience with digital imaging and processing technology as of the earliest priority date of the ’090 Patent (August 21, 2009) and the alleged conception date of the ’090 Patent invention (July 1, 2008). Additional education could substitute for professional experience and vice versa.

Pet. 3–4 (internal citation omitted) (citing Ex. 1002 ¶ 25). For purposes of its Preliminary Response only, USAA agrees to apply the same level of ordinary skill in the art asserted by Truist. Prelim. Resp. 17. To the extent necessary, and for purposes of institution, we adopt Truist’s assessment of the level of skill in the art because it is consistent with the ’090 patent and the asserted prior art.

3. Overview of Zhu

Zhu generally relates to “a method of scanning business cards using a mobile phone with a digital camera.” Ex. 1006, code (57). Zhu discloses advantages of scanning business cards using a mobile phone with a digital camera in lieu of the traditional method of scanning the same using a scanner. *Id.* at 5. Zhu, however, recognizes that “the majority of mobile phone users have not mastered photography techniques,” and that business

card photography “often contains a large amount of ‘noise,’ such as projection distortion, incomplete content, excessively small pictures, or fuzzy images.” *Id.* at 5–6. To solve for these problems, Zhu proposes invoking “a business card scanning feature” that includes “detecting the four sides of the targeted business card on the mobile phone screen. . . using lines of a first color so that the mobile phone user can clearly see the position and shape of the business card on the screen, and using arrows based on the current position of the business card to prompt the mobile phone user to move the targeted business card in the direction pointed to by the arrows until the business card arrives at a position suitable for photographing.” *Id.* at 7. According to Zhu, these prompts allow the mobile phone user “to take high-quality photographs of targeted business cards” that “ensur[e] the recognition accuracy.” *Id.* at 9.

Figure 3, reproduced below, illustrates a flowchart of operations in the disclosed method of Zhu’s invention. Ex. 1006, 9.

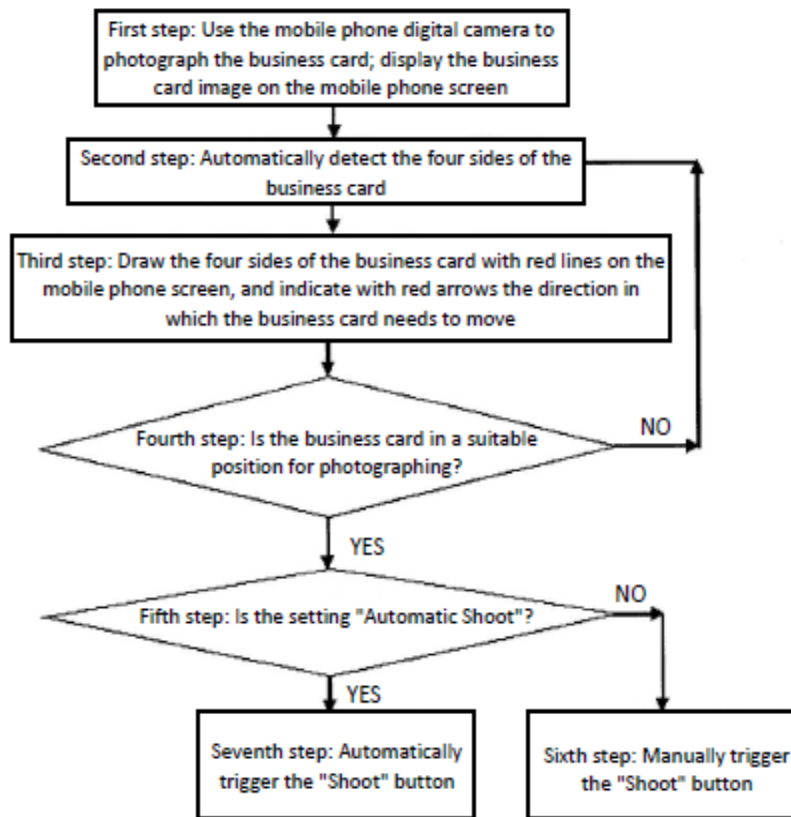


FIG. 3

Figure 3 illustrates the method steps “implemented on a mobile phone that has a digital camera.” *Id.* at 7–8. Those method steps include the following: (1) aiming the digital camera of the mobile phone at the targeted business card in a manner that permits displaying the image of the targeted business card together with “four corner points” that indicate the “targeted business card is in a position suitable for photographing”; (2) “automatically detecting the four sides of the targeted business card”; (3) “using lines of [a] first color [(e.g., red)] . . . , and using indicating arrows of the first color to indicate the direction” by which the target business card should be moved; (4) “checking whether the targeted business card is in a suitable position for photographing” and, if not, returning to the second step above but, if so,

“using lines of a second color [(e.g., green)] to draw the four sides of the targeted business card on [the] screen” of the mobile phone; (5) discerning whether the photography setting of the mobile phone is in “manual shoot” or “automatic shoot”; (6) if the photography setting of the mobile phone is in “manual shoot,” holding the mobile phone steady and pressing the “shoot” button to capture an image of the targeted business card; and (7) if the photography setting of the mobile phone is in “automatic shoot,” automatically triggering the “shoot” button to capture an image of the targeted business card. *Id.* at 8.

4. *Claims 1 and 11*

Apart from their preambles, Truist contends that “[i]ndependent claim 11 is substantially similar to [independent] claim 1.” Pet. 18. Truist, therefore, asserts that its mapping of Zhu’s disclosures to the limitations of independent claim 1 equally apply to the limitations of independent claim 11. *Compare id.* at 6–18, *with id.* at 18–20. We focus on Truist’s mapping of independent claim 1 below.

The preamble of independent claim 1 recites “[a] system comprising.” Ex. 1001, 21:51. To extent the preamble should be treated as limiting, Truist contends that Zhu discloses a “system” because it describes a mobile phone that includes a digital camera, a single-chip microcomputer system, a screen, and a central processing unit (“CPU”). Pet. 6 (citing Ex. 1006, 7–8; Ex. 1002 ¶ 60).

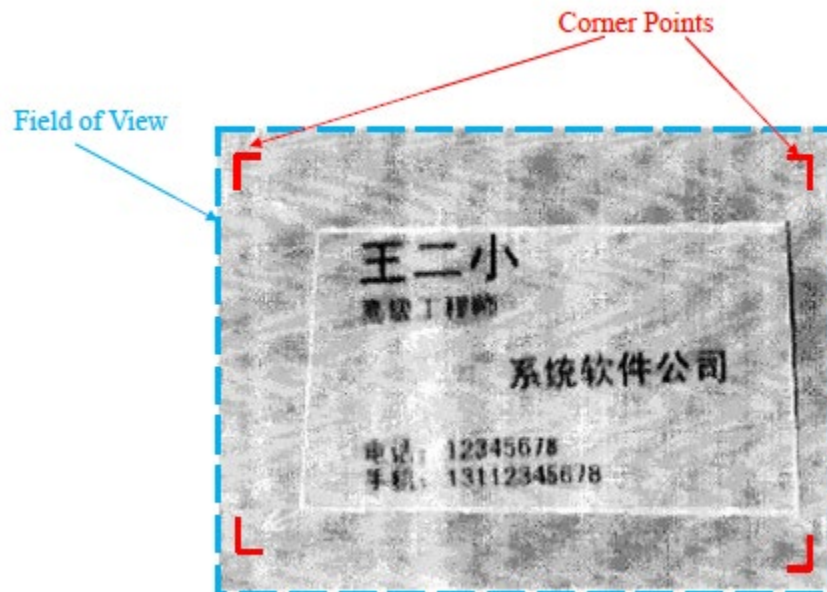
Independent claim 1 recites “an image capture device;” “a presentation device;” and “a processor in communication with the image capture device and the presentation device, the processor configured to” perform four steps. Ex. 1001, 21:52–56. Truist contends that Zhu discloses

these three limitations because it describes a mobile phone that includes a digital camera (i.e., an image capture device), a screen (i.e., a presentation device), and a CPU that runs a camera system (i.e., a processor). Pet. 6–7 (citing Ex. 1006, 7–8, Fig. 5; Ex. 1002 ¶¶ 62–64). More specifically, Truist argues that Zhu’s mobile phone includes a CPU that scans a business card with the digital camera, displays the scanned image on the screen, controls the camera to check whether the business card is in a suitable position for photographing, and automatically triggers the “shoot” button to capture an image of the business card. *Id.* at 7 (citing Ex. 1006, 7–8). Relying on the testimony of Dr. Doermann, Truist asserts that a person of ordinary skill in the art would have understood that “Zhu’s CPU controls the camera (‘image capture device’) and screen (‘presentation device’) by communicating with both.” *Id.* at 7–8 (citing Ex. 1002 ¶ 65).

The first step of independent claim 1 recites “monitor a target document in a field of view of the image capture device with respect to a monitoring criterion.” Ex. 1001, 21:57–59. Truist contends that Zhu discloses this limitation because it describes monitoring a business card (i.e., a target document) in the field of view of the camera (i.e., the image capture device) to determine if it is in a suitable position for photographing (i.e., a monitoring criterion). Pet. 8 (citing Ex. 1002 ¶ 66); *see also id.* at 10 (arguing the same). More specifically, Truist relies on an annotated version of Zhu’s Figure 5 (not reproduced here) illustrating a business card in the field of view of a camera. *Id.* at 8–9 (Ex. 1006, 8, Fig. 5; Ex. 1002 ¶ 67). Relying on the testimony of Dr. Doermann, together with prior art references demonstrating the general background knowledge in the art, Truist asserts that a person of ordinary skill in the art would have understood that, “when a

digital camera screen is the viewfinder that displays the area to be photographed (as in Zhu), the displayed image shows the field of view.” *Id.* at 9 (citing Ex. 1002 ¶ 67; Ex. 1014 ¶ 307; Ex. 1009 ¶ 82; Ex. 1019 ¶ 56).

Relying on the fourth step illustrate in the flowchart of Zhu’s Figure 3, Truist contends that the monitoring criterion is satisfied (i.e., the target document is in a position suitable for photographing) when “the vertices of the four corners of the targeted business card . . . coincide, respectively with said four corner points.” Pet. 11 (color-coding in original omitted) (quoting Ex. 1006, 8) (citing Ex. 1002 ¶ 70). Truist provides another annotated version of Zhu’s Figure 5, reproduced below, to illustrate the four corner points disclosed by Zhu.



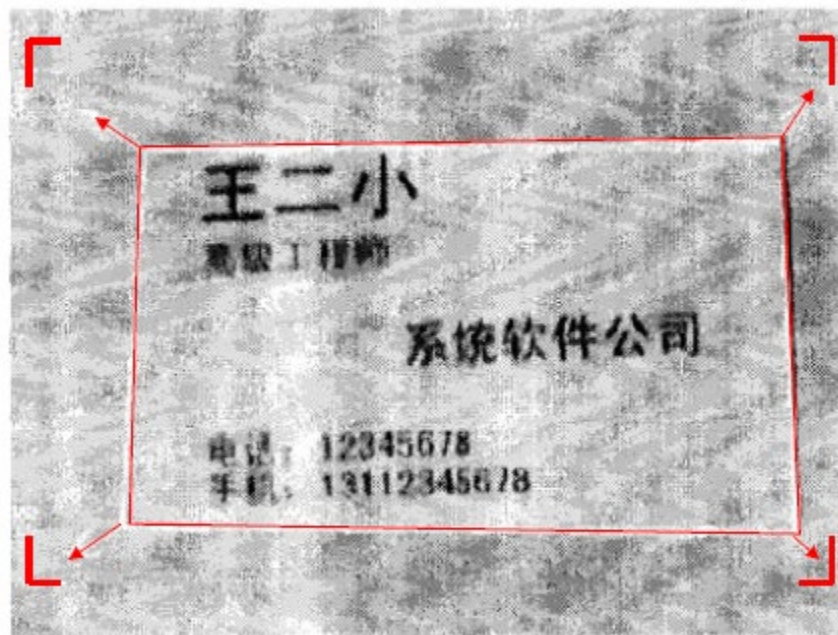
Id. at 12. This annotated version of Figure 5 illustrates the field of view of Zhu’s camera in blue with four corner points in red delineating a bounding rectangle around the business card. *See id.* at 11–13.

