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Paper 68
Entered: January 19, 2023

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

PNC BANK, N.A.,
Petitioner,

v. UNITED SERVICES AUTOMOBILE ASSOCIATION,

Patent Owner.

IPR2021-01070
Patent 8,699,779 B1

Before DAVID C. MCKONE, SCOTT B. HOWARD,
and JULIET MITCHELL DIRBA, *Administrative Patent Judges*.

MCKONE, *Administrative Patent Judge*.

Final Written Decision
Determining All Challenged Claims Unpatentable
Denying Patent Owner's Motion to Exclude
35 U.S.C. § 318(a); 37 C.F.R. § 42.64(c)

I. INTRODUCTION

A. Background and Summary

PNC Bank N.A. ("Petitioner") filed a Petition (Paper 3, "Pet.") requesting *inter partes* review of claims 1, 2, 7–10, and 15–17 of U.S. Patent No. 8,699,779 B1 (Ex. 1001, "the '779 patent"). Pet. 3. United Services Automobile Association ("Patent Owner") filed a Preliminary Response (Paper 8).[1] Pursuant to our authorization, Petitioner filed a Preliminary Reply (Paper 12)[2] and Patent Owner filed a Preliminary Sur-reply (Paper 16).[3] Pursuant to 35 U.S.C. § 314, we instituted this proceeding. Paper 20 ("Dec.").[4]

Patent Owner filed a Patent Owner's Response (Paper 40, "PO Resp."), Petitioner filed a Reply to the Patent Owner's Response (Paper 43, "Reply"), and Patent Owner filed a Sur-reply to the Reply (Paper 58, "Sur-reply").

Patent Owner filed a motion to exclude evidence (Paper 59, "Mot. Exclude"), Petitioner filed an opposition (Paper 61, "Opp. Exclude"), and Patent Owner filed a reply to the opposition (Paper 63, "Reply Exclude").

An oral argument was held in this proceeding and IPR2021-01073 on October 25, 2022. Paper 67 ("Tr.").

We have jurisdiction under 35 U.S.C. § 6. This Decision is a final written decision under 35 U.S.C. § 318(a) as to the patentability of claims 1, 2, 7–10, and 15–17. Based on the record before us, Petitioner has proved, by

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[1] A public version of the Preliminary Response is filed as Paper 9.
[2] A public version of the Preliminary Reply is filed as Paper 14.
[3] A public version of the Preliminary Sur-reply is filed as Paper 18.
[4] A public version of the Institution Decision is filed as Paper 25.

a preponderance of the evidence, that claims 1, 2, 7–10, and 15–17 are unpatentable. Patent Owner's Motion to Exclude is denied as to Exhibits 1053–1055 and dismissed as moot as to Exhibit 1056.

B. Related Matters

The parties represent that Patent Owner has asserted the '779 patent, along with three other patents, in *United Services Automobile Association v. PNC Bank., N.A.*, No. 2:20-cv-00319-JRG (E.D. Tex.) ("the Texas case"). Pet. 3; Paper 4, 2. Patent Owner states that Mitek Systems, Inc., filed a declaratory judgement action alleging non-infringement of the '779 patent in *Mitek Systems, Inc. v. United Services Automobile Association*, No. 2:20-cv-00115-JRG (E.D. Tex.). Paper 4, 2.

The '779 patent also was challenged in *Wells Fargo Bank, N.A. v. United Services Automobile Association*, CBM2019-00005 (institution denied because the '779 patent is not a covered business method patent), *Wells Fargo Bank, N.A. v. United Services Automobile Association*, IPR2019-01083 ("the Wells Fargo IPR") (final written decision determining no challenged claims unpatentable), and *Mitek Systems, Inc. v. United Services Automobile Association*, IPR2020-00976 (institution denied). Pet. 4; Paper 4, 3.

C. The '779 Patent

The '779 patent describes "[a]n alignment guide [that] may be provided in the field of view of a camera associated with a mobile device used to capture an image of a check." Ex. 1001, Abstr. The invention is used in the context of the system of Figure 1, reproduced below:

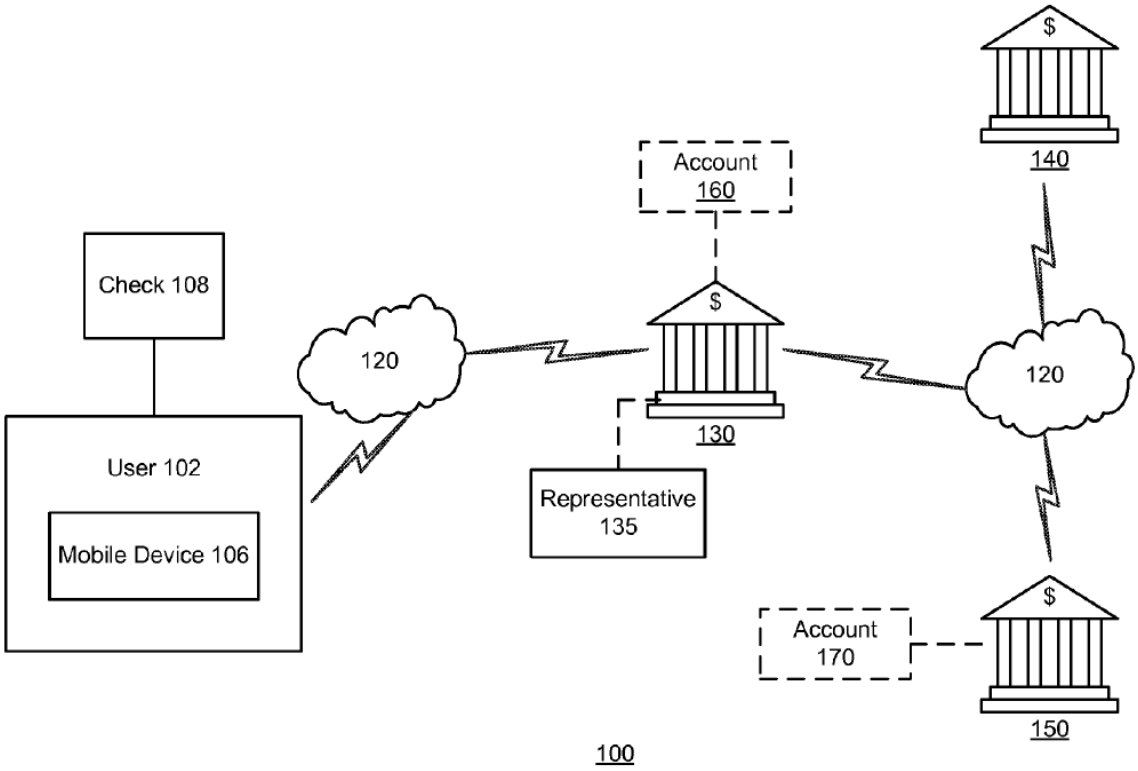

FIG. 1

Figure 1 is a block diagram of a system used to deposit a check. *Id.* at 2:6–8, 2:44–46. User 102, the entity that owns account 160 (e.g., a checking account) held at financial institution 130, deposits check 108 in account 160. *Id.* at 3:5–11. Financial institution 130 processes and/or clears check 108. *Id.* at 3:11–13. Check 108 is drawn from account 170 at financial institution 150. *Id.* at 3:24–27. According to the '779 patent,

> 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. For example, after endorsing the check 108, the user 102 may use a mobile device 106 that comprises a camera to convert the check 108 into a digital image by taking a picture of the front and/or back of the check 108. The mobile device 106 may be a mobile phone (also known as a wireless phone or a cellular

> phone), a personal digital assistant (PDA), or any handheld computing device, for example.

Id. at 3:43–52.

The use of mobile device 106 is shown in more detail in Figure 2, reproduced below.

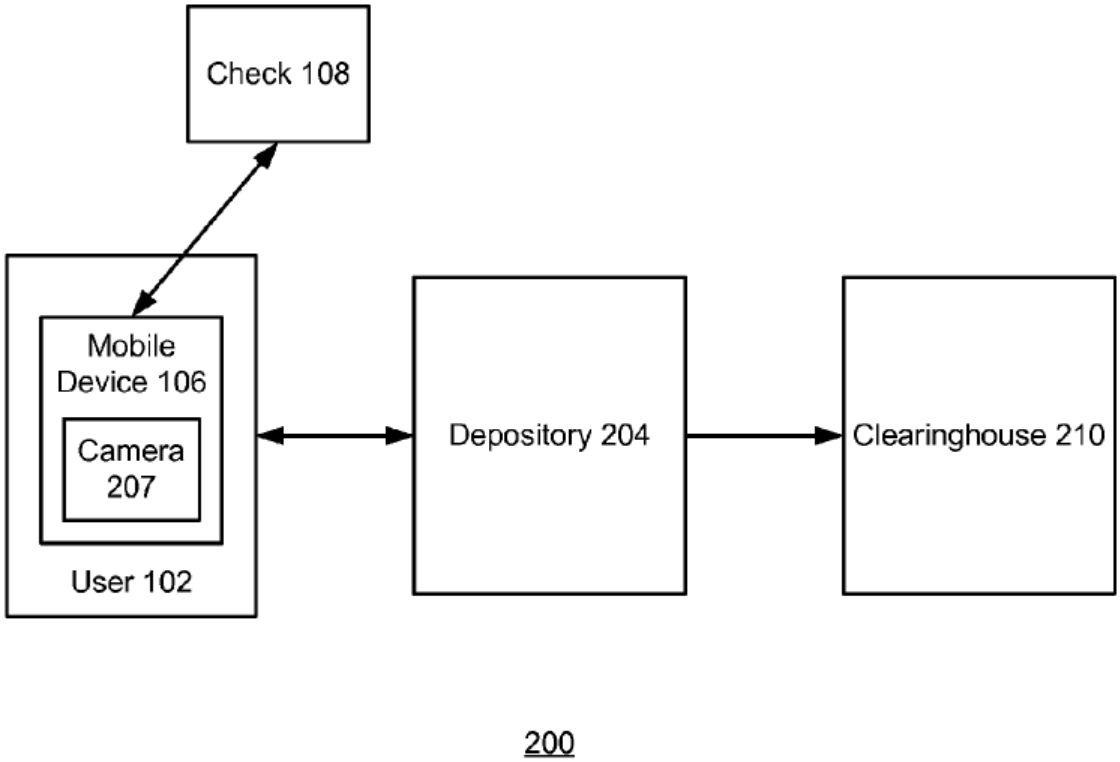

FIG. 2

Figure 2 is a high-level block diagram of a system used to deposit a check. Ex. 1001, 2:9–10, 5:22–24. Mobile device 106 includes camera 207 that can take an image of both the front and back of check 108. *Id.* at 5:30–39. Depository 204 (e.g., the bank where user 102 has an account) receives the images of check 108 and uses clearinghouse 210 to perform check clearing operations (e.g., removing funds from the payor's account and transferring them to the user's bank). *Id.* at 5:49–62.

"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, an alignment guide may be provided in the field of view of the camera of the mobile device 106." Ex. 1001, 3:55–59. Figure 3, reproduced below, illustrates an example:

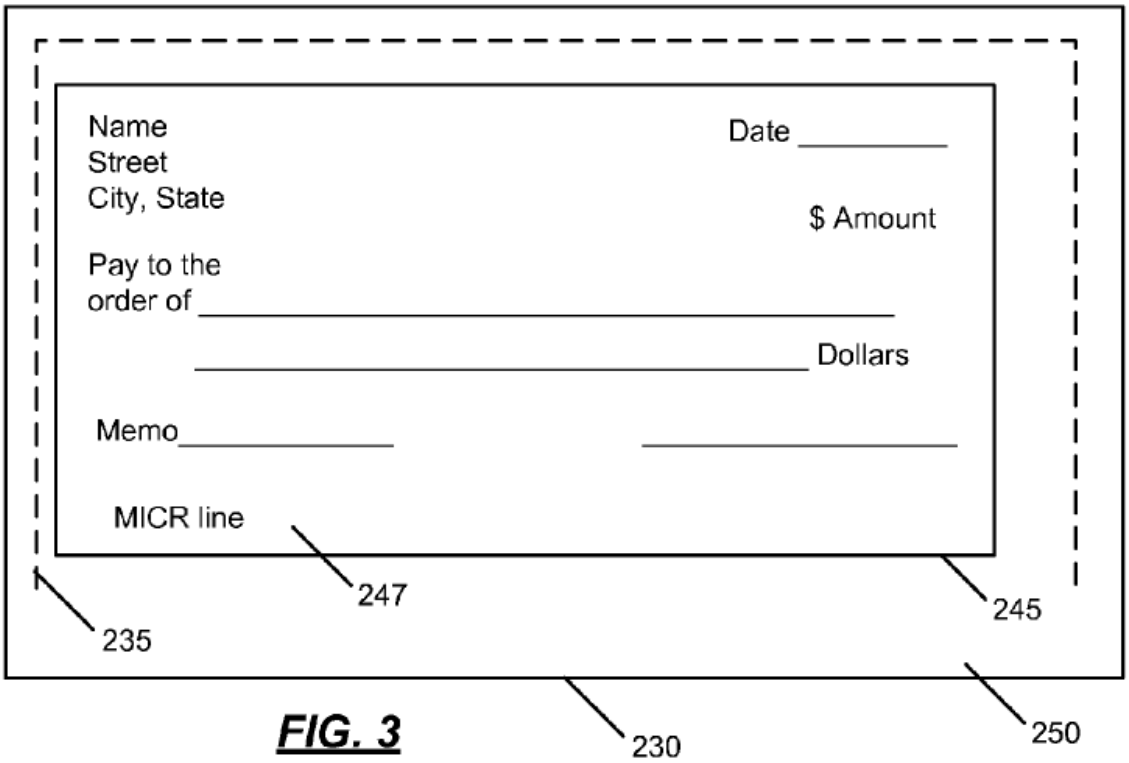

FIG. 3

Figure 3 is a diagram of check image 247, background image 250, and alignment guide 235. *Id.* at 2:11–12, 6:1–3. Alignment guide 235 is overlaid on the camera feed of mobile device 106. *Id.* at 6:3–4. "The alignment guide 235 is provided in FIG.3 as a three sided bounding box (e.g., a rectangle in which one of the line segments or sides is removed), but any shape(s) or indicator(s) may be used, such as vertical bars, parallel lines, a circle, a square, a bounding rectangle, or a self-crop tool, for example." *Id.* at 6:5–10.

Image 230 is provided in the field of view of camera 207 while the user is capturing an image for check 108. Ex. 1001, 6:13–14. User 102 moves camera 207 or check 108 so that check image 247 appears within or lines up with alignment guide 235. *Id.* at 6:14–17. According to the '779 patent,

> When the check image 247 is within the alignment guide 235 (e.g., the edges 245 of the check image 247 are aligned with respect to the alignment guide 235, such as parallel to the associated portion of the alignment guide 235), the check image 247 and the background image 250 (if any) that are within the alignment guide may be captured either automatically (e.g., by the camera or the mobile device under direction of an application running on the camera 207 or the mobile device 106 or the financial institution) or manually (e.g., by the user 102 pressing a button or making a selection on the camera 207 or the mobile device 106).

Id. at 6:21–31.

Claim 1, reproduced below, is illustrative of the claimed subject matter:

> 1. A system for depositing a check, comprising:
>
> a mobile device having a camera, a display and a processor, wherein the processor is configured to:
>
> project an alignment guide in the display of the mobile device, the display of the mobile device displaying a field of view of the camera;
>
> monitor an image of the check that is within the field of view;
>
> determine whether the image of the check aligns with the alignment guide;
>
> automatically capture the image of the check when the image of the check is determined to align with the alignment guide; and

transmit the captured image of the check from the camera to a depository via a communication pathway between the mobile device and the depository.

D. Evidence

Petitioner relies on the references listed below.

Reference		Date	Exhibit No.
Acharya	US 8,768,836 B1	July 1, 2014 (filed Aug. 7, 2007)	1003
Luo[5]	CN 1897644A	pub. Jan. 17, 2007	1004

Petitioner also relies on the Declaration of Todd Mowry, Ph.D. (Ex. 1002, "Mowry Decl.") and the Reply Declaration of Dr. Mowry (Ex. 1036, "Mowry Reply Decl.").

Patent Owner cites extensively to the references listed below (*see, e.g.*, PO Resp. 9–25):

Reference		Date	Exhibit No.
Yoon	US 2007/0262148A1	pub. Nov. 15, 2007	2008
Nepomniachtchi[6]	US 2009/0185241 A1	July 23, 2009	2105

[5] Petitioner relies on a certified translation of the Chinese application.
[6] In the Wells Fargo IPR, the Board considered the teachings of Nepomniachtchi, US 7,778,457 B2, issued August 17, 2012 (Ex. 2012). Patent Owner contends that "The Nepomniachtchi reference discussed here is substantively identical to the Nepomniachtchi patent that was used as the base reference in the prior [Wells Fargo IPR]—both claim priority to the same provisional application—and contain similar disclosures." PO Resp. 9 n.3.

Reference		Date	Exhibit No.
ImageNet	Presentation titled "ImageNet Mobile Deposit" by Mitek Systems	June 2008	1014, pp. 30–44
Blackson	US 7,419,093 B1	Sept. 2, 2008	2113

Patent Owner also relies on the Declaration of Charles Creusere (Ex. 2115, "Creusere Decl.").

E. The Instituted Ground of Unpatentability

Petitioner asserts the following ground of unpatentability (Pet. 7):

References	35 U.S.C. §	Claims Challenged
Acharya, Luo	103(a)[7]	1, 2, 7–10, 15–17

II. ANALYSIS

A. Claim Construction

We construe a claim:

> using the same claim construction standard that would be used to construe the claim in a civil action under 35 U.S.C. 282(b), including construing the claim in accordance with the ordinary and customary meaning of such claim as understood by one of ordinary skill in the art and the prosecution history pertaining to the patent.

37 C.F.R. § 42.100(b) (2021); *see also Phillips v. AWH Corp.*, 415 F.3d 1303 (Fed. Cir. 2005) (en banc).

[7] The Leahy-Smith America Invents Act ("AIA"), Pub. L. No. 112-29, 125 Stat. 284, 287–88 (2011), amended 35 U.S.C. § 103. Because the '779 patent was filed before March 16, 2013, the effective date of the relevant amendment, the pre-AIA version of § 103 applies.