The second step of independent claim 1 recites “control the presentation device to present feedback information describing an

instruction for satisfying the monitoring criterion.” Ex. 1001, 21:60–62.

Truist contends that Zhu discloses this limitation because it describes displaying on the screen of the mobile phone (i.e., controlling the presentation device to present) feedback information that indicates how to adjust the position of the business card such that “the vertices of the four corners of the targeted business card . . . coincide, respectively with said four corner points.” Pet. 13 (quoting Ex. 1006, 8) (citing Ex. 1002 ¶ 72). More specifically, Truist argues that Zhu employs screen prompts to guide the mobile phone user to capture images of a business card, one of which includes “prompt arrows [that] can let the mobile phone user clearly know how to move the targeted business card in order to take an acceptable photograph.” *Id.* (emphasis in original omitted) (quoting Ex. 1006, 9).

Truist provides yet another annotated version of Zhu’s Figure 5, reproduced below, to illustrate the prompt arrows disclosed by Zhu.



Pet. 14. This annotated version of Figure 5 illustrates Zhu's business card located within a bounded rectangle with prompt arrows and four corner points in red. *See id.* at 13–14.

The third step of independent claim 1 recites “determine whether the monitoring criterion is satisfied based on the target document in the field of view of the image capture device.” Ex. 1001, 21:63–65. Truist contends that Zhu discloses this limitation because, in the fourth step of the flowchart illustrated in Figure 3, Zhu describes determining whether the monitoring criterion is satisfied based on the position of the business card in the field of view of the camera. Pet. 15–16 (Ex. 1006, Fig. 3 (fourth step); Ex. 1002 ¶ 76). To support its argument, Truist relies on the following three disclosures in Zhu: (1) Zhu's monitoring criterion is “whether the targeted business card is in a suitable position for photographing”; (2) this monitoring criterion is satisfied when “the vertices of the four corners of the targeted business card . . . coincide, respectively, with said four corners points”; and (3) both the business card and the four corner points are displayed in the field of view of the camera. *Id.* at 15 (quoting Ex. 1006, 8) (citing Ex. 1006, 2; Ex. 1002 ¶ 76).

The fourth step of independent claim 1 recites that, “when the monitoring criterion is determined to be satisfied, control the image capture device to capture an image depicting the target document in the field of view of the image capture device.” Ex. 1001, 21:66–22:2. Truist contends that Zhu discloses this limitation because, in the fifth and seventh steps of the flowchart illustrated in Figure 3, Zhu describes using the camera to capture automatically an image of the business card when it aligns with the corner points. Pet. 16–18 (citing Ex. 1006, Fig. 3 (fifth and seventh steps)). More

specifically, Truist argues that Zhu states, if the photography setting is in “automatic shoot,” “automatically trigger[ing] the ‘shoot’ button of said mobile phone . . . obtain[s] an image of the targeted business card.” *Id.* at 18 (quoting Ex. 1006, 8) (citing Ex. 1006, Fig. 3; Ex. 1002 ¶ 77).

Based on the preliminary record, we discern no deficiency in Truist’s characterizations of Zhu, and the general background knowledge in the art. In addition, for purposes of institution, we are persuaded by Dr. Doermann’s testimony concerning the relevant disclosures in Zhu. At this stage of the proceeding, USAA argues that Zhu does not disclose, “when the monitoring criterion is determined to be satisfied, control the image capture device to capture an image depicting the target document in the field of view of the image capture device,” as recited in independent claim 1, and similarly recited in independent claim 11. Prelim. Resp. 22–28. We address this argument below.

- a. *“when the monitoring criterion is determined to be satisfied, control the image capture device to capture an image depicting the target document in the field of view of the image capture device”*

In its Preliminary Response, USAA contends that Zhu does not disclose the last limitation of independent claim 1 because there is no evidentiary support for Truist’s position that, “when Zhu’s document aligns with the corner points, . . . the image of the document is automatically captured.” Prelim. Resp. 25 (quoting Pet. 18). Instead, USAA argues that Zhu actually undermines Truist’s position in this regard because it discloses that “the *user* must perform multiple steps after the document aligns, including the step of preparing to take the photo and triggering capture of the image.” *Id.* As one example, USAA directs us to the corresponding description of the fifth step of the flowchart illustrated in Zhu’s Figure 3,

which states “the **mobile phone user** discern[s] the photography setting of the mobile phone,” which may be “manual shoot” or “automatic shoot.” *Id.* (quoting Ex. 1006, 2, 8). Based on this disclosure in Zhu, USAA asserts that, regardless of whether the photograph setting for the mobile phone is in “automatic shoot” or “manual shoot,” the decision to trigger the “shoot” button is made by the user—not automatically by the mobile phone when the monitoring criterion is satisfied. *Id.* at 26–27. As another example, USAA directs us to Zhu’s description of the “technical solution” of its invention, which states, when the business card is in a position suitable for photographing, “***prompting the mobile phone user to prepare to take a photograph***” and “the mobile phone user needs only to hold the mobile phone steady ***and trigger the ‘shoot’ button of the digital camera, either manually or automatically.***” *Id.* at 27 (quoting Ex. 1006, 7). According to USAA, these additional disclosures in Zhu reinforce USAA’s position that “Zhu consistently refers to indicating to the **user** that the **user** should take a photo, and the capturing (regardless of the selected ‘shoot’ mode) being triggered by the **user** of the mobile phone.” *Id.*

Based on the preliminary record, we are not persuaded by USAA’s argument for two reasons. First, USAA’s argument is not commensurate in scope with the disputed limitation, which merely requires, “when the monitoring criterion is determined to be satisfied, control the image capture device to capture an image depicting the target document in the field of view of the image capture device.” *See In re Self*, 671 F.2d 1344, 1348 (CCPA 1982) (explaining that limitations not appearing in the claims cannot be relied upon for patentability). Based on the arguments and evidence currently before us, we are persuaded that the plain language of this

limitation is agnostic as to whether the phrase “control[ling] the image capture device to capture an image” requires automatic or manual image capture.

Moreover, the specification of the ’090 patent contemplates both automatic and manual image capture. For example, the specification states the following:

[i]n one implementation, the image capture may be performed automatically by the camera, the mobile device 106, and/or the financial institution as soon as the image of the check 108 is determined to pass the monitoring criteria. Alternatively, the user 102 may manually instruct the camera to perform the image capture (e.g., by pressing a button on the camera or the mobile device 106) after the user 102 receives an indication or other feedback that the image passes the monitoring criteria.

Ex. 1001, 4:47–55. The specification repeats essentially the same disclosure addressing automatic or manual image capture on two other occasions. *Id.* at 10:50–59, 16:38–43. These disclosures in the specification clearly indicate that automatic and manual image capture are two alternative approaches covered by the scope of independent claim 1.

The doctrine of claim differentiation only serves to bolster our current understanding of the last limitation of independent claim 1. Where possible, we presume that “an interpretation of a claim should be avoided if it would make the claim read like another one.” *Laitram Corp. v. Rexnord, Inc.*, 939 F.2d 1533, 1538 (Fed. Cir. 1991) (internal quotation omitted). Such a presumption is applicable where one party is urging that an independent claim should be interpreted to be read as its dependent claim. *See SunRace Roots Enterprise Co., Ltd. v. SRAM Corp.*, 336 F.3d 1298, 1303 (Fed. Cir. 2003). As we explain above, we are persuaded that the scope of independent

claim 1 covers both automatic and manual image capture. Dependent claim 7 further limits independent claim 1 by reciting “where the processor is configured to control the image capture device to *capture the image automatically* upon determining the monitoring criterion is satisfied.” Ex. 1001, 22:24–27 (emphasis added); *see also id.* at 23:18–22 (dependent claim 17 reciting “automatically capturing,” which further limits independent claim 11). Stated differently, dependent claim 7 recites “capture the image automatically,” whereas independent claim 1 only requires “control[ing] the image capture device to capture an image.” Here, the phrase “control[ing] the image capture device to capture an image” has a broader meaning than the phrase “capture the image automatically.” Consequently, the image capture required by independent claim 1 need not require automatic image capture, as asserted by USAA.

Second, even if we were to assume that the last limitation in independent claim 1 should be limited to automatic image capture (which, as we explain above, is not so limiting), we are persuaded that Truist has presented sufficient evidence that would support a finding that Zhu teaches this limitation. In its Petition, Truist directs us to the annotated version of Zhu’s Figure 3, reproduced below.

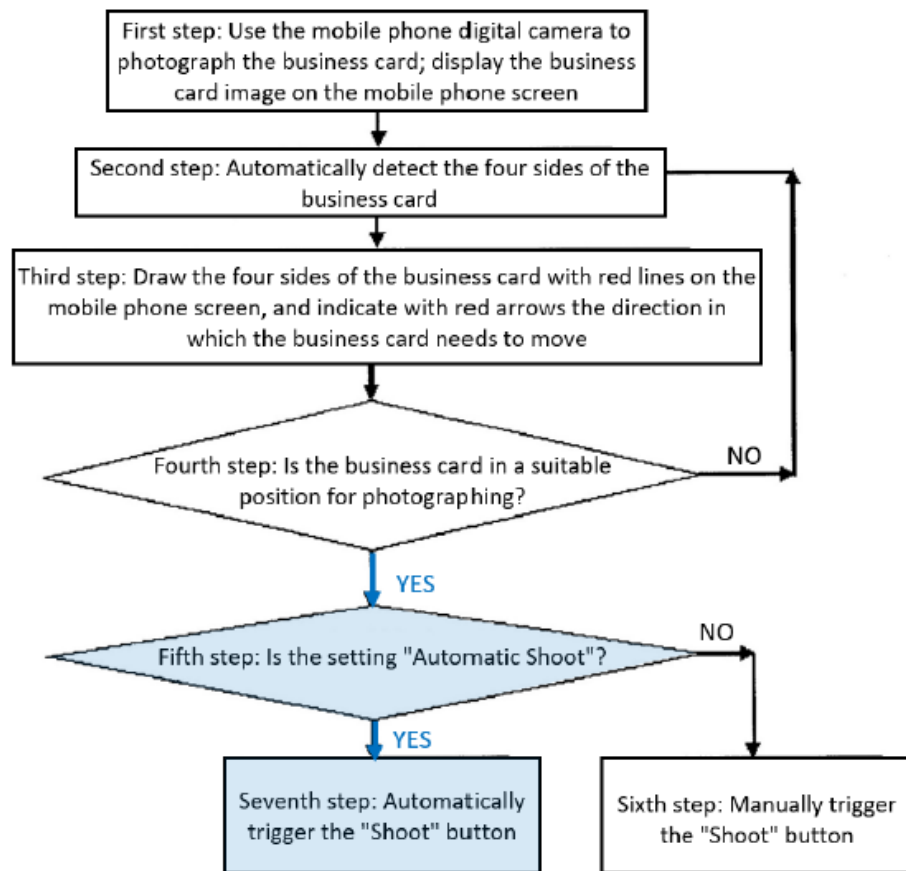


FIG. 3

Pet. 17. This annotated version of Zhu’s Figure 3 highlights in blue the fifth and seventh steps of the flowchart, which indicate that, if the photograph setting is “automatic shoot,” “automatically trigger[ing] the ‘shoot’ button of said mobile phone . . . obtain[s] an image of the targeted business card.” *Id.* at 18 (quoting Ex. 1006, 8) (citing Ex. 1006, Fig. 3; Ex. 1002 ¶ 77).