Petitioner (Pet. 20–22) represents that the following constructions in the table below were either agreed upon or proposed by Patent Owner in the Texas case. Additionally, as also reflected in the table below, the Texas court construed several of these claim terms in its November 22, 2021, Claim Construction Memorandum Opinion and Order (Ex. 1033):

Claim Term	Agreed Construction or Proposed by Patent Owner	Texas Court's Construction
"depositing a check" (claims 1, 10)	"providing a check to a depository in a form sufficient to allow money to be credited to an account"	
"a system for depositing a check" (claim 1) "a non-transitory computer-readable medium comprising [computer-readable] instructions for depositing a check" (claim 10)	The preambles are limiting	The preambles are limiting Ex. 1033, 40–43
"mobile device" (claims 1, 3, 5, 10)	"computing device capable of being easily moved and that is controlled by a mobile operating system"	"computing device capable of being easily moved and that is controlled by a mobile operating system." Ex. 1033, 43–45

Claim Term	Agreed Construction or Proposed by Patent Owner	Texas Court's Construction
"deposit system" (claim 10)	"a system for providing a check to a depository in a form sufficient to allow money to be credited to an account"	Not addressed by the Texas court Ex. 1033, 66
"capture the image of the check" (claims 1, 10)	No further construction necessary	Plain meaning Ex. 1033, 49–56
"determin[ing] whether the image of the check aligns with the alignment guide" / "the image of the check is determined to align with the alignment guide" (claims 1, 10)	"determining that the alignment of the image of the check is within an acceptable threshold such that the image can be electronically read"	Plain meaning Ex. 1033, 67–72
"when the image of the check is determined to align with the alignment guide" (claims 1, 10)	"at or after the moment the image of the check is determined to align with the alignment guide"	"at or after the moment the image of the check is determined to align with the alignment guide" Ex. 1033, 67–73

Claim Term	Agreed Construction or Proposed by Patent Owner	Texas Court's Construction
"when at least [one edge / a first edge and a second edge / a first edge, second edge, and a third edge] of the image of the check aligns" (claims 7–9, 15–17)	No further construction necessary	"at or after the moment at least [one edge / a first edge and a second edge / a first edge, second edge and a third edge] of the image of the check aligns" Ex. 1033, 67–73

In the Petition, "Petitioner relies on the constructions urged by [Patent Owner] in the co-pending district court litigation or as the parties agreed." Pet. 20.

Patent Owner contends that the District Court in the Texas case has adopted these constructions and urges us to apply them in this proceeding. PO Resp. 30–31 (citing Ex. 1033, 12–13, 40–72).

As both parties apply the constructions in the "Agreed Construction or Proposed by Patent Owner" column in this proceeding, we do so as well. On the current record, any differences between those constructions and the Texas court's constructions do not appear to have an impact on this proceeding. Based on the record before us, we do not find it necessary to provide express claim constructions for any other terms. *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))).

B. Obviousness of Claims 1, 2, 7–10, and 15–17 over Acharya and Luo

Petitioner contends that claims 1, 2, 7–10, and 15–17 would have been obvious over Acharya and Luo. Pet. 30–73. For the reasons given below, Petitioner has proved by a preponderance of the evidence that these claims would have been obvious over this combination.

A claim is unpatentable under 35 U.S.C. § 103 "if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains." We resolve the question of obviousness 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) objective evidence of nonobviousness, i.e., secondary considerations.[8] *See Graham v. John Deere Co.*, 383 U.S. 1, 17–18 (1966).

1. Level of Skill in the Art

Relying on Dr. Mowry's testimony, Petitioner contends that a person of ordinary skill in the art "would have had a bachelor's degree in electrical engineering, computer science, computer engineering, or equivalent field, and at least two years of prior experience with image processing or scanning

[8] The record does not include allegations or evidence of objective indicia of nonobviousness.

technology involving transferring and processing of image data to and at a server," and that "[a] person with additional education or additional industrial experience could still be of ordinary skill in the art if that additional aspect compensates for a deficit in one of the other aspects of the requirements stated above." Pet. 19–20 (citing Ex. 1002 ¶ 44). We adopted this level of skill in the Institution Decision. Dec. 38–39. Patent Owner applies this level of skill in its Patent Owner Response. PO Resp. 30. As Petitioner's proposal is consistent with the technology described in the Specification and the cited prior art, we continue to apply this level of skill.

2. Scope and Content of the Prior Art

a) Overview of Acharya

Acharya "relates generally to a system and method for initiating a deposit transaction, where the depositor is a banking customer located at a remote location, where the item is to be deposited without physical transport of the item to a bank and where the item to be deposited is a financial instrument, e.g. a paper check, from a third party (i.e., other than the bank customer or the paying bank), payable to the depositor, where the banking customer has or creates a digital image of the financial instrument." Ex. 1003, 1:18–26. Figure 1, reproduced below, illustrates an example:

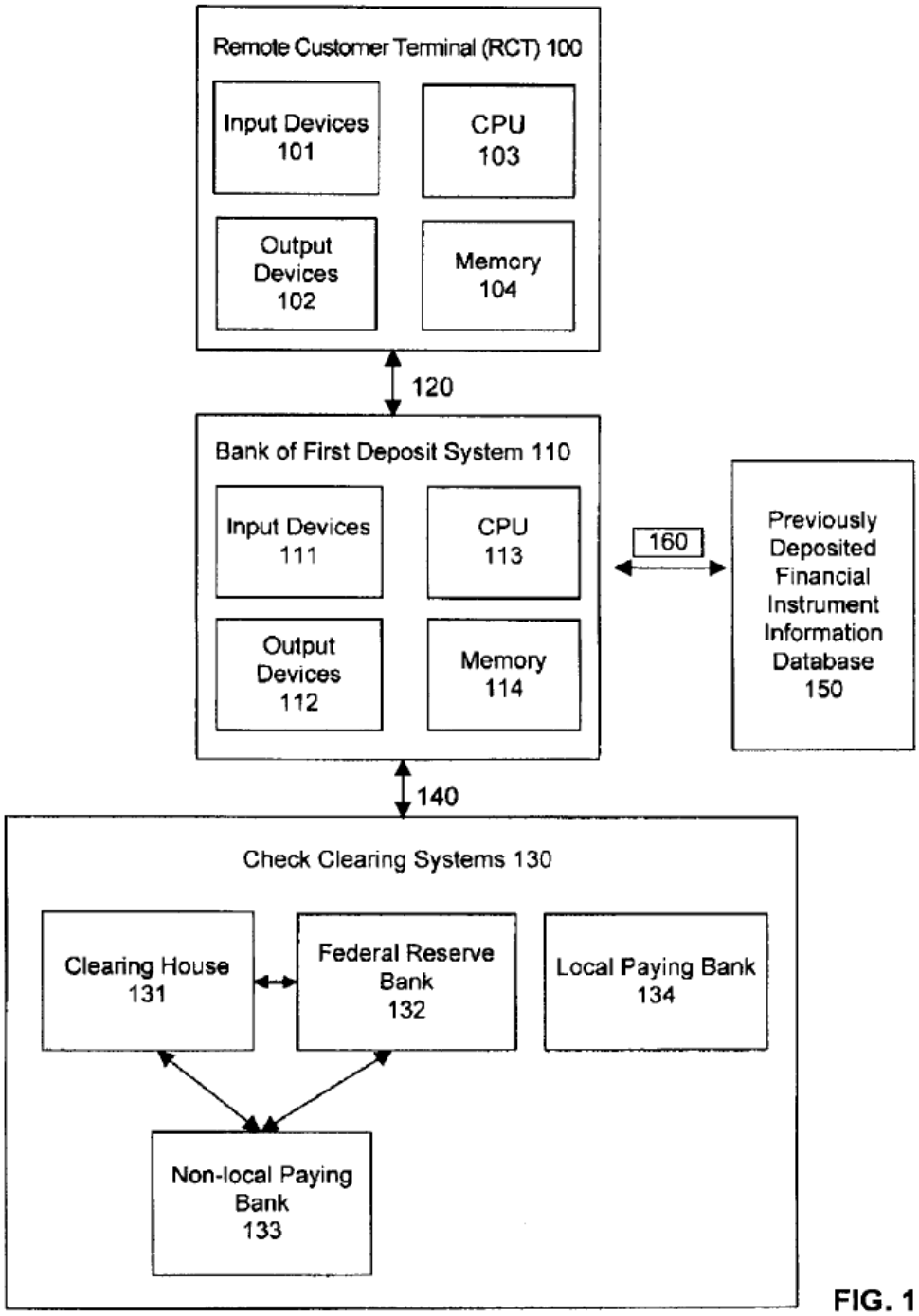

FIG. 1

Figure 1 is a schematic diagram of a system for depositing financial instruments. *Id.* at 3:62–63, 4:9–15.

Remote Customer Terminal (RCT) 100 is connected to Bank of First Deposit (BOFD) system 110. *Id.* at 4:14–17. RCT 100 can be a telephone,

digital camera, fax machine, automated teller machine (ATM), cell phone, personal digital assistant (PDA), or other device, and includes input devices 101, output devices 102, central processing unit (CPU) 103, and memory 104. *Id.* at 4:18–22, 4:32–34. RCT 100 communicates with BOFD system 110 via communication link 120, which can be, e.g., a dedicated line or the Internet. *Id.* at 5:53–58. BOFD system 110 is connected to check clearing systems 130 via communication link 140. *Id.* at 6:32–36.

A method of depositing financial instruments in the context of the system of Figure 1 is depicted in Figure 2, reproduced below:

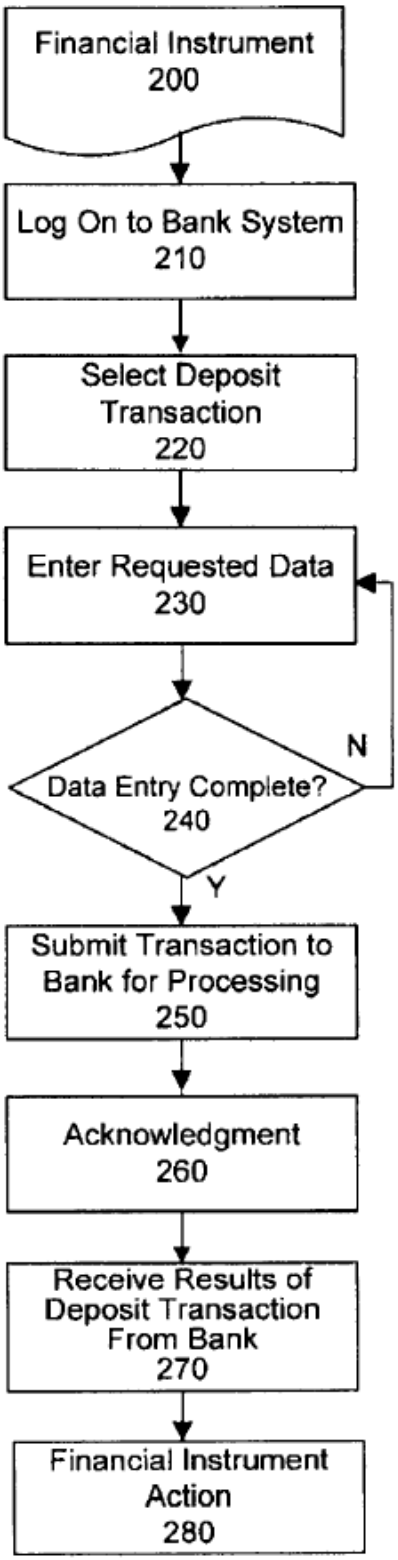

FIG. 2

Figure 2 is a flow diagram illustrating the flow of information from the perspective of a banking customer. *Id.* at 3:64–65, 6:52–54.