We understand USAA to argue that, because the corresponding description of the fifth step of the flowchart illustrated in Zhu’s Figure 3 states “the mobile phone user discerning the photography setting of the mobile phone,” this means that the decision to trigger the “shoot” button is made by the user even when the photograph setting is “automatic shoot.” *See* Prelim. Resp. 25–27 (quoting Ex. 1006, 2, 8). Based on the preliminary

record, this argument is not persuasive because, in our view, the “discerning” by the mobile phone user discussed in relation to this fifth step is nothing more than a mental step—it does not require any physical action on behalf of the mobile phone user. Stated differently, after determining that the business card is in a suitable position for photographing in the fourth step of the flowchart illustrated in Zhu’s Figure 3, the fifth and seventh steps together indicate that the decision to trigger the “shoot” button occurs automatically by the mobile phone. Ex. 1006, 2, 8, Fig. 3. This is in stark contrast to the sixth step, which requires the user to take physical action by pressing the “shoot” button on the mobile phone when the photographing setting is “manual shoot.” *Id.*

We also are not persuaded by USAA’s reliance on Zhu’s description of the “technical solution” of its invention to support its argument that the mobile phone user is required to take action when the photograph setting is “automatic shoot.” *See* Prelim. Resp. 27. The relevant portions of Zhu state, when the business card is in a position suitable for photographing, “prompting the mobile phone user to prepare to take a photograph” and “the mobile phone user needs only to hold the mobile phone steady and trigger the ‘shoot’ button of the digital camera, either manually or automatically by the mobile phone.” Ex. 1006, 7. These actions align with our view above that, when the photography setting is “automatic shoot,” the mobile phone automatically captures an image of the business card. Conversely, when the photograph setting is “manual shoot,” the user takes physical action by pressing the “shoot” button on the mobile phone to capture an image of the business card.

b. Summary

In summary, we are not persuaded by USAA’s argument that the last limitation of independent claim 1 requires automatic image capture. In any event, even if we were to assume that the last limitation in independent claim 1 should be limited to automatic image capture, the preliminary record demonstrates that Truist has presented sufficient evidence that would support a finding that Zhu discloses this limitation. Accordingly, Truist has shown a reasonable likelihood that it would prevail on its assertions that the subject matter of independent claims 1 and 11 are anticipated by Zhu.

5. Claims 2–5, 7, 10, 12–15, and 17

Truist contends that dependent claims 2–5, 7, 10, 12–15, and 17 of the ’090 patent are unpatentable under 35 U.S.C. § 102(b) as anticipated by Zhu. Pet. 20–25. Truist contends that Zhu discloses or describes the subject matter of each challenged claim. *Id.*

As two examples, claim 2 depends from independent claim 1, and further recites “wherein the processor is configured to control the presentation device to present the feedback information by displaying written instruction on a display screen for satisfying the monitoring criterion.” Ex. 1001, 22:3–6. Claim 12 depends from independent claim 11, and further recites a similar limitation. *Id.* at 22:64–67. Truist contends that Zhu teaches these limitations because it discloses “display[ing] on [the] screen **instructional text** guiding the mobile phone user to perform correct operations during the execution of **each step**.” Pet. 20 (quoting Ex. 1006, 9–10). According to Truist, the third step of the flowchart illustrated in Zhu’s Figure 3 displays instructional text by displaying “arrows . . . to indicate the direction in which the targeted business card should move.” *Id.* (quoting

Ex. 1006, 8). Truist asserts that the goal of this third step is to “prompt the mobile phone user to move the targeted business card in the direction pointed to by the arrows until the business card arrives at a position suitable for photographing,” thereby guiding the mobile phone user to perform corrective actions. *Id.* at 20–21 (quoting Ex. 1006, 7) (citing Ex. 1002 ¶ 82).

Based on the preliminary record, Truist’s arguments and supporting evidence with respect to dependent claims 2–5, 7, 10, 12–15, and 17 are sufficient for purposes of institution. At this stage of the proceeding, USAA does not address separately Truist’s arguments and supporting evidence as to how Zhu discloses or describes the limitations of these dependent claims. *See* Prelim. Resp. 22–28. When considering Truist’s un rebutted arguments and supporting evidence, Truist has demonstrated a reasonable likelihood that it would prevail on its assertions that the subject matter of dependent claims 2–5, 7, 10, 12–15, and 17 are anticipated by Zhu.

D. Obviousness over Zhu and Parulski

Truist contends that claims 2, 3, 6, 12, 13, and 16 of the ’090 patent are unpatentable under 35 U.S.C. § 103(a) as obvious over the combined teachings of Zhu and Parulski. Pet. 26–30. Truist contends that the combined teachings of Zhu and Parulski account for the subject matter of each challenged claim, and provides reasoning as to why a person of ordinary skill in the art would have been prompted to modify the teachings of these references. *Id.* Truist also relies on the testimony of Dr. Doermann to support its positions. *See* Ex. 1002.

Based on the preliminary record, we determine that Truist has shown that there is a reasonable likelihood that it would prevail in challenging at least one of claims 2, 3, 6, 12, and 13 of the ’090 patent as unpatentable.

We begin our analysis with the principles of law that generally apply to an asserted ground based on obviousness, followed by an overview of Parulski, and then we address the parties' contentions with respect to the challenged claims.

1. Principles of Law

A claim is unpatentable under § 103(a) if the differences between the claimed subject matter and the prior art are such that the subject matter, as a whole, “would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains.” *KSR Int’l Co. v. Teleflex Inc.*, 550 U.S. 398, 406 (2007). The question of obviousness is resolved on the basis of underlying factual determinations, including (1) the scope and content of the prior art; (2) any differences between the claimed subject matter and the prior art; (3) the level of skill in the art; and (4) when in evidence, objective indicia of non-obviousness (i.e., secondary considerations).³ *Graham v. John Deere Co. of Kansas City*, 383 U.S. 1, 17–18 (1966). We analyze the asserted grounds based on obviousness with the principles we identify above in mind.

2. Overview of Parulski

Parulski generally relates to “photography and photographic equipment” and, in particular, to “a revised recapture camera and related method.” Ex. 1007, 1:21–23. Figure 49 of Parulski, reproduced below, illustrates a diagrammatical view of a revised recapture method where camera 10 provides user instructions. *Id.* at 5:29–31.

³ In its Preliminary Response, USAA does not present arguments or evidence of secondary considerations. *See* Prelim. Resp.

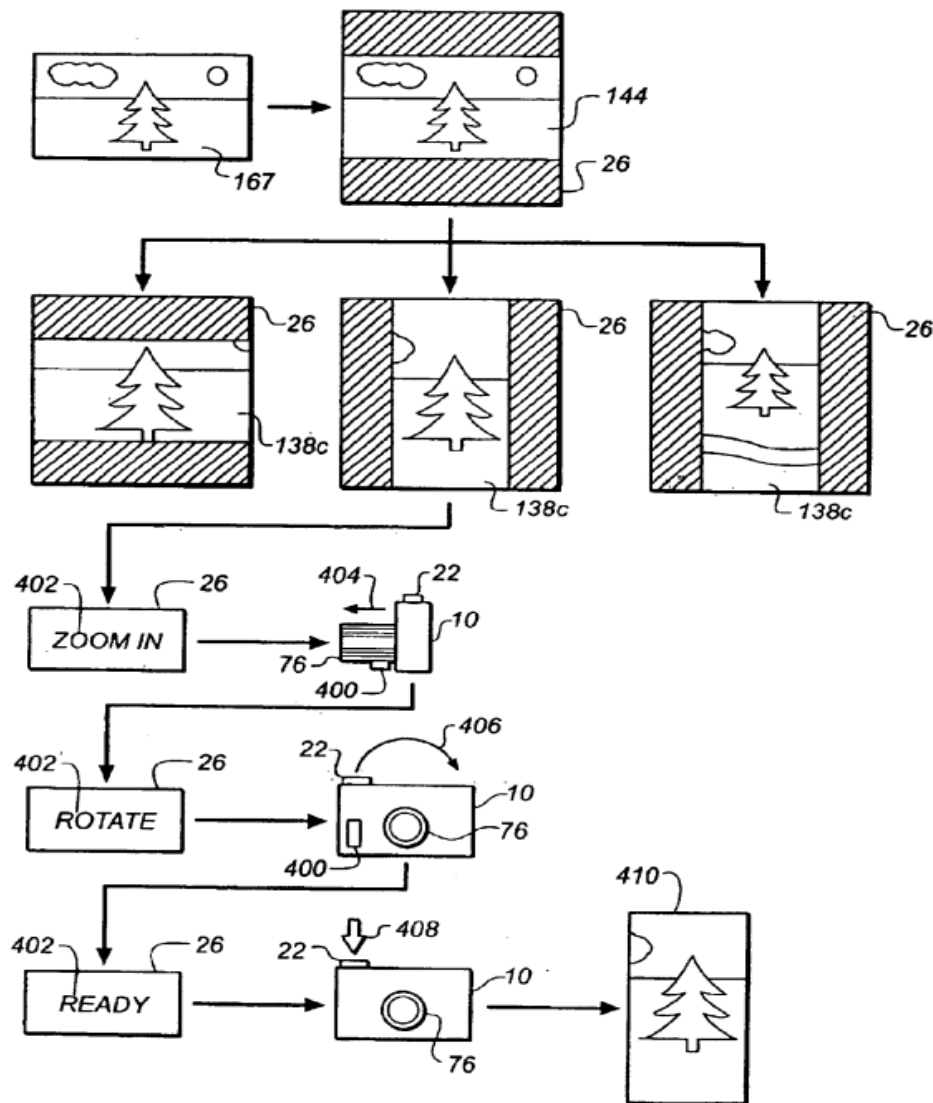


FIG. 49

Figure 49 illustrates how controller 81 (not illustrated) of camera 10 “generates a set of instructions 402 responsive to the selection of one of the revised suggestions . . . by the user.” *Id.* at 39:66–40:3. “[I]nstructions 402 are presented on the user interface, preferably in the form of text or simple icons, shown on . . . information display 114, or image display 26, or both” of camera 10. *Id.* at 40:4–7. “Audio instructions 402 provided through a speaker (not shown) can be used instead, or in addition.” *Id.* at 40:7–9.

When presented, the user can act on instructions 402 to effect the change necessary for image recapture. *Id.* at 40:11–13.

3. Claims 2, 3, 6, 12, 13, and 16

As two examples, claim 2 directly depends from independent claim 1, and further recites “wherein the processor is configured to control the presentation device to present the feedback information by displaying a written instruction on a display screen for satisfying the monitoring criterion.” Ex. 1001, 22:3–6. Claim 12 directly depends from independent claim 11, and further recites a similar limitation. *Id.* at 22:64–67.