The banking customer may first prepare a digital image of a financial instrument (e.g., a check) using a digital camera and store the image in memory 104. *Id.* at 7:14–22. The banking customer may additionally access software that can recognize data in the digital image and store that in memory 104 along with the digital image. *Id.* at 7:23–30; *see also id.* at 4:65–5:6 ("For example, optical character recognition software may be used in conjunction with the [Digital Image Scanner (DIS)] or the digital camera to convert machine printed characters on the financial instrument or the digital image of the financial instrument to electronic text. Likewise, intelligent character recognition software may be used to convert handwritten characters on the financial instrument or on the digital image of the financial instrument to electronic text."). "In another embodiment, in addition or alternatively, the banking customer may enter data into the RCT memory 104 using RCT input devices 101 such as the keypad, keyboard or microphone for storage." *Id.* at 7:30–33. "Data may comprise customer identification, customer account number, name of payor, name and routing number of payor's bank, the amount of the financial instrument, an image of the financial instrument, along with other information." *Id.* at 7:37–41.

To deposit the check, the banking customer logs on to BOFD system 110 from RCT 100, selects a "deposit" option from a menu of transaction options, and is prompted to deposit a financial instrument. *Id.* at 6:55–7:7 (steps 200–230). In response to a prompt for additional information (step 240), "the banking customer may submit the data taken from the financial instrument, along with the digital image of the financial instrument, to the BOFD system 110 for processing 250, and may receive acknowledgement from the BOFD system 110 that the transaction is being processed 260." *Id.* at 7:42–47. The banking customer may then receive a

response indicating immediate provisional credit for the deposit (step 270). *Id.* at 8:4–8.

b) Overview of Luo

Luo describes a technique for capturing an image of an object with straight edges (e.g., a business card) that reduces projective distortion in the image, whereby the image is captured only when a straight edge of the object shown in a camera's preview window is substantially parallel to a reference line. Ex. 1004, Abstr. Luo notes that "today's digital cameras are often integrated into mobile phones, personal digital assistants (PDAs), and laptops," with the result that "people in business can use digital cameras incorporated into mobile phones to quickly and easily capture digital images of their business cards." *Id.* at 1. However, it is "unideal" when one "holds the business card in front of the camera lens with one hand, while holding the camera with the other hand when taking pictures," because of "variable factors such as the distance from the lens to the business card, and the angle of the camera's image plane relative to the front of the business card," such that "the image resulted may contain defects such as projective distortion." *Id.* Figure 2, reproduced below, illustrates an example of Luo's solution:

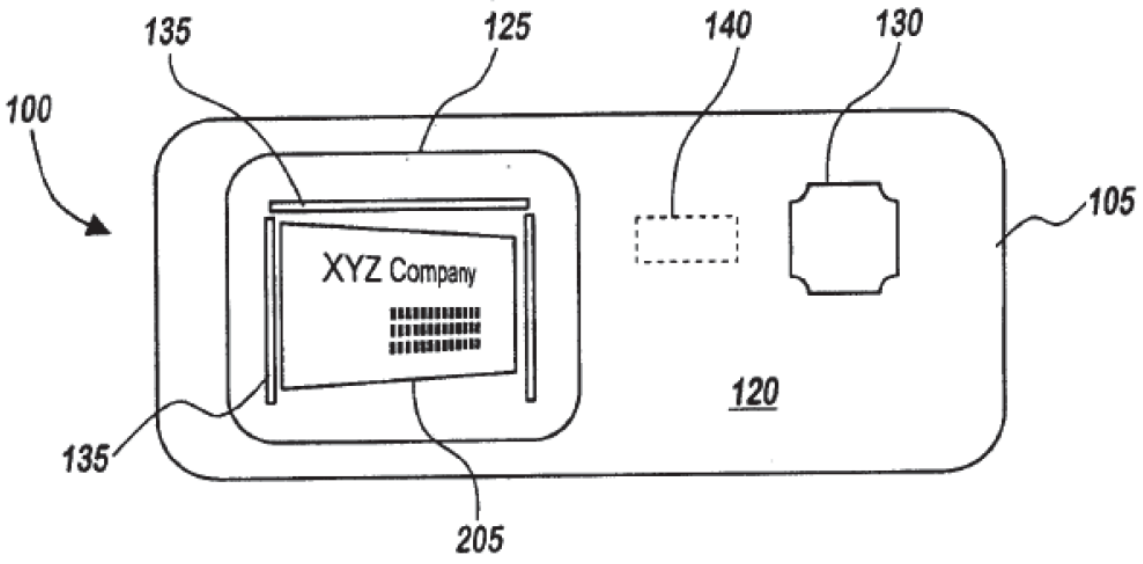

Fig. 2

Figure 2 is a schematic diagram of back 120 of camera system 100. *Id.* at 3.

Back 120 includes preview window 125, which displays an image received by image sensor 115 (shown in Figure 1). *Id.* When mode selection switch 130 is set to a document capture mode, reference line(s) 135 is displayed in preview window 125. *Id.* Reference line 135 guides the user to position image sensor 115 in an appropriate orientation with respect to the business card being captured. *Id.* at 4. "[W]hen the system 100 is in the document capture mode, the system 100 provides the user with an image of a captured object, such as a business card, only when the straight edge 205 of the business card is substantially parallel to the corresponding reference line 135 displayed in the preview window 125." *Id.* at 5. For example, "when the system 100 operates in the document capture mode . . . , the system 100 displays that the object plane 310 and the image plane 320 are not substantially parallel, so the final business card image cannot be captured." *Id.* To implement this, "image edge detection techniques can be used to reliably calculate the angle between a specific reference line 135 and

the corresponding straight edge 205 in the document preview image." *Id.* Luo's Figure 5 (a larger version of the image shown in preview window 125 of Figure 2) displays three reference lines 135, but Luo notes that two, three, four, or more lines could be used, and the lines need not be orthogonal. *Id.*

Luo describes "[v]arious techniques" to indicate to the user that the business card is aligned properly, including "an alarm composed of sounds, such as a clicking sound output from the camera system 100," or "[a] light illuminated in the preview window 125 or the light illuminated elsewhere in the camera system 100." *Id.* at 6. "As an alternative, when the straight edge 205 displayed on the preview window 125 is substantially parallel to the corresponding reference line 135, the system 100 can automatically capture the selected image and provide the user with or without instructions." *Id.*

According to Luo, through use of its techniques, "the projective distortion in the image is reduced, and the image is clearer and more accurate. With reduced projective distortion, it is more likely to perform an accelerated image capture process, such as an optical character recognition process performed on a text image, with high accuracy." *Id.* at 7.

3. Claims 1, 2, 7–10, and 15–17, Differences Between the Claimed Subject Matter and Acharya and Luo; Reasons to Modify or Combine

Petitioner cites Acharya for its disclosure of capturing images of checks suitable for extracting typical check data, but acknowledges that "Acharya does not expressly disclose details of how its system determines that an image is suitable for capture or how to implement the customer prompt for capturing such an image." Pet. 30. Petitioner cites Luo for such implementation details. *Id.* at 30–36.

Patent Owner does not challenge Petitioner's mapping of disclosure in Acharya and Luo to the limitations of claim 1; rather, Patent Owner argues that a skilled artisan would not have combined Acharya and Luo. PO Resp. 31–58.

Below, we address the limitations of claim 1, whether a skilled artisan would have combined Acharya and Luo, and finally the remaining challenged claims.

a) Claim 1

Claim 1 recites "[a] system for depositing a check." Petitioner cites Acharya for a teaching of a system for depositing a check, referring, in particular, to Acharya's Figure 1. Pet. 36–38. Figure 1 (reproduced above) shows Remote Customer Terminal (RCT) 100 communicating with Bank of First Deposit (BOFD) system 110, which, in turn, communicates with check clearing systems 130. Ex. 1003, 5:53–54, 6:32–38. In one example,

> Either when prompted or prior to accessing the BOFD system, the banking customer captures the digital image of the financial instrument by the scanner or the digital camera and prepares a file storing the digital image. Upon prompting by the BOFD system, the banking customer forwards the digital image to the BOFD system along with the data that was either 'recognized' from the digital image of the financial instrument or was input into the RCT by the banking customer. . . .
>
> The automated system can provide immediate provisional credit from the BOFD system to the banking customer, and forward the digital image of the financial instrument and other data to a clearing house in the form of an ECP transaction.

Id. at 3:11–25. We find that this teaches a system for depositing a check.

Claim 1's system includes "a mobile device having a camera, a display and a processor." Petitioner contends that Acharya's RCT 100 is a

mobile device having a camera, a display, and a processor. Pet. 38–39. We agree. For example, "RCT 100 may be a telephone, digital camera, fax machine, personal computer, ATM, cell phone, PDA or any other computer, apparatus, wireless handheld device such as a Blackberry(R) or PalmTreo(R) or system capable of collecting data and communicating with BOFD system 110." Ex. 1003, 4:18–22. RCT 100 may include "certain input devices 101, output devices 102, Central Processing Unit (CPU) 103, and machine-readable electronic memory 104." *Id.* at 4:32–34.

Petitioner contends that Luo provides additional implementation details that would be applicable to the mobile devices described in Acharya. Pet. 39–41. In particular, Petitioner points to Luo's description of camera system 100, including image sensor 115, preview window 125, and processor 140, as providing implementation details for Acharya's RCT 100. *Id.* (citing Ex. 1004, 1, 3, 8, Figs. 1–2). We find that Luo would have provided implementation details applicable to the mobile devices of Acharya, and, for the reasons give below, find that a skilled artisan would have combined the teachings of Acharya and Luo.

Claim 1 further recites that the mobile device's processor is configured to "project an alignment guide in the display of the mobile device, the display of the mobile device displaying a field of view of the camera." Petitioner cites to Luo's description (depicted in Luo's Figure 5, reproduced below) of a preview image of a document displayed in preview window 125 with straight edges 205 of the document shown along with reference lines 135. Pet. 41–44.

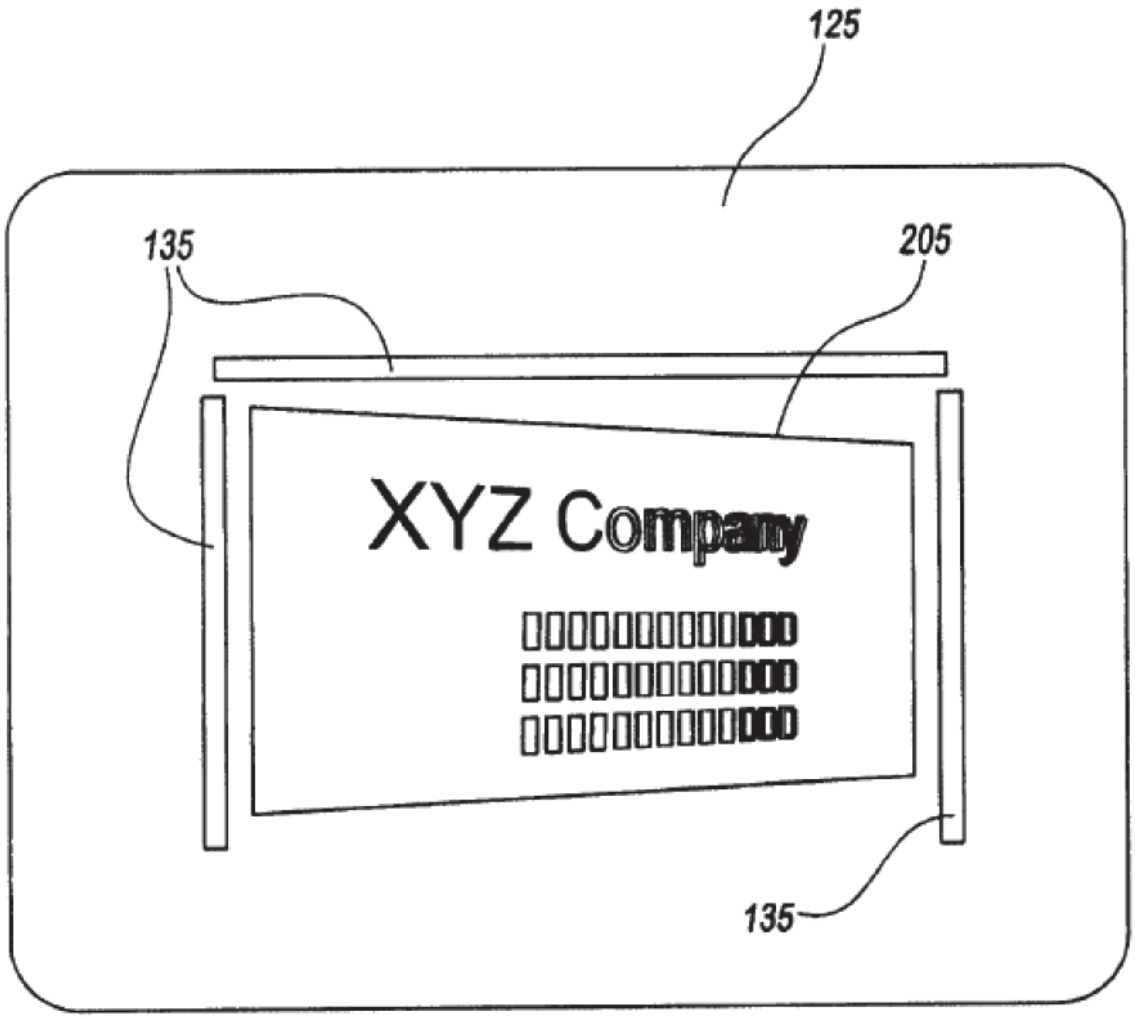

Fig. 5

As shown above, Figure 5 of Luo is a schematic diagram of preview window 125 depicting a preview image of business card 205. Ex. 1004, 2, 5.

Petitioner contends that reference lines 135 are an alignment guide, as they "guide the user of the system 100 to position the image sensor 115 in an appropriate orientation" and serve to "reduce projective distortion" by requiring that "[t]he image of the object is captured only when the straight edge (205) shown in the preview window (125) is substantially parallel to the corresponding reference line (135)." Pet. 42–43 (quoting Ex. 1004, Abstr., 7). We find that reference lines 135, which are shown projected in

preview window 125, teach a mobile device with a processor configured to "project an alignment guide in the display of the mobile device."

As to "the display of the mobile device displaying a field of view of the camera," Petitioner argues that a skilled artisan would have understood Luo's description of "the scene in front of the image sensor 115" to refer to the field of view of the camera. Pet. 44–45 (quoting Ex. 1004, 3; citing Ex. 1003 ¶ 86). We credit Dr. Mowry's uncontroverted testimony and find that the display of Luo's mobile device displays a field of view of its camera.

Claim 1 further recites that the mobile device's processor is configured to "monitor an image of the check that is within the field of view." Petitioner contends that Luo describes monitoring an image of a document that is within its field of view, and cites to Acharya to show that, in the proposed combination, the document would be a check rather than a business card. Pet. 45–49. Dr. Mowry testifies that, to enable Luo's device to capture an image only when the straight edges of the image are substantially parallel with the reference lines, Luo's system monitors the image of the document in preview window 125 to determine whether straight edge 205 of the document is substantially parallel to the corresponding reference lines 135. Ex. 1002 ¶ 89; Pet. 46–47 (citing Ex. 1004, 3, 6). We credit Dr. Mowry's testimony, which is consistent with and supported by Luo's disclosure. As noted above, Acharya teaches capturing an image of a financial instrument such as a check. Ex. 1003, Abstr., 3:12–13; Pet. 48. Thus, we find that the combination of Acharya and Luo teaches this limitation.

Claim 1 further recites that the mobile device's processor is configured to "determine whether the image of the check aligns with the

alignment guide." Petitioner cites to Luo's teaching of calculating the angle between reference lines 135 and straight edges 205 of the preview image of the document and automatically capturing the image when the straight edges and reference lines 135 are substantially parallel. Pet. 49–52 (citing Ex. 1004, 5–6, Fig. 5; Ex. 1002 ¶ 96). Based on this evidence, we find that Luo teaches this limitation.

Claim 1 further recites that the mobile device's processor is configured to "automatically capture the image of the check when the image of the check is determined to align with the alignment guide." Petitioner (Pet. 53–54) cites to Luo's description that "when the straight edge 205 displayed on the preview window 125 is substantially parallel to the corresponding reference line 135, the system 100 can automatically capture the selected image and provide the user with or without instructions." Ex. 1004, 6. Based on this evidence, we find that Luo teaches this limitation.

Claim 1 further recites that the mobile device's processor is configured to "transmit the captured image of the check from the camera to a depository via a communication pathway between the mobile device and the depository." Here, Petitioner relies on Acharya's description of RCT 100 forwarding a digital image of a financial instrument to BOFD system 110 via communication link 120, as shown in Figure 1 (reproduced above). Pet. 54–56 (citing Ex. 1003, 1:59–60, 3:1–3, 3:12–16, 5:53–58; Ex. 1002 ¶¶ 106–108). Based on this evidence, we find that Acharya teaches this limitation.

b) Reasons to Combine Acharya and Luo

As noted above, the parties dispute whether a skilled artisan would have had sufficient reasons to combine the teachings of Acharya and Luo.

Petitioner argues that Luo expressly provides reasons why a skilled artisan would have combined Luo's teachings with Acharya's teachings. Pet. 31–32. For example, Luo explains that it is difficult to capture a high-quality image of a document such as a business card with a hand-held digital camera because it is difficult to get the correct alignment and distance from the camera, resulting in projective distortion, or blurring. *Id.* (citing Ex. 1004, 1). Specifically, Luo states:

> [M]any environments today for using digital cameras are not ideal for capturing high-quality images. For example, a user of a digital camera trying to capture a business card image simply holds the business card in front of the camera lens with one hand, while holding the camera with the other hand when taking pictures. But this makes unideal variable factors such as the distance from the lens to the business card, and the angle of the camera's image plane relative to the front of the business card. Therefore, the image resulted may contain defects such as projective distortion.

Ex. 1004, 1. Patent Owner attempts to limit this disclosure to the situation where a user holds a business card in one hand and operates the camera with the other, and argues that "the situation described in Luo would appear to be avoided entirely by placing the check on a surface in order to capture it," as shown in ImageNet.[9] PO Resp. 50–51; *accord id.* at 27 ("Moreover, as the Board pointed out, the user could simply 'have placed the camera directly above the document to avoid document distortion, as taught by

[9] ImageNet is not asserted by Petitioner in this proceeding. Its relevance is marginal, if at all, and only as an example of another solution in the art.