Truist contends that, to the extent Zhu does not disclose the limitations of dependent claims 2 and 12, Parulski teaches these limitations because it discloses presenting instructions to a user on the image display in the form of text or simple icons. Pet. 28 (citing Ex. 1007, 39:66–40:7). Relying on the testimony of Dr. Doermann, Truist argues that a person of ordinary skill in the art would have found it obvious to implement Zhu’s feedback information using Parulski’s written instructions “to provide clear and precise instructions.” *Id.* (citing Ex. 1007, 39:66–40:7; Ex. 1002 ¶ 100).

Turning to rationale to combine, to the extent Zhu does not disclose that its feedback information takes written form, Truist contends that Zhu suggests that it is possible to supplement its arrow icons with written instructions, which would encourage a person of ordinary skill in the art to incorporate Parulski’s written instructions. Pet. 26–27 (citing Ex. 1006, 9–10; Ex. 1002 ¶ 96). Based on this suggestion provided in Zhu, Truist argues that a person of ordinary skill in the art would have been motivated to implement Zhu’s feedback information using Parulski’s written instructions (1) “to improve the usability and precision of Zhu’s technology by providing

clear and specific instructions”; and (2) “to clarify the meaning of [Zhu’s] feedback arrows for users not familiar with icon instructions in user interfaces or users having difficulty seeing the arrows.” *Id.* at 27 (citing Ex. 1006, 9–10; Ex. 1023, 216 (Table 5)). Moreover, Truist argues that there would have been a reasonable expectation of success in making this proposed combination because “both Zhu and Parulski recognize that written instructions would [have been] a simple and predictable user interface design choice within the technical grasp of a [person of ordinary skill in the art].” *Id.* (citing Ex. 1006, 9–10; Ex. 1007, 39:66–40:7; Ex. 1002 ¶ 96).

Based on the preliminary record, Truist’s arguments and supporting evidence with respect to dependent claims 2, 3, 6, 12, 13, and 16 are sufficient for purposes of institution. At this stage of the proceeding, USAA does not address separately Truist’s arguments and supporting evidence as to how the combined teachings of Zhu and Parulski account for the limitations of these dependent claims. *See* Prelim. Resp. 22–28. When considering Truist’s unrebutted arguments and supporting evidence, Truist has demonstrated a reasonable likelihood that it would prevail on its assertions that the subject matter of dependent claims 2, 3, 6, 12, 13, and 16 would have been obvious over the combined teachings of Zhu and Parulski.

E. Obviousness over Zhu and Li

Truist contends that claims 8, 9, 18, and 19 of the ’090 patent are unpatentable under 35 U.S.C. § 103(a) as obvious over the combined teachings of Zhu and Li. Pet. 30–38. Truist contends that the combined teachings of Zhu and Li account for the subject matter of each challenged claim, and provides reasoning as to why a person of ordinary skill in the art would have been prompted to modify the teachings of these references. *Id.*

Truist also relies on the testimony of Dr. Doermann to support its positions. *See* Ex. 1002.

Based on the preliminary record, we determine that Truist has shown that there is a reasonable likelihood that it would prevail in challenging at least one of claims 8, 9, 18, and 19 of the '090 patent as unpatentable. We begin our analysis with an overview of Li, and then we address the parties' contentions with respect to the challenged claims.

1. Overview of Li

Li recognizes that “[s]kew . . . affects processes such as character recognition” and “degrades the quality of the document display.” Ex. 1008, 1:20–22. To solve these problems, Li discloses skew detection methods that “detect skew in images of documents including, for example, checks.” *Id.* at 3:4–6. Li discloses that a check image may be captured by “an imaging device,” such as a digital camera. *Id.* at 3:7–10, 9:1–5.

2. Claims 8, 9, 18, and 19

As two examples, claim 8 directly depends from independent claim 1, and further recites the following:

wherein to monitor the target document in the field of view of the image capture device with respect to the monitoring criterion, the process is further configured to:

measure a distance from an edge of the target document in the field of view of the image capture device to an edge of the field of view of the image capture device; and

compare the distance to a predetermined value to determine whether skew is present in the image depicting the target document.

Ex. 1001, 22:28–38. Claim 18 directly depends from independent claim 11, and further recites a similar limitation. *Id.* at 23:23–24:6.

Truist contends that, although Zhu discloses monitoring the target document in the field of view of the image capture device with respect to monitoring criterion, Zhu does not disclose determining skew to reduce optical character recognition (“OCR”) errors. Pet. 34 (citing Ex. 1007, 6). Truist, however, argues that Li recognizes that document skew adversely impacts OCR. *Id.* at 35 (Ex. 1008, 1:18–22; Ex. 1002 ¶¶ 113, 114).

Truist then contends that Li teaches the limitations of dependent claims 8 and 18 because Li’s Figure 2 illustrates a method of implementing skew detection that includes identifying “reliable lines” at stage 204 by using edge detection. Pet. 36 (citing Ex. 1008, 2:46–48, 5:12–6:7, Fig. 2 (stage 204); Ex. 1002 ¶ 115). Truist further contends that, as part of detecting skew, Li’s Figure 5 illustrates that determining whether a line is “reliable” encompasses determining whether the line is proximate to the border of the image. *Id.* at 37 (Ex. 1008, 4:10–20, Fig. 5; Ex. 1002 ¶ 115). Relying on the testimony of Dr. Doermann, Truist argues that a person of ordinary skill in the art would have understood that Li teaches both the measurement and comparison steps required by dependent claims 8 and 18 because “proximate” suggests comparing the distance of the line (i.e., the edge of the targeted document) from the border (i.e., the edge of the field of view of the camera) with a predetermined value to ascertain whether the line is “reliable” for detecting skew. *Id.* (citing Ex. 1008, 4:34–38, 8:20–25; Ex. 1002 ¶ 115).

Turning to rationale to combine, Truist contends that a person of ordinary skill in the art would have found it obvious to incorporate Li’s skew detection into Zhu’s pre-capture monitoring because this proposed combination “would provide specific feedback to a user on necessary

modifications to the [targeted] document placement to reduce skew before capture.” Pet. 32 (citing Ex. 1002 ¶ 111). According to Truist, a person of ordinary skill in the art would have understood that modifying Zhu is this way was “a routine modification because it was known in the art to present such feedback,” and “such feedback helps a user quickly know how to adjust the document” (e.g., tilt the document or camera to the right of the left) “to arrive at a rectangle image suitable for OCR.” *Id.* (citing Ex. 1006, Figs. 5, 6; Ex. 1012 ¶ 48, Fig. 8; Ex. 1002 ¶¶ 110, 111). Moreover, Truist argues that there would have been a reasonable expectation of success in making this proposed combination because “Zhu’s mobile [camera] phone is well-equipped for such modification and Li teaches that its skew detection can be implemented on a digital camera.” *Id.* at 32–33 (Ex. 1006, 7–8; Ex. 1008, 8:2–18, 8:39–9:5; Ex. 1002 ¶ 112). Truist asserts that a person of ordinary skill in the art would have incorporated Li’s skew detection into Zhu’s mobile camera phone “as instructions stored in Zhu’s memory and executed by Zhu’s CPU.” *Id.* at 33 (citing Ex. 1002 ¶ 112).

Based on the preliminary record, Truist’s arguments and supporting evidence with respect to dependent claims 8, 9, 18, and 19 are sufficient for purposes of institution. At this stage of the proceeding, USAA does not address separately Truist’s arguments and supporting evidence as to how the combined teachings of Zhu and Li account for the limitations of these dependent claims. *See* Prelim. Resp. 22–28. When considering Truist’s un rebutted arguments and supporting evidence, Truist has demonstrated a reasonable likelihood that it would prevail on its assertions that the subject matter of dependent claims 8, 9, 18, and 19 would have been obvious over the combined teachings of Zhu and Li.

F. Obviousness over Zhu and Sakurai

Truist contends that claim 10 of the '090 patent is unpatentable under 35 U.S.C. § 103(a) as obvious over the combined teachings of Zhu and Sakurai. Pet. 39–43. Truist contends that the combined teachings of Zhu and Sakurai account for the subject matter of this challenged claim, and provides reasoning as to why a person of ordinary skill in the art would have been prompted to modify the teachings of these references. *Id.* Truist also relies on the testimony of Dr. Doermann to support its positions. *See* Ex. 1002.

Based on the preliminary record, we determine that Truist has shown that there is a reasonable likelihood that it would prevail in challenging claim 10 of the '090 patent as unpatentable. We begin our analysis with an overview of Sakurai, and then we address the parties' contentions with respect to the challenged claims.

1. Overview of Sakurai

Sakurai disclose digital camera 1 with imaging lens section 11, liquid crystal monitor 12, and shutter button 13 that, among other things, “detects image distortion from an image acquired by the shooting and corrects the distortion” so as to “generat[e] an image which looks as if photographed from the front.” Ex. 1010 ¶ 80, Fig. 1. More specifically, digital camera 1 detects image distortion by using “image processing apparatus 25 [to] extract the coordinates (quadrangle contour) of [the] four corners of the image of the shooting target” document. *Id.* ¶ 160, Fig. 8 (step S31). If the shooting conditions are so inadequate that the quadrangle contour cannot be identified, liquid crystal monitor 12 displays a warning statement that

indicates to the user that he/she should change the shooting conditions. *Id.* ¶ 214, Fig. 18A.

2. Claim 10

Claim 10 directly depends from independent claim 1, and further recites “wherein the monitoring criterion comprises whether a corner of the image depicting the target document is detectable.” Ex. 1001, 22:44–46. To the extent that Zhu’s detection of the corners of the business card at the designated corner points does not disclose the limitation of dependent claim 10, Truist contends that Sakurai teaches this limitation because it discloses whether the four corners of the image of a document are detectable and, if not, displaying feedback in the form of a warning statement. Pet. 42 (citing Ex. 1010 ¶¶ 160, 214–16, Fig. 8 (step S31); Ex. 1002 ¶¶ 128, 129).

Turning to rationale to combine, Truist contends that a person of ordinary skill in the art would have been motivated to modify Zhu’s pre-capture monitoring criterion to include Sakurai’s corner detection feature of a targeted document because (1) “it would help the user ‘quickly’ capture a high-quality image, free of distortion, and suitable for OCR”; and (2) “it would further enable feedback to prompt the user to adjust the document position such that four corners of the document are detectable.” Pet. 41 (citing Ex. 1006, 5, 8, 9, Fig. 3; Ex. 1010 ¶ 80; Ex. 1002 ¶ 124, 125).

According to Truist, because Zhu already provides “[s]creen prompts [to] guide any mobile phone user who is no adept at taking photographs to take high-quality photographs of targeted business cards,” a person of ordinary skill in the art would have been motivated to make this monitoring criterion more explicit by providing Sakurai’s corner detection feature. *Id.* (quoting Ex. 1006, 9) (citing Ex. 1002 ¶ 125). Moreover, Truist asserts that a person

of ordinary skill in the art would have had a reasonable expectation in success in making this proposed combination because incorporating Sakurai's corner detection feature into Zhu "requires only the application of ordinary skill to generate predictable results" by "adding [Sakurai's] calculations to the program stored in Zhu's memory" to "determin[e] whether . . . two edges have an intersection point." *Id.* at 41–42 (citing Ex. 1010 ¶ 189; Ex. 1002 ¶ 126).

Based on the preliminary record, Truist's arguments and supporting evidence with respect to dependent claim 10 are sufficient for purposes of institution. At this stage of the proceeding, USAA does not address separately Truist's arguments and supporting evidence as to how the combined teachings of Zhu and Sakurai account for the limitation of this dependent claim. *See* Prelim. Resp. 22–28. When considering Truist's un rebutted arguments and supporting evidence, Truist has demonstrated a reasonable likelihood that it would prevail on its assertions that the subject matter of dependent claim 10 would have been obvious over the combined teachings of Zhu and Sakurai.