Nepomniachtchi.'" (quoting Ex. 2108, 53–54))[10], 36 n.8 ("Dr. Mowry did not evaluate whether ImageNet (or any other remote deposit system in the industry) had issues with projective distortion or blur in captured check images." (citing Ex. 2116, 30:1–31:13)), 50 ("Petitioner's expert conceded at deposition that he has no evidence ImageNet could not address issues of blur and projective distortion." (citing Ex. 2116, 30:1–31:13)). We do not view Luo's disclosure as so limited; rather, Luo describes a general problem of projective distortion when trying to capture an image of document with a movable hand-held camera that must be aligned manually with the document. We find that a person of ordinary skill would have understood that Luo's solution would be beneficial to a user whether the user places the document on a table before capture or holds the document in his or her hand during capture. *See* Ex. 1002 ¶ 63.

As Petitioner observes, Luo solves the problem of projective distortion with a system that uses reference lines in the image preview window to help the user line up the document and automatically captures an image when the document is lined up correctly with the reference lines. Pet. 31–32 (citing Ex. 1004, 5). For example, Luo explains:

> The present invention ensures that the front of the object being imaged is substantially parallel to the image plane 320 of the camera system 100 to reduce the projective distortion of the image. For example, when the system 100 is in the document capture mode, the system 100 provides the user with an image of a captured object, such as a business card, only when the straight edge 205 of the business card is substantially parallel to

[10] The findings of the Wells Fargo IPR panel on Nepomniachtchi's disclosure of placement of the camera is of marginal, if any, relevance to this proceeding, as Acharya, the reference Petitioner relies on, includes no such description.

> the corresponding reference line 135 displayed in the preview window 125.

Ex. 1004, 5. Referring to its Figure 5, Luo continues:

> For the purpose of illustration, the image plane 320 of the business card shown is tilted in relative to system 100 so that the top straight edge 205 of the card cannot be substantially parallel to the corresponding top reference line 135. In such positioning, when the system 100 operates in the document capture mode as described above, the system 100 displays that the object plane 310 and the image plane 320 are not substantially parallel, so the final business card image cannot be captured. As is well known in the art, image edge detection techniques can be used to reliably calculate the angle between a specific reference line 135 and the corresponding straight edge 205 in the document preview image.

Id. Thus, we find that Luo describes a technique of comparing edges of a document to guidelines to help a user line up the camera with the document, resulting in an image with less projective distortion, or blurring.

According to Petitioner, Luo explains that, due to its solution, it is easier and more accurate to use optical character recognition to capture text from the higher-quality image. Pet. 31–32 (citing Ex. 1004, 7). Lou's express description supports this argument:

> [T]he camera system 100 can be used to capture only precise, clear text data images, which can be downloaded to another location before any optical character recognition is performed.
>
> . . . Therefore, the present invention helps users to accurately and reliably capture an image of the front of an object, where the object plane 310 is substantially parallel to the image plane 320. Therefore, the projective distortion in the image is reduced, and the image is clearer and more accurate. With reduced projective distortion, it is more likely to perform an accelerated image capture process, such as an optical character recognition process performed on a text image, with high accuracy.

Ex. 1004, 7. Petitioner argues that this would have been applicable to Acharya, which describes converting machine printed characters on a digital image of a check using optical character recognition software. Pet. 31 (citing Ex. 1003, 4:67–5:2 ("For example, optical character recognition software may be used in conjunction with the DIS or the digital camera to convert machine printed characters on the financial instrument or the digital image of the financial instrument to electronic text.")).

Dr. Mowry testifies that, "[g]iven these difficulties in using handheld devices to capture suitable images, a person of ordinary skill in the art would have been motivated to implement Acharya using the reference lines and capture techniques described in Luo in order to achieve a high likelihood of obtaining images that were suitable for image processing." Ex. 1002 ¶ 63. According to Dr. Mowry, Luo's solution is "directly applicable to capturing check images to predictably increase the likelihood of obtaining images that are suitable for" optical character recognition. *Id.* Dr. Mowry's testimony is consistent with the express disclosures in Acharya and Luo and, therefore, is credible.

Acharya expressly identifies technology that it uses to capture information from documents, namely optical character recognition, and Luo expressly describes a technique designed to reduce projective distortion when capturing an image of a document, such that optical character recognition can be performed more accurately. Dr. Creusere admitted on cross-examination that "correcting geometric distortion will make it easier to perform automatic text recognition." Ex. 1037, 89:1–2. Petitioner contends that its proposed combination would have amounted to applying a known technique to a known device ready for improvement to yield predictable results. Pet. 32–34; *see also KSR Int'l Co. v. Teleflex Inc.*, 550 U.S. 398,

417 (2007) ("[I]f a technique has been used to improve one device, and a person of ordinary skill in the art would recognize that it would improve similar devices in the same way, using the technique is obvious unless its actual application is beyond his or her skill."); Ex. 1002 ¶ 64 ("Implementing Acharya's RCT using Luo's camera system would have simply involved applying a technique that was known to a device that was known and ready for improvement, to yield predictable results."). We agree. This appears to be a textbook example of using a technique that improved one device to improve a similar device in the same way. As we preliminarily observed in the Institution Decision (Dec. 54), a combination of Acharya and Luo would have been no more than "[t]he combination of familiar elements according to known methods" and, thus, likely obvious because it "does no more than yield predictable results." *KSR*, 550 U.S. at 416.

Petitioner argues, and Dr. Mowry testifies, that a skilled artisan would have had a reasonable expectation of success, as Luo itself explains that the software that would implement the invention would be easy to produce for a generic processor, which Acharya also employs. Pet. 34 (citing Ex. 1003, 4:63–65; Ex. 1004, 8; Ex. 1002 ¶ 66). Other similarities Petitioner and Dr. Mowry note that would lead to a reasonable expectation of success include that both Acharya and Luo describe their respective inventions as implemented on the same types of handheld devices, and the documents on which both operate have straight edges and are subject to optical character recognition. *Id.* at 35 (citing Ex. 1003, 1:21–22, 4:18–20, 4:37; Ex. 1004, 1, 4, 6; Ex. 1002 ¶¶ 67–68). We credit Dr. Mowry's testimony, which is consistent with the disclosures of Acharya and Luo on this point, and find

that a skilled artisan would have had a reasonable expectation of success in combining the teachings of Acharya and Luo. Ex. 1002 ¶¶ 66–68.

Petitioner's evidence of obviousness is particularly strong and straightforward.

Nevertheless, Patent Owner offers arguments and evidence in response. Patent Owner groups its arguments into four categories:

> (1) Petitioner's own asserted references—Acharya, Nepomniachtchi, and ImageNet[11]—show that the established method of remote check deposit in the art was to have the customer manually capture or otherwise obtain check images and provide the images and/or check data to the bank for processing.
>
> (2) The alleged "problem" with digital camera imaging described in Luo—misalignment/distortion caused by incorrect positioning of the camera relative to the document—was already accounted for by pre-capture instructions and deposit processing algorithms employed in the art.
>
> (3) A [person of ordinary skill in the art] would have expected Luo's single-criterion automatic capture technique to be less effective and undesirably burdensome on the mobile processor.
>
> (4) Luo teaches that its alignment guide technique can be applied with both a manual capture implementation and an auto-capture implementation. Petitioner's expert has conceded that there is no evidence that the auto-capture implementation has any benefit over the manual capture implementation.

PO Resp. 1–2; *accord id.* at 32–59.

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[11] Neither Nepomniachtchi nor ImageNet is asserted by Petitioner in this proceeding. Their relevance is marginal, if at all, and only as examples of other solutions in the art.

As to the first category of arguments, Patent Owner contends that each of Acharya and Nepomniachtchi teach remote check deposit methods that employ "a 'manual capture' approach where the customer captures check images using a camera and uploads those images and/or other check data to a bank system for deposit processing." *Id.* at 39 (citing Ex. 1003, 3:12–15; Ex. 2105 ¶ 78; Ex. 1014, 37–39); *see also id.* at 34 ("Nepomniachtchi teaches obtaining images suitable for check deposit processing specifically and based on a manually captured image by the user, i.e., without using reference lines or automatic capture." (citing Ex. 2105 ¶¶ 62–78)). Patent Owner argues that these manual-capture methods "all leave the decision of when to capture the image in the hands of the customer despite recognizing the possibility of image quality issues in captured images, including the same types of distortions described in Luo." *Id.* at 39 (citing Ex. 2105 ¶¶ 58, 70). According to Patent Owner, "Petitioner has presented no evidence that this established method of remote check deposit in the art was perceived as inadequate for addressing projective distortion or blur," and, instead, that Petitioner presented evidence that ImageNet was commercially successful in manually capturing mobile check data. *Id.* at 36 (citing Pet. 8–10); *see also id.* at 37 ("Petitioner's expert was asked if he had any actual evidence that the solutions for blur and projective distortion addressed in Nepomniachtchi were any less effective than Luo. He conceded he had none." (citing Ex. 2116, 19:14–20:2, 21:19–22)).

As to Acharya, Petitioner argues that it is agnostic as to whether images are captured manually or automatically. Reply 9–10. Patent Owner's citation to Acharya (Ex. 1003, 3:12–15) does not support its contention that Acharya employs a manual capture approach and, instead, merely states that "the banking customer captures the digital image of the

financial instrument by the scanner or the digital camera and prepares a file storing the digital image." As Petitioner points out (Reply 10), Dr. Creusere has admitted that Acharya does not state whether images are captured manually or automatically. Ex. 1037, 120:8–20. Thus, Acharya's teachings do not support Patent Owner's argument that manual capture was the established and preferred method for remote check deposit.

As to Patent Owner's argument that Nepomniachtchi and ImageNet show that manual capture was the preferred method for remote check deposit (PO Resp. 39, 42–43 (citing Ex. 2105 ¶¶ 58, 70, 78; Ex. 1014, 37–39; Ex. 2112)), simply pointing to examples of art using manual capture does not show that manual capture was established and preferred over automatic capture, or suggest that a skilled artisan would not have pursued other solutions. *Cf. In re Fulton*, 391 F.3d 1195, 1201 (Fed. Cir. 2004) ("The prior art's mere disclosure of more than one alternative does not constitute a teaching away from any of these alternatives because such disclosure does not criticize, discredit, or otherwise discourage the solution claimed in the '198 application. . . . Accordingly, mere disclosure of alternative designs does not teach away."). Patent Owner points to nothing in Nepomniachtchi or ImageNet that criticized, discredited, or would have discouraged automatic capture of check images.

Patent Owner also argues that Acharya teaches other ways in which a customer can deposit a check that do not include image capture, such as the customer receiving a digital image of a check from the payer or the customer entering data into the system using a keypad or keyboard. PO Resp. 40–41 (citing Ex. 1003, 2:63–66, 3:20–21, 7:5–7, 7:14–19, 7:30–33, 7:47–52). From these examples, Patent Owner concludes that "Acharya's multitude of options for providing images and/or check data to the bank system indicate

that the quality of the check image is not of particular importance in Acharya's system." *Id.* at 41 (citing Ex. 2115 ¶ 31). Although Patent Owner cites Dr. Creusere's testimony, that testimony does not support Patent Owner's argument. Nor does any of the other evidence Patent Owner cites. Acharya's description of multiple ways of capturing check data does not lead to a conclusion that the quality of a check image is unimportant in Acharya's system.

Patent Owner also argues that "Petitioner's expert concedes that there is no statement in Acharya that it has any issues with projective distortion or blur." PO Resp. 42 (citing Ex. 2116, 33:16–24); *see also id.* at 36 n.8 ("Dr. Mowry . . . testified that Acharya did not identify any problems with projective distortion or blur in its existing manual capture implementation." (citing Ex. 2116, 33:16–24)); Sur-reply 4 ("Acharya does not disclose that its optical character recognition system suffers from projective distortion problems. And any missing information can be typed in by the user." (citing Ex. 1003, 7:36–41)). Patent Owner does not cite any authority for its implicit argument that a reference must expressly state a problem before it can be ready for improvement. Indeed, the Supreme Court has rejected such a "rigid approach" of requiring a teaching, suggestion, or motivation to combine to be expressed in a reference, in favor of "an expansive and flexible approach" to evaluating obviousness. *KSR*, 550 U.S. at 415. In any case, Luo expressly states that its technique reduces projective distortion and improves optical character recognition. Ex. 1004, 7. Dr. Mowry testifies that a skilled artisan would have recognized that Luo's solution could be used to improve check processing, as in Acharya's system, in the same manner. Ex. 1002 ¶ 63; *see also KSR*, 550 U.S. at 417 ("[I]f a technique has been used to improve one device, and a person of ordinary skill in the art

would recognize that it would improve similar devices in the same way, using the technique is obvious unless its actual application is beyond his or her skill."). Dr. Mowry's testimony is consistent with the teachings of the prior art and we credit this testimony.

Patent Owner's second category of arguments is that "The 'Problem' Supposedly Motivating a [Person of Ordinary Skill in the Art] To Combine Acharya/Luo Was Already Addressed by Deposit Processing In The Art." PO Resp. 43–51. According to Patent Owner, "a [person of ordinary skill in the art] considered 'projective distortion' a solved problem in view of references like Nepomniachtchi teaching post-capture distortion correction." Sur-reply 5–6.

Patent Owner argues that, "to the extent that some check images captured in Acharya's system may be inadequate for optical character recognition, Acharya's system already provides a solution to that problem as part of its deposit processing step," namely by supplementing optical character recognition with the user manually entering missing data. PO Resp. 44 (citing Ex. 1003, 8:16–25). According to Patent Owner, "[t]he petition does not argue that a [person of ordinary skill in the art] would have been motivated to eliminate this step of Acharya's process." *Id.* This argument is not persuasive for several reasons. It was not incumbent on Petitioner to assert that a skilled artisan would have removed one solution to make room for another, although the benefits of elimination of manual entry would have been self-evident and a matter of common sense. *See Perfect Web Techs., Inc. v. InfoUSA, Inc.*, 587 F.3d 1324, 1329 (Fed. Cir. 2009) ("[W]hile an analysis of obviousness always depends on evidence that supports the required *Graham* factual findings, it also may include recourse to logic, judgment, and common sense available to the person of ordinary

skill that do not necessarily require explication in any reference or expert opinion."); *KSR*, 550 U.S. at 421 ("When there is a design need or market pressure to solve a problem and there are a finite number of identified, predictable solutions, a person of ordinary skill has good reason to pursue the known options within his or her technical grasp. If this leads to the anticipated success, it is likely the product not of innovation but of ordinary skill and common sense.").

Moreover, Patent Owner does not cite any authority for the proposition that, simply because a prior art reference describes one solution to a known problem, a skilled artisan would not have considered other solutions to that same problem. *Cf. Fulton*, 391 F.3d at 1201 (Fed. Cir. 2004). The Federal Circuit has explained that:

> a given course of action often has simultaneous advantages and disadvantages, and this does not necessarily obviate motivation to combine. *See* [*Winner Int'l Royalty Corp. v. Wang*, 202 F.3d 1340, 1349 n.8 (Fed. Cir. 2000)] ("The fact that the motivating benefit comes at the expense of another benefit, however, should not nullify its use as a basis to modify the disclosure of one reference with the teachings of another. Instead, the benefits, both lost and gained, should be weighed against one another."). Where the prior art contains "apparently conflicting" teachings (i.e., where some references teach the combination and others teach away from it) each reference must be considered "for its power to suggest solutions to an artisan of ordinary skill. . . . consider[ing] the degree to which one reference might accurately discredit another."

Medichem, S.A. v. Rolabo, S.L., 437 F.3d 1157, 1165 (2006) (quoting *In re Young*, 927 F.2d 588, 591 (Fed. Cir. 1991) (alterations by Federal Circuit)).

In this case, Patent Owner's argument actually supports Petitioner's position. As noted above, Patent Owner argues that Acharya itself does not identify projective distortion as a problem. PO Resp. 42. However, as

Patent Owner points out, Acharya describes manual entry of data to correct data not captured sufficiently by optical character recognition. *Id.* at 44. Thus, although Acharya does not expressly use the terms "projective distortion" or "blur," it recognizes that its image capture technique might be insufficient for optical character recognition and, thus, was ready for improvement. As Petitioner demonstrates above, techniques such as those taught by Luo would provide such an improvement. *See KSR*, 550 U.S. at 419–20 ("One of the ways in which a patent's subject matter can be proved obvious is by noting that there existed at the time of invention a known problem for which there was an obvious solution encompassed by the patent's claims.").

Patent Owner also argues that Nepomniachtchi[12] recognized the problem caused by projective distortion and described fixing such distortions at the server receiving the image of a check (rather than at the device capturing the image of the check). PO Resp. 45–47. Patent Owner contends that "Nepomniachtchi's technique for correcting projective distortion in captured check images is equally applicable to Acharya's embodiments, whether processing occurs on the mobile device or at the server." Sur-reply 6–7. According to Patent Owner,

> to the extent a [person of ordinary skill in the art] was concerned that images captured via digital camera may contain the distortion taught by Luo, he or she would have understood that type of defect to be addressed by server-side processing (which Acharya is already performing on received check images) and would not see a need to make drastic changes to the image capture process on the customer device.

[12] As noted above, Nepomniachtchi is not asserted by Petitioner in this proceeding and is of marginal relevance.

PO Resp. at 46 (citing Ex. 2115 ¶¶ 33–34);[13] *see also id.* at 11 ("Nepomniachtchi teaches that these image quality issues can be addressed through post-capture processing so that the document can be processed and data extracted successfully."), 26 ("[T]he Board determined that 'Nepomniachtchi as a whole already provides a solution that addresses image distortions.'" (quoting Ex. 2108, 53))[14]; Sur-reply 3 ("[T]here is no competent evidence that a [person of ordinary skill in the art] would look to implement Luo's alignment guide-based autocapture for business cards in Acharya in an attempt to solve the same 'projective distortion' problem as the check-deposit specific reference Nepomniachtchi."). Patent Owner argues further that another reference, Blackson,[15] also teaches techniques for correcting check images at the server receiving the images (rather than at the device capturing the images). PO Resp. 47–48.

Patent Owner argues that "[t]hese references [which we presume are Nepomniachtchi and Blackson] show that the preferred approach to dealing with perspective distortion/misalignment issues in check deposit systems, at the time of the invention, was ***post-capture*** image correction." *Id.* at 49; *see*

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[13] Dr. Creusere cites Exhibit 1003, 7:14–33 and 8:16–9:10 for his conclusion that Acharya teaches server-side check processing that included image correction algorithms. Ex. 2115 ¶ 33. Acharya does not support this testimony, and instead, to the extent Acharya teaches where checks are processed to obtain data, it suggests that check processing happens on the device capturing the image. Ex. 1003, 7:14–33. Dr. Cruesere's testimony on this point lacks credibility and is entitled to no weight. *See* 37 C.F.R. 42.65(a).

[14] The findings of the Wells Fargo IPR panel on Nepomniachtchi's disclosure of correcting for projective distortion at the server is of marginal, if any, relevance to this proceeding, as Acharya includes no such description.

[15] Blackson is not asserted by Petitioner in this proceeding.

also Sur-reply 4 ("[T]he evidence of record is that the motivation would be to use Nepomniachtchi's projective distortion techniques because they are especially directed at remote deposit of checks using mobile devices."). Patent Owner argues that Blackson describes Luo's approach, requiring precise alignment, as inferior. PO Resp. 49 (citing Ex. 2113, 2:61–67).