G. Obviousness over Watanabe and Dance

Truist contends that claims 1, 4, 5, 7, 11, 14, 15, and 17 of the '090 patent are unpatentable under 35 U.S.C. § 103(a) as obvious over the combined teachings of Watanabe and Dance. Pet. 43–79. Truist contends that the combined teachings of Watanabe and Dance account for the subject matter of each challenged claim, and provides reasoning as to why a person of ordinary skill in the art would have been prompted to modify the teachings of these references. *Id.* Truist also relies on the testimony of Dr. Doermann to support its positions. *See* Ex. 1002.

Based on the preliminary record, we determine that Truist has shown that there is a reasonable likelihood that it would prevail in challenging at least one of claims 1, 4, 5, 7, 11, 14, 15, and 17 of the '090 patent as unpatentable. We begin our analysis with overviews of Watanabe and Dance, and then we address the parties' contentions with respect to the challenged claims.

1. Overview of Watanabe

Watanabe generally relates to “a digital camera” and, in particular, to “a digital camera which has a document photographing mode in addition to the normal photographing mode.” Ex. 1011, 1:7–10. Figure 1 of Watanabe, reproduced below, illustrates a configuration of a digital camera in accordance with one embodiment. *Id.* at 3:26–27, 3:59–60.

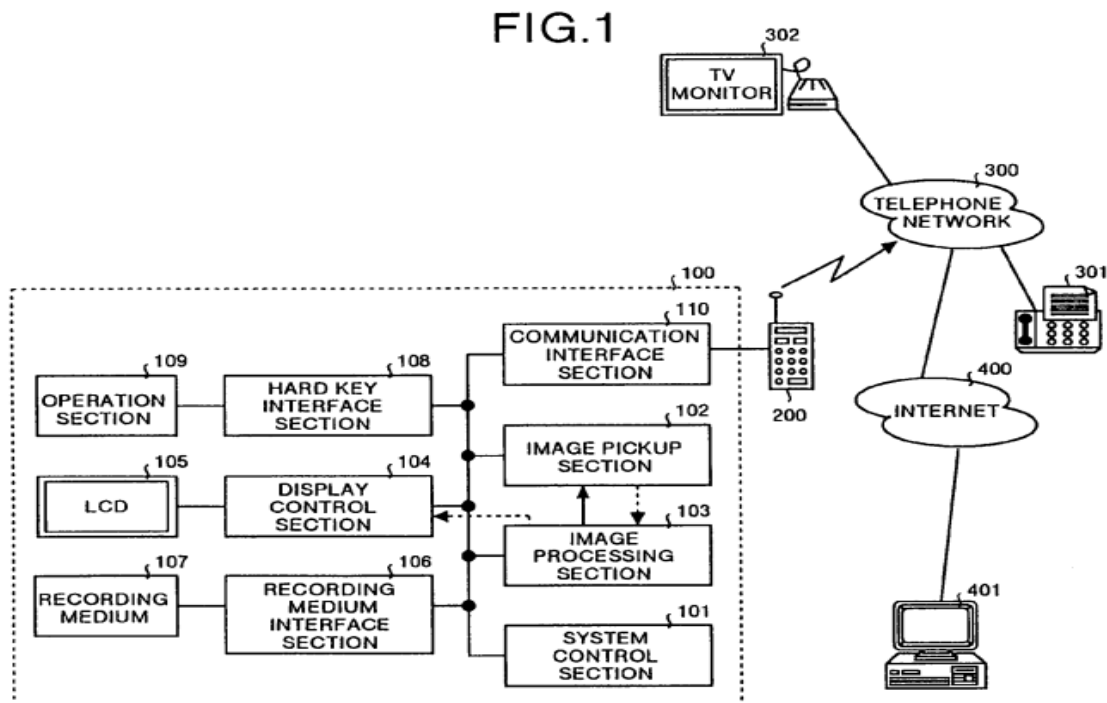
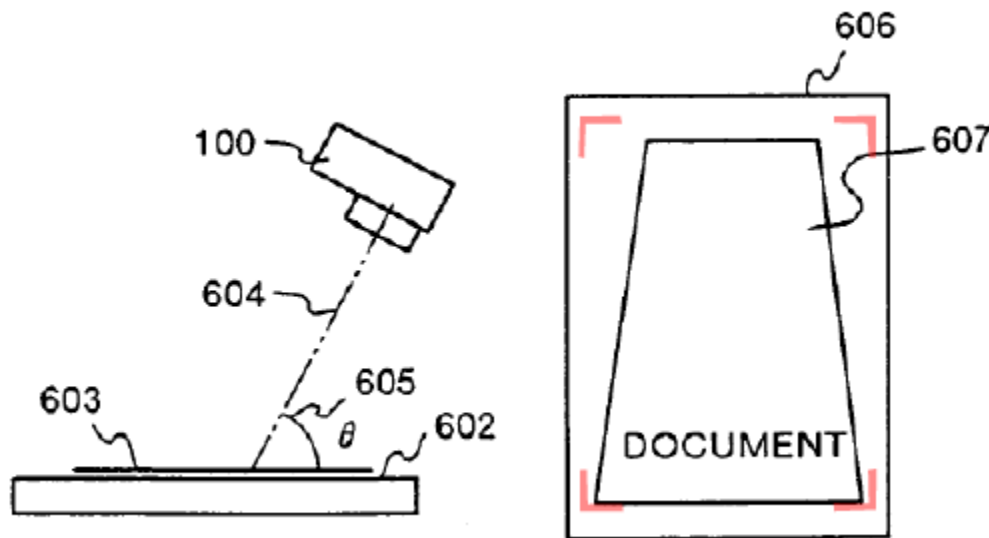


Figure 1 illustrates digital camera 100 associated with portable telephone 200 that includes, among other things, system control section 101, image pickup section 102, image processing section 103, display control section 104, and liquid crystal display (“LCD”) 105. *Id.* at 3:61–5:4.

An annotated version of Figure 5B of Watanabe, reproduced below, illustrates a case where the angle of photography is vertical. Ex. 1011, 3:33–34, 7:55–56.



Pet. 45. This annotated version of Figure 5 illustrates digital camera 100 photographing document 603 at reference angle 605, together with frame 606 of LCD 105 that displays 607 how document 603 is being photographed. *Id.* at 7:47–54. When reference angle 605 is not vertical, system control section 101 of digital camera 100 notifies the user that the angle is not vertical by providing “guidance display or the like” (in red) within frame 606 of LCD 105. *Id.* at 7:55–8:16, 12:12–22.

2. Overview of Dance

Dance generally relates to “a digital camera” and, in particular, to a system “for assisting [with] the capture of text images” that is either contained within or usable with the digital camera. Ex. 1009 ¶ 2. Figure 1 of Dance, reproduced below, illustrates a block diagram of the components in one embodiment of a digital camera imaging system. *Id.* ¶ 21.

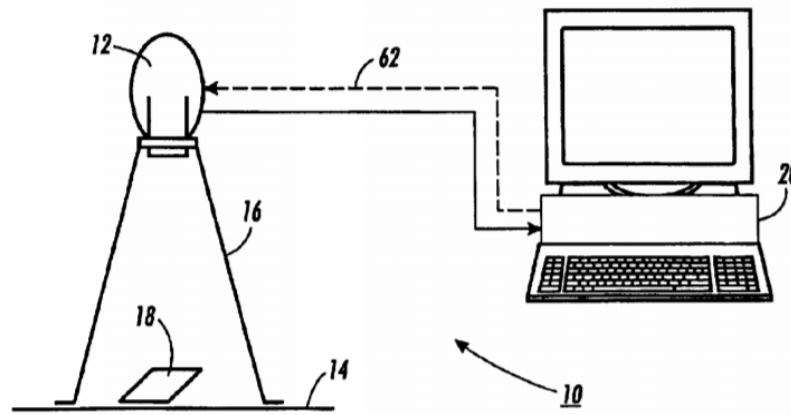
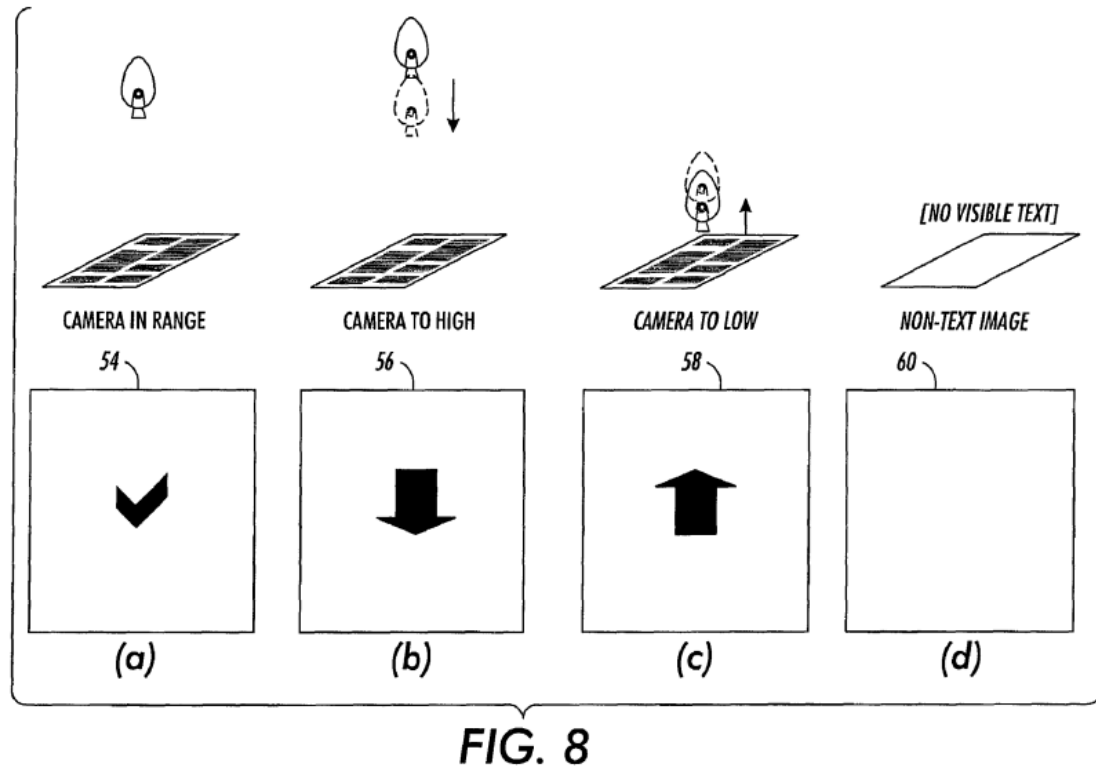


FIG. 1

Figure 1 illustrates digital document capture system 10 that includes digital camera 12 mounted on adjustable stand 16 for viewing paper document 18 placed on surface 14. *Id.* ¶ 32. The output of digital camera 12 is sent to computer 20, which runs an application program for displaying and processing the image of document 18 captured by the digital camera. *Id.* ¶ 34. The application program running on computer 20 “is modified to assess the suitability of an image for OCR, and to provide feedback to the user about how to modify the camera position (or camera zoom setting) to improve the quality of the image for OCR.” *Id.* ¶ 37.

Figs. 8(a)–8(d), reproduced below, illustrate schematic illustrations of the display icons for correcting the position of digital camera 12. Ex. 1009 ¶ 28.



Figures 8(a)–8(d) illustrate the following: (1) if the image is too small to capture the appropriate resolution for OCR (Figure 8(b)), “down” icon 56 appears indicating that the user should move digital camera 12 closer to document 18; (2) if the image is too large to capture the appropriate resolution for OCR (Figure 8(c)), “up” icon 58 appears indicating that the user should move digital camera 12 further away from document 18; (3) if the image is positioned in a sufficient manner to capture the appropriate resolution for OCR (Figure 8(a)), “OK” icon 54 appears indicating that digital camera 12 is positioned at the correct height; and (4) if this process fails (Figure 8(d)), a blank icon appears. *Id.* ¶¶ 73–75.

3. Claims 1 and 11

Apart from their preambles, Truist contends that “[i]ndependent claim 11 is substantially similar to [independent] claim 1.” Pet. 74. Truist, therefore, asserts that its mapping of the combined teachings of Watanabe and Dance to the limitations of independent claim 1 equally apply to the limitations of independent claim 11. *Compare id.* at 51–73, *with id.* at 74. We focus on Truist’s mapping of independent claim 1 below.

The preamble of independent claim 1 recites “[a] system comprising.” Ex. 1001, 21:51. To extent the preamble should be treated as limiting, Truist contends that Watanabe teaches a “system” because it discloses digital camera 100 that includes, among other things, system control section 101, display control section 104, LCD 105, and communication interface section 110. Pet. 51 (citing Ex. 1011, 3:61–5:4; Ex. 1002 ¶ 143).

Independent claim 1 recites “an image capture device;” “a presentation device;” and “a processor in communication with the image capture device and the presentation device, the processor configured to” perform four steps. Ex. 1001, 21:52–56. Truist contends that Watanabe teaches these three limitations because it discloses that digital camera 100 includes, among other things, image pickup section 102 (with optical system components like a lens, a charge-coupled device (“CCD”), a lens driving motor, a CCD driver circuit, and an analog/digital converter), LCD 105 with corresponding display control section 104, and system control section 101 that includes a CPU that controls the entire digital camera according to a program stored in read-only memory (“ROM”). Pet. 52–56 (citing Ex. 1011, 4:1–4, 4:14–21, 4:24–32, 4:42–49, 7:11–8:26, Figs. 1, 3, 7; Ex. 1002 ¶¶ 144–47).

The first step of independent claim 1 recites “monitor a target document in a field of view of the image capture device with respect to a monitoring criterion.” Ex. 1001, 21:57–59. Truist contends that Watanabe teaches or suggests this limitation because it discloses using LCD 105 (i.e., the field of view) to preview the document image detected by image pickup section 102 before photographing. Pet. 57–58 (citing Ex. 1011, 3:9–22, 5:54–58, 7:23–33, Fig. 4; Ex. 1002 ¶ 149). Truist further argues that, when Watanabe’s digital camera 100 detects that the angle of the document is vertical, it captures an image of the document to extract text data using OCR. *Id.* at 58–59 (citing Ex. 1011, 7:36–46, 8:17–26, 10:9–16, Figs. 3, 5A, 5B; Ex. 1002 ¶ 150). Alternatively, Truist argues that, to the extent the first step of independent claim 1 requires capturing a document image with a proper resolution for accurate OCR, Dance teaches this feature because it discloses image resolution monitoring that determines character resolution for “reliable OCR.” *Id.* at 60–61 (quoting Ex. 1009 ¶ 36) (citing Ex. 1009 ¶¶ 72, 86, Fig. 11; Ex. 1002 ¶ 151). According to Truist, a person of ordinary skill in the art would have been motivated to incorporate Dance’s image resolution monitoring into Watanabe “to ensure the captured image is suitable for OCR” and, therefore, satisfies the “monitoring criterion.” *Id.* at 61–62 (citing Ex. 1009, Fig. 11; Ex. 1011, Fig. 8; Ex. 1002 ¶ 152).

The second step of independent claim 1 recites “control the presentation device to present feedback information describing an instruction for satisfying the monitoring criterion.” Ex. 1001, 21:60–62. Truist contends that Watanabe teaches or suggests this limitation because it discloses that LCD 105 displays feedback information in the form of a guidance frame that determines whether the angle of photography is vertical.

Pet. 62–63 (citing Ex. 1011, 7:20–26, 7:64–67, 12:12–22, Figs. 5A, 5B). Relying on the testimony of Dr. Doermann, Truist argues that “Watanabe’s guidance frame at least suggests feedback information because it guides the user how to adjust the camera to satisfy the monitoring criterion.” *Id.* at 63 (citing Ex. 1002 ¶ 54). Alternatively, Truist argues that, to the extent Watanabe’s guidance frame does not disclose expressly “feedback information,” Dance teaches this features because is discloses displaying feedback icons that direct the user how to adjust the height of digital camera 12 relative to document 18 to obtain a proper resolution for OCR. *Id.* at 63–64 (citing Ex. 1009 ¶¶ 6, 10, 11, 74, 75, Figs. 8(b), 8(c); Ex. 1002 ¶ 155). According to Truist, a person of ordinary skill in the art would have been motivated to modify Watanabe’s document photographing operations, particularly after Watanabe monitors whether the angle of photography is vertical, to include Dance’s feedback icons. *Id.* at 65–66 (citing Ex. 1009, Fig. 11; Ex. 1011, Fig. 3 (step S105)⁴; Ex. 1002 ¶ 156).

The third step of independent claim 1 recites “determine whether the monitoring criterion is satisfied based on the target document in the field of view of the image capture device.” Ex. 1001, 21:63–65. Truist contends that Watanabe teaches or suggests this limitation because it determines whether the angle of the photograph is vertical based on the shape of the document image displayed on LCD 105. Pet. 66–68 (citing Ex. 1011, 7:55–60, 8:1–5, 8:9–16, Fig. 3 (step S105); Ex. 1002 ¶ 158). Alternatively, Truist

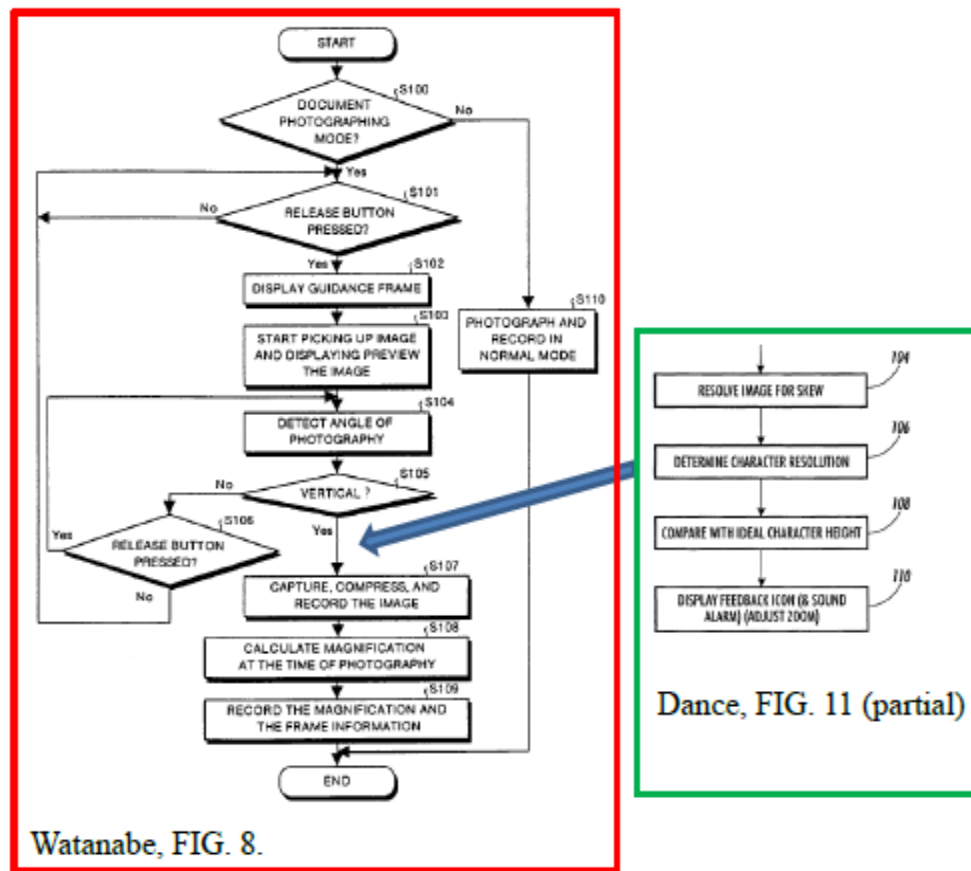
⁴ Truist incorrectly labeled the annotated version of Watanabe’s Figure 3 on page 66 of the Petition as “Watanabe, FIG. 8.” *See* Ex. 1011, Fig. 3. We corrected this typographical error.

argues that, to the extent Watanabe does not disclose expressly “whether the monitoring criterion is satisfied,” Dance teaches this feature because it discloses image resolution monitoring that determines character resolution that is suitable for OCR. *Id.* at 68–69 (citing Ex. 1009 ¶¶ 72, 87, 88, Fig. 11; Ex. 1002 ¶ 160). Truist also argues that Dance’s image resolution monitoring is based on “the target document in the field of view of the image capture device” because it estimates character height in pixels of the document text in the field of view of digital camera 12. *Id.* at 70 (citing Ex. 1009 ¶¶ 55, 72, claim 1; Ex. 1002 ¶ 161). According to Truist, a person of ordinary skill in the art would have found it obvious to modify Watanabe’s document photographing operations “to make both determinations to obtain a document image suitable for OCR,” as taught by Dance. *Id.* (citing Ex. 1002 ¶ 162).

The fourth step of independent claim 1 recites that, “when the monitoring criterion is determined to be satisfied, control the image capture device to capture an image depicting the target document in the field of view of the image capture device.” Ex. 1001, 21:66–22:2. Truist contends that Watanabe, when combined with Dance’s image resolution monitoring, teaches this limitation because Watanabe discloses that, when the angle of photography is vertical, digital camera 100 captures the image. Pet. 71–72 (citing Ex. 1011, 8:17–53). Similarly, Truist argues that Dances discloses capturing the document image when the resolution is suitable for OCR. *Id.* at 72 (citing Ex. 1009 ¶ 84). Truist asserts that, when Watanabe’s digital camera 100 is modified to include Dance’s image resolution monitoring, a person of ordinary skill in the art would have understood that digital camera 100 would capture the document image after determining (1) the angle of

photography is vertical, as taught by Watanabe; and (2) the resolution is suitable for OCR, as taught by Dance. *Id.* (citing Ex. 1002 ¶¶ 164–66).

Turning to rationale to combine, Truist contends that a person of ordinary skill in the art would have found it obvious to modify Watanabe’s document photographing operations to include Dance’s image resolution monitoring that captures an image suitable for OCR, as evidenced by the combined version of Watanabe’s Figure 3⁵ and Dance’s partial view of Figure 11, reproduced below.



⁵ Once again, Truist incorrectly labeled Watanabe’s Figure 3 on page 48 of the Petition as “Watanabe, FIG. 8.” See Ex. 1011, Fig. 3. We corrected this typographical error.

Pet. 48 (citing Ex. 1002 ¶ 137). The combined version of Watanabe's Figure 3 and Dance's partial version of Figure 11 illustrates incorporating Dance's image resolution monitoring into Watanabe's Figure 3 after detecting and determining whether the angle of photography is vertical at step S105. Truist asserts that modifying Watanabe in this way would provide the following benefits: "(1) improve the quality of image captured by Watanabe's [digital] camera [100] for OCR; and (2) improve Watanabe's OCR accuracy 'to make effective use of the photographed image.'" *Id.* (quoting Ex. 1011, 10:49–56) (citing Ex. 1009 ¶¶ 6, 37; Ex. 1002 ¶ 138). Truist also asserts that modifying Watanabe's document photographing operations to include Dance's image resolution monitoring, particularly after detecting and determining that the angle of the photography is vertical at step S105 illustrated in Figure 3, would eliminate image distortion and improve OCR accuracy. *Id.* at 49 (citing Ex. 1011, 7:57–67; Ex. 1002 ¶ 139).

Moreover, Truist contends that a person of ordinary skill in the art would have had a reasonable expectation of success when incorporating Dance's image resolution monitoring into Watanabe's document photographing operations because (1) "such modification requires only ordinary skill"; (2) "Watanabe's digital camera [100] is readily equipped for such modification." Pet. 49–50 (citing Ex. 1011, 2:41–48, 4:14–20, 4:33–37; Ex. 1009 ¶¶ 78–84; Ex. 1002 ¶ 140). Truist also argues that a person of ordinary skill in the art would have had a reasonable expectation of success in displaying Dance's feedback icons on Watanabe's LCD 105 because (1) displaying feedback icons overlaying a document image preview "was routine and well known"; and (2) displaying feedback icons in this manner

“would have involved only ordinary skill, like adding simple graphic display instructions to the program stored in Watanabe’s ROM, [and] providing the feedback” accordingly. *Id.* at 50–51 (citing Ex. 1011, 3:61–4:49, 12:17–22; Ex. 1013 ¶ 48, Fig. 8; Ex. 1014 ¶ 307; Ex. 1015 ¶ 62, Fig. 8; Ex. 1007, 13:1–7, 40:4–7; Ex. 1002 ¶ 141).

Based on the preliminary record, we discern no deficiency in Truist’s characterizations of the combined teachings of Watanabe and Dance, and the general background knowledge in the art. In addition, for purposes of institution, we are persuaded by Dr. Doermann’s testimony concerning the relevant teachings of Watanabe and Dance. At this stage of the proceeding, USAA argues that (1) the combined teachings of Watanabe and Dance does not account for, “when the monitoring criterion is determined to be satisfied, control the image capture device to capture an image depicting the target document in the field of view of the image capture device,” as recited in independent claim 1, and similarly recited in independent claim 11; and (2) Dance teaches away from Truist’s proposed combination with Watanabe. Prelim. Resp. 28–33. We address these arguments in turn.

- a. *“when the monitoring criterion is determined to be satisfied, control the image capture device to capture an image depicting the target document in the field of view of the image capture device”*

In its Preliminary Response, USAA contends that Truist does not provide evidentiary support that Watanabe teaches “the processor controlling the image capture device to capture an image depicting the target document in the field of view of the image capture device when the monitoring criterion is determined to be satisfied.” Prelim. Resp. 29 (citing Pet. 71–72). To the contrary, USAA argues that Watanabe only teaches manually capturing an image when the user presses the release

button. *See id.* at 29–30 (citing Ex. 1011, 12:23–28). At best, USAA asserts that Watanabe provides an error message to the user when he/she attempts to capture an image, but the system has determined that the angle of the photograph is not vertical. *Id.* at 30 (citing Ex. 1011, 12:17–21).

Based on the preliminary record, we are not persuaded by USAA’s argument for two reasons. First, similar to our analysis above addressing the same limitation under the ground based on anticipation by Zhu, USAA’s arguments with respect to this obviousness ground are predicated on the notion that the image capture recited in the last limitation of independent claim 1 requires automatic image capture. For the same reasons we identify above, USAA’s argument is not commensurate in scope with independent claim 1 because automatic image capture is not required. *See supra* Section II.C.4.a.

Second, even if we were to assume that the last limitation in independent claim 1 should be limited to automatic image capture (which, as we explain above, is not so limiting), we are persuaded that Truist has presented sufficient evidence that would support a finding that Watanabe teaches this limitation. In its Petition, USAA contends that Watanabe discloses that, when the angle of photography is vertical, digital camera 100 captures the image. Pet. 71–72 (citing Ex. 1011, 8:17–53). In one example of this operation, Watanabe expressly discloses that “the photographing is *automatically* performed.” Ex. 1011, 8:50–53 (emphasis added).

b. Teaching Away

In its Preliminary Response, USAA contends that Dance teaches away with from USAA’s proposed combination with Watanabe for two reasons. Prelim. Resp. 30. First, USAA directs us to the section labeled “Description

of Related Art” in Dance, and then highlights certain statements recognizing the difficulties with using a digital camera instead of a traditional scanner to capture check images suitable for OCR. *See id.* at 31 (citing Ex. 1009 ¶¶ 4–6). According to USAA, Dance’s proposed solution to these problems involves using adjustable stand 16 that allows a user to slide digital camera 12 up and down relative to paper document 18 being imaged. *Id.* at 31–32 (citing Ex. 1009 ¶¶ 32, 74, 75, Fig. 1). USAA then asserts that Dance strongly criticizes using a handheld digital camera to capture images suitable for OCR, and that Truist does not address whether a person of ordinary skill in the art would have included Dance’s adjustable stand 16 in its proposed combination with Watanabe. *Id.* at 32. Second, USAA contends that a person of ordinary skill in the art “would perceive no need to add Dance’s up/down icons to Watanabe because Watanabe already teaches a solution to the problem of a document being too close or too far away [by] performing a ‘scaling’ process.” *Id.* at 32–33 (citing Ex. 1011, 9:48–60, 10:33–56).

Based on the preliminary record, we are not persuaded by USAA’s teaching away arguments. It is well-settled that a reference teaches away from a claimed invention if it “criticize[s], discredit[s], or otherwise discourage[s]” modifying the reference to arrive at the claimed invention. *In re Fulton*, 391 F.3d 1195, 1201 (Fed. Cir. 2004). We will not, however, “read into a reference a teaching away from a process where no such language exists.” *DyStar Textilfarben GmbH & Co. Deutschland KG v. C.H. Patrick Co.*, 464 F.3d 1356, 1364 (Fed. Cir. 2006).

USAA’s first teaching away argument focuses on the purported problems with the related prior art that Dance seeks to solve. *See* Prelim. Resp. 30–32. Indeed, Dance expressly states that “it would be desirable to

improve the indication provided to a user of a digital camera, of the suitability of an image for OCR.” Ex. 1009 ¶ 9. Dance actually addresses the difficulties with using a digital camera to capture an image suitable for OCR by providing image resolution monitoring, together with feedback icons that indicate to the user how to adjust the height of digital camera 12 relative to document 18. *Id.* ¶¶ 11, 74, 75, Figs. 8(b), 8(c), 11. Notably, it is these two proposed solutions in Dance that Truist seeks to incorporate into Watanabe’s document photographing operations. *See* Pet. 43–51. Contrary to USAA’s assertion, Truist does not seek to incorporate the prior art digital cameras identified in Dance, let alone adjustable stand 16, into its proposed combination with Watanabe. In essence, USAA attempts to read into Dance a teaching away where no such language exists. *See DyStar*, 464 F.3d at 1364.

Turning to USAA’s second teaching away argument, we are not persuaded that adding Dance’s feedback icons to Watanabe’s document photographing operations effectively undermines Watanabe’s “scaling” process because it raises a dispute that is best resolved upon a complete record. *See* Prelim. Resp. 32. At this stage of the proceeding, it appears that Watanabe’s “scaling process” is only invoked *after* the user captures an image and, subsequently, desires to transmit the image to a facsimile or via electronic mail. *See* Ex. 1011, 9:15–10:56, Fig. 6. Notably, we understand Truist to propose incorporating Dance’s feedback icons into Watanabe’s document photographing operations *prior to* capturing an image so as to obtain an image suitable for OCR. *See* Pet. 45–51.

c. Summary

In summary, we are not persuaded by USAA's argument that the last limitation of independent claim 1 requires automatic image capture. In any event, even if we were to assume that the last limitation in independent claim 1 should be limited to automatic image capture, the preliminary record demonstrates that Truist has presented sufficient evidence that would support a finding that Watanabe teaches this limitation. We also are not persuaded that Dance teaches away from Truist's proposed combination with Watanabe. Accordingly, Truist has shown a reasonable likelihood that it would prevail on its assertions that the subject matter of independent claims 1 and 11 would have been obvious over the combined teachings of Watanabe and Dance.

4. Claims 4, 5, 7, 14, 15, and 17

Truist contends that dependent claims 4, 5, 7, 14, 15, and 17 of the '090 patent are unpatentable under 35 U.S.C. § 103(a) as obviousness over the combination of Watanabe and Dance. Pet. 43–51, 74–79. Truist contends that the combined teachings of Watanabe and Dance account for the subject matter of each challenged claim, and provides reasoning as to why a person of ordinary skill in the art would have been prompted to modify the teachings of these references. *Id.*

As two examples, claim 4 depends from independent claim 1, and further recites “wherein the processor is further configured to control the presentation device to present the feedback information when the monitoring criterion is determined not to be satisfied.” Ex. 1001, 22:10–13. Claim 14 depends from independent claim 11, and further recites a similar limitation. *Id.* at 22:4–8. Truist contends that the combined teachings of Watanabe and

Dance account for these limitations because a person of ordinary skill in the art would have found it obviousness to modify Watanabe's document photographing operations to display Dance's feedback information (i.e., icons) indicating that the monitoring criterion has not been satisfied, and how to adjust the height of digital camera 100 relative to the targeted document to obtain an image suitable for OCR. Pet. 74–76 (citing Ex. 1011, 7:20–26, 12:22–22, Fig. 5B; Ex. 1009 ¶¶ 11, 74, 75, Figs. 8(a)–8(d); Ex. 1002 ¶¶ 171–74).

Based on the preliminary record, Truist's arguments and supporting evidence with respect to dependent claims 4, 5, 7, 14, 15, and 17 are sufficient for purposes of institution. At this stage of the proceeding, USAA does not address separately Truist's arguments and supporting evidence as to how the combined teachings of Watanabe and Dance account for the limitations of these dependent claims. *See* Prelim. Resp. 28–33. When considering Truist's un rebutted arguments and supporting evidence, Truist has demonstrated a reasonable likelihood that it would prevail on its assertions that the subject matter of dependent claims 4, 5, 7, 14, 15, and 17 would have been obvious over the combined teachings of Watanabe and Dance.

H. Obviousness over Watanabe, Dance, and Parulski

Truist contends that claims 2, 3, 6, 12, 13, and 16 of the '090 patent are unpatentable under 35 U.S.C. § 103(a) as obvious over the combined teachings of Watanabe, Dance, and Parulski. Pet. 79–84. Truist contends that the combined teachings of Watanabe, Dance, and Parulski account for the subject matter of each challenged claim, and provides reasoning as to why a person of ordinary skill in the art would have been prompted to

modify the teachings of these references. *Id.* Truist also relies on the testimony of Dr. Doermann to support its positions. *See* Ex. 1002.

Based on the preliminary record, we determine that Truist has shown that there is a reasonable likelihood that it would prevail in challenging at least one of claims 2, 3, 6, 12, and 13 of the '090 patent as unpatentable. As two examples, claim 2 directly depends from independent claim 1, and further recites “wherein the processor is configured to control the presentation device to present the feedback information by displaying a written instruction on a display screen for satisfying the monitoring criterion.” Ex. 1001, 22:3–6. Claim 12 directly depends from independent claim 11, and further recites a similar limitation. *Id.* at 22:64–67.

Truist contends that Parulski teaches these limitations because it discloses presenting text or icon instructions to a user on the image display. Pet. 82 (citing Ex. 1007, 39:66–40:7). Relying on the testimony of Dr. Doermann, Truist argues that a person of ordinary skill in the art would have found it obvious to substitute or supplement the feedback information taught by the combination of Watanabe and Dance with Parulski’s written instructions “to provide precise instructions.” *Id.* (citing; Ex. 1002 ¶ 191).

Turning to rationale to combine, to the extent either Watanabe or Dance do not disclose expressly written feedback, Truist contends that a person of ordinary skill in the art would have been motivated to implement Watanabe’s feedback information, as modified by Dance, in written form, as expressly disclosed by Parulski. Pet. 79–80 (citing Ex. 1002 ¶¶ 183–88). More specifically, Truist argues that a person of ordinary skill in the art would have been motivated to supplement or substitute the collective icon-based feedback taught by the combination of Watanabe and Dance with

Parulski’s written instructions (1) “to provide clear and specific instructions”; and (2) “to improve the clarity of the indications by the arrows to users not familiar with icon instructions or users having difficulty seeing the arrows.” *Id.* at 80 (citing Ex. 1002 ¶ 186). Moreover, Truist argues that there would have been a reasonable expectation of success in making this proposed combination because “[w]ritten instruction would be recognized . . . as a simple and predictable design choice within the technical grasp of a [person of ordinary skill in the art].” *Id.* (citing Ex. 1002 ¶ 186).

Based on the preliminary record, Truist’s arguments and supporting evidence with respect to dependent claims 2, 3, 6, 12, 13, and 16 are sufficient for purposes of institution. At this stage of the proceeding, USAA does not address separately Truist’s arguments and supporting evidence as to how the combined teachings of Watanabe, Dance, and Parulski account for the limitations of these dependent claims. *See* Prelim. Resp. 28–33. When considering Truist’s un rebutted arguments and supporting evidence, Truist has demonstrated a reasonable likelihood that it would prevail on its assertions that the subject matter of dependent claims 2, 3, 6, 12, 13, and 16 would have been obvious over the combined teachings of Watanabe, Dance, and Parulski.

I. Obviousness over Watanabe, Dance, and Li

Truist contends that claims 8, 9, 18, and 19 of the ’090 patent are unpatentable under 35 U.S.C. § 103(a) as obvious over the combined teachings of Watanabe, Dance, and Li. Pet. 84–89. Truist contends that the combined teachings of Watanabe, Dance, and Li account for the subject matter of each challenged claim, and provides reasoning as to why a person of ordinary skill in the art would have been prompted to modify the

teachings of these references. *Id.* Truist also relies on the testimony of Dr. Doermann to support its positions. *See* Ex. 1002.

Based on the preliminary record, we determine that Truist has shown that there is a reasonable likelihood that it would prevail in challenging at least one of claims 8, 9, 18, and 19 of the '090 patent as unpatentable. As two examples, claim 8 directly depends from independent claim 1, and further recites the following:

wherein to monitor the target document in the field of view of the image capture device with respect to the monitoring criterion, the process is further configured to:

measure a distance from an edge of the target document in the field of view of the image capture device to an edge of the field of view of the image capture device; and

compare the distance to a predetermined value to determine whether skew is present in the image depicting the target document.

Ex. 1001, 22:28–38. Claim 18 directly depends from independent claim 11, and further recites a similar limitation. *Id.* at 23:23–24:6.

Truist contends that, although the combined teachings of Watanabe and Dance accounts for monitoring the targeted document in the field of view of the image capture device with respect to monitoring criterion, this combination does not disclose determining skew as part of monitoring. Pet. 88. Truist, however, argues that Li recognizes that document skew adversely impacts the ability to OCR an image. *Id.* (Ex. 1008, 1:18–22).

Truist then contends that Li teaches the limitations of dependent claims 8 and 18 for the same reasons it identifies above in the obviousness ground based on the combination of Zhu and Li. Pet. 88. That is, Truist argues that Li's Figure 2 illustrates a method of implementing skew

detection that includes identifying “reliable lines” at stage 204 by using edge detection. *Id.* at 36 (citing Ex. 1008, 2:46–48, 5:12–6:7, Fig. 2 (stage 204); Ex. 1002 ¶ 115). Truist further contends that, as part of detecting skew, Li’s Figure 5 illustrates that determining whether a line is “reliable” encompasses determining whether the line is proximate to the border of the image. *Id.* at 37 (Ex. 1008, 4:10–20, Fig. 5; Ex. 1002 ¶ 115). Relying on the testimony of Dr. Doermann, Truist argues that a person of ordinary skill in the art would have understood that Li teaches both the measurement and comparison steps required by dependent claims 8 and 18 because “proximate” suggests comparing the distance of the line (i.e., the edge of the targeted document) from the border (i.e., the edge of the field of view of the camera) with a predetermined value to ascertain whether the line is “reliable” for detecting skew. *Id.* (citing Ex. 1008, 4:34–38, 8:20–25; Ex. 1002 ¶ 115).

Turning to rationale to combine, Truist contends that a person of ordinary skill in the art would have found it obvious to incorporate Li’s skew detection into the pre-capture monitoring taught by the combination of Watanabe and Dance because this proposed combination “would provide specific feedback to a user on what modifications must be made to the [targeted] document placement to reduce skew angle before capture.” Pet. 86 (citing Ex. 1002 ¶ 202). According to Truist, a person of ordinary skill in the art would have understood that modifying the proposed combination of Watanabe and Dance in this way was “a routine modification because it was known in the art to present such feedback,” and “such feedback helps a user quickly know to skew the document” (e.g., tilt the document or camera to the right of the left) “to achieve a rectangular document image suitable for OCR.” *Id.* (citing Ex. 1002 ¶ 202). Moreover,

Truist argues that there would have been a reasonable expectation of success in making this proposed combination because “Watanabe’s digital camera [100] is well equipped for such modification.” *Id.* at 86–87 (citing Ex. 1011, 3:59–4:21, 10:14–16; Ex. 1008, 8:2–18, 8:39–9:5; Ex. 1002 ¶ 203). Truist asserts that a person of ordinary skill in the art would have incorporated Li’s skew detection into Watanabe’s digital camera 100 “as instructions stored in Watanabe’s ROM and executed by Watanabe’s CPU or image processing section [103].” *Id.* at 87 (citing Ex. 1002 ¶ 203).

Based on the preliminary record, Truist’s arguments and supporting evidence with respect to dependent claims 8, 9, 18, and 19 are sufficient for purposes of institution. At this stage of the proceeding, USAA does not address separately Truist’s arguments and supporting evidence as to how the combined teachings of Watanabe, Dance, and Li account for the limitations of these dependent claims. *See* Prelim. Resp. 28–33. When considering Truist’s un rebutted arguments and supporting evidence, Truist has demonstrated a reasonable likelihood that it would prevail on its assertions that the subject matter of dependent claims 8, 9, 18, and 19 would have been obvious over the combined teachings of Watanabe, Dance, and Li.

J. Obviousness over Watanabe, Dance, and Sakurai

Truist contends that claim 10 of the ’090 patent is unpatentable under 35 U.S.C. § 103(a) as obvious over the combined teachings of Watanabe, Dance, and Sakurai. Pet. 90–94. Truist contends that the combined teachings of Watanabe, Dance, and Sakurai account for the subject matter of this challenged claim, and provides reasoning as to why a person of ordinary skill in the art would have been prompted to modify the teachings of these

references. *Id.* Truist also relies on the testimony of Dr. Doermann to support its positions. *See* Ex. 1002.

Based on the preliminary record, we determine that Truist has shown that there is a reasonable likelihood that it would prevail in challenging claim 10 of the '090 patent as unpatentable. Claim 10 directly depends from independent claim 1, and further recites “wherein the monitoring criterion comprises whether a corner of the image depicting the target document is detectable.” Ex. 1001, 22:44–46. Truist contends that Sakurai teaches the limitation of dependent claim 10 for the same reasons it identifies above in the obviousness ground based on the combination of Zhu and Sakurai. Pet. 94. That is, Truist contends that Sakurai teaches this limitation because it discloses whether the four corners of the image of a document are detectable and, if not, displaying feedback in the form of a warning statement. *Id.* at 42 (citing Ex. 1010 ¶¶ 160, 214–16, Fig. 8 (step S31); Ex. 1002 ¶¶ 128, 129).

Turning to rationale to combine, Truist contends that a person of ordinary skill in the art would have been motivated to modify the monitoring criterion taught by the combination of Watanabe and Dance to include Sakurai’s corner detection feature of a targeted document because (1) it “would expedite the process to achieve a vertical angle by helping the user quickly position the document so the shape of the document can be extracted and used to determine whether the angle of photography is vertical”; and (2) it would ensure “the camera’s determination of the shape (including corners) of the document through image processing would be more accurate than a user’s visual observation and judgment.” Pet. 93 (citing Ex. 1011, 8:9–26; 17:25–31; Ex. 1002 ¶ 216). Moreover, Truist asserts that a person of ordinary skill in the art would have had a reasonable expectation in

success in making this proposed combination because it “requires only ordinary skill to add known operational steps to the program stored in Watanabe’s ROM,” and it would “generate predictable results of shape and corner detection as taught by Sakurai and suggested by Watanabe.” *Id.* at 93–94 (citing Ex. 1011, 4:14–20, 8:16, 8:57–9:3; Ex. 1010 ¶¶ 162–65, 189, 190, 214–16; Ex. 1002 ¶ 217).

Based on the preliminary record, Truist’s arguments and supporting evidence with respect to dependent claim 10 are sufficient for purposes of institution. At this stage of the proceeding, USAA does not address separately Truist’s arguments and supporting evidence as to how the combined teachings of Watanabe, Dance, and Sakurai account for the limitation of this dependent claim. *See* Prelim. Resp. 28–33. When considering Truist’s un rebutted arguments and supporting evidence, Truist has demonstrated a reasonable likelihood that it would prevail on its assertions that the subject matter of dependent claim 10 would have been obvious over the combined teachings of Watanabe, Dance, and Sakurai.

III. CONCLUSION

Taking into account USAA’s Preliminary Response, Truist’s Preliminary Reply, and USAA’s Preliminary Sur-reply, we conclude that the information presented in the Petition demonstrates that there is a reasonable likelihood that Truist would prevail in challenging at least one of claims 1–19 of the ’090 patent as unpatentable. Accordingly, we institute an IPR as to all challenged claims and all the grounds raised in the Petition. *See SAS Inst., Inc. v. Iancu*, 138 S. Ct. 1348, 1359–60 (2018) (holding that a decision granting institution under 35 U.S.C. § 314 may not institute on fewer than all challenged claims in the petition); *PGS Geophysical AS v. Iancu*, 891 F.3d

1354, 1360 (Fed. Cir. 2018) (“We read . . . the *SAS* opinion as interpreting the statute to require a simple yes-or-no institution choice respecting a petition, embracing all challenges included in the petition.”). At this stage of the proceeding, we have not made a final determination with respect to the patentability of the challenged claims or the construction of any claim term.

IV. ORDER

Accordingly, it is

ORDERED that, pursuant to 35 U.S.C. § 314 and 37 C.F.R. § 42.4(a), an IPR is hereby instituted as to all of the challenged claims and all of the grounds raised in the Petition; and

FURTHER ORDERED that pursuant to 35 U.S.C. § 314(c) and 37 C.F.R. § 42.4(b), notice is hereby given of the institution of a trial; the trial will commence on the entry date of this decision.

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