Patent Owner's arguments are misplaced. These arguments largely depend on the teachings of Nepomniachtchi, which Petitioner does not rely on and which has only marginal relevance to this proceeding. Nepomniachtchi might teach techniques to correct for projective distortion at a server that receives an image of a check. But Patent Owner points to no persuasive evidence that Acharya includes that disclosure. Patent Owner's statement that "the preferred approach to dealing with perspective distortion/misalignment issues in check deposit systems, at the time of the invention, was ***post-capture*** image correction," PO Resp. 49, is mere attorney argument unsupported by persuasive evidence. We do not find that post-capture image correction was the preferred approach, that post-capture image correction was preferred to preventing distortion at the time of image capture, or that these two techniques would have been mutually exclusive. But even if post-capture image correction were the preferred approach, that would not undermine Petitioner's contentions. *See PAR Pharm., Inc. v. TWI Pharms., Inc.*, 773 F.3d 1186, 1197–98 (Fed. Cir. 2014) ("Our precedent, however, does not require that the motivation be the best option, only that it be a suitable option from which the prior art did not teach away."); *In re Mouttet*, 686 F.3d 1322, 1334 (Fed. Cir. 2012) ("This court has further explained that just because better alternatives exist in the prior art does not mean that an inferior combination is inapt for obviousness purposes." (citing *In re Gurley*, 27 F.3d 551, 553 (Fed. Cir. 1994))); *Fulton*, 391 F.3d at 1200

("[O]ur case law does not require that a particular combination must be the preferred, or the most desirable, combination described in the prior art in order to provide motivation for the current invention."); *see also Mouttet*, 686 F.3d at 1331 ("A reference may be read for all that it teaches, including uses beyond its primary purpose.").

As to Blackson, Petitioner argues that it is inapposite, as it describes image capture on ATM hardware, rather than mobile devices. Reply 7 (citing Ex. 2108, 2:65–3:9). We agree with Petitioner. Blackson states that automated banking machines (which we understand to be synonymous with ATMs) have drawbacks in that checks often must be precisely aligned for reading magnetic ink coding (MICR) on the checks. Ex. 2113, 2:60–3:1. One aspect of Blackson's solution is an improved transport system and aligning device for better positioning checks. *Id.* at 5:14–39. Patent Owner does not persuasively explain the relevance of Blackson, which is not asserted by Petitioner, to check image capture using mobile devices.

Patent Owner further argues that Nepomniachtchi also teaches pre-manual capture techniques for avoiding projective distortion and blur, such as prompting the user to take another picture if the first is blurry. PO Resp. 47 (citing Ex. 2105 ¶¶ 61, 62, 73, 85; Ex. 2108 ¶ 53); *see also id.* at 12 ("Nepomniachtchi also teaches that the mobile device has the 'ability to identify poor quality images' and 'if the quality of the image is determined to be poor, a user may be prompted to take another image.'" (quoting Ex. 2105 ¶ 62)), 36 ("[T]he Board previously found that this manual capture approach (as reflected in Nepomniachtchi) 'already provides a solution that addresses image distortions,' including '(1) utilizing the user's judgment (e.g., placing the camera directly above the document, rather than at an angle, to avoid image distortion) for the pre-capturing analysis and

'(2) performing the image quality analysis on the mobile device to quickly determine whether the image can be accepted, needs correction, or needs retaking while the user is still physically close to the document and before starting another task.'" (quoting Ex. 2108, 53)). Patent Owner argues that "Dr. Mowry could not identify any evidence suggesting that images captured by customers using Nepomniachtchi or ImageNet could not be processed successfully for deposit. Dr. Mowry also could not identify any evidence suggesting that the projective distortion solution employed by Nepomniachtchi did not work." PO Resp. 13 (citing Ex. 2116, 19:14–20:2, 21:19–22)).

Although Patent Owner does not expressly argue that that Nepomniachtchi's and ImageNet's teachings of pre-manual capture and post-capture processing solutions teaches away from a combination of Acharya and Luo, Patent Owner appears to argue that a skilled artisan would have been dissuaded from pursuing that combination because of the solutions provided by Nepomniachtchi and ImageNet. Once again, "mere disclosure of alternative designs does not teach away." *Fulton*, 391 F.3d at 1201. We see no persuasive evidence supporting such a contention or that Nepomniachtchi's and ImageNet's teachings, if applied by Petitioner, would have been incompatible with a combination of Acharya and Luo. Indeed, Patent Owner does not point to any statements in Nepomniachtchi, Blackson, Yoon, or ImageNet (references not relied upon by Petitioner) that would discourage a user from combining Acharya and Luo, or lead a skilled artisan in a direction divergent from that combination.

To be clear, it might be that a skilled artisan would have had reasons to combine Nepomniachtchi's server-side or pre-manual capture solutions with the teachings of Acharya, although that is not a combination Petitioner

is asking us to evaluate.[16] In any case, the fact that other solutions to projective distortion exist does not suggest that Luo's solution would have been inapplicable to Acharya. As we explain above, Petitioner presents strong evidence that it would have been. Pet. 33–36.

As to Patent Owner's third category of arguments, Patent Owner argues that a skilled artisan "would have been discouraged from incorporating Luo's technique into Acharya given the significant associated drawbacks." PO Resp. 53. This is a more explicit argument by Patent Owner that the prior art teaches away from Petitioner's proposed combination. According to the Federal Circuit:

> A reference may be said to teach away when a person of ordinary skill, upon reading the reference, would be discouraged from following the path set out in the reference, or would be led in a direction divergent from the path that was taken by the applicant. The degree of teaching away will of course depend on the particular facts; in general, a reference will teach away if it suggests that the line of development flowing from the reference's disclosure is unlikely to be productive of the result sought by the applicant.

Gurley, 27 F.3d at 553.

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[16] The findings of the Wells Fargo IPR panel relating to the features of Nepomniachtchi and Yoon and the solutions they provide for minimizing projective distortion (Ex. 2108, 45–69) are based on the particular facts of that proceeding, including the express teachings of those references, not present in the references advanced by Petitioner in this proceeding, and the particular arguments made by the petitioner in that proceeding. Thus, they are of little, if any, relevance to this proceeding. Patent Owner argues that Dr. Mowry admitted that Nepomniachtchi is directed to the same problem as Acharya and that Nepomniachtchi's methods of addressing projective distortion would be relevant to Acharya. PO Resp. 16–17 (citing Ex. 2116, 35:1–9, 124:12–23). That is not an admission that the particular features of Nepomniachtchi cited by Patent Owner are taught in or implicitly a part of Acharya.

First, Patent Owner argues that incorporating Luo's technique into Acharya's system would have imposed "additional processing overhead and complexity on the customer's device as compared to the existing manual capture system" and that "[t]his type of processing, especially when done in real-time, was considered computationally-intensive in 2009." PO Resp. 53 (citing Ex. 2115 ¶ 35). The only evidence Patent Owner offers to support this assertion is the testimony of its expert, who largely copies Patent Owner's argument and does not identify the basis for the testimony. As such, the testimony is entitled to little weight. *See* 37 C.F.R. § 42.65(a) ("Expert testimony that does not disclose the underlying facts or data on which the opinion is based is entitled to little or no weight."); *see also Velander v. Garner*, 348 F.3d 1359, 1371 (Fed. Cir. 2003) ("It is within the discretion of the trier of fact to give each item of evidence such weight as it feels appropriate."); *Ashland Oil, Inc. v. Delta Resins & Refractories, Inc.*, 776 F.2d 281, 294 (Fed. Cir. 1985) ("Lack of factual support for expert opinion going to factual determinations, however, may render the testimony of little probative value in a validity determination."). We note that Luo describes its technique as implemented on conventional computing equipment on portable devices available prior to 2009 without mention of concerns over processing overhead. Ex. 1004, 8. Patent Owner's evidence is insufficient to establish that concerns over processing overhead would have dissuaded a skilled artisan from pursuing a combination of Acharya and Luo.

Patent Owner argues that the Board, in the Wells Fargo IPR, determined that implementing pre-capture monitoring and auto-capturing features on a mobile device would impose additional computational burdens on that mobile device. PO Resp. 25–26 (citing Ex. 2108, 29, 37–38). Patent

Owner argues that Petitioner ignores this finding. *Id.* at 26. Patent Owner overstates the Board's findings in the Wells Fargo IPR and their relevance to this proceeding.

In the Wells Fargo IPR, a Board panel determined that the petitioner in that proceeding did not provide a persuasive reason to combine the teachings of Nepomniachtchi and Yoon. Ex. 2108, 27–28. In that case, the petitioner argued that "one of ordinary skill in the art would have been motivated to combine Nepomniachtchi and Yoon to: (1) reduce the computational burden." Ex. 2108, 28. The petitioner in that proceeding argued that Nepomniachtchi's algorithm to correct skew (which was performed on the server) was computationally intensive, and that improving the user's ability to capture the image without skew would have minimized the need to use this algorithm and, accordingly, would have reduced the burden of computations performed by *the mobile device*. *Id.* Against this backdrop, the Wells Fargo IPR panel determined that adding pre-capture monitoring and auto-capturing features on Nepomniachtchi's mobile device (per the teachings of Yoon) would not have decreased computational burden *on the mobile device*, because Nepomniachtchi teaches correcting skew at the server, not the mobile device. *Id.* at 29. Instead, the Board panel accepted Patent Owner's argument that adding such features to Nepomniachtchi's mobile device would increase the computational burden at the mobile device. *Id.* Thus, the Board panel determined that Patent Owner's evidence undermined the petitioner's assertion (not made by Petitioner in this proceeding) that Yoon's teaching would reduce the computation burden at the mobile device:

> Significantly, Petitioner's argument rests on the premise that "the combination lowers the burden of the correction step" so

> that it would reduce the burden of the computation performed by the mobile device. Nepomniachtchi, however, teaches using the server to perform the correction step in its preferred embodiment. Notably, Nepomniachtchi teaches that "the server may clean up the image by performing auto-rotate, de-skew, perspective distortion correction, cropping, etc." and that "a server based implementation might be employed to off-load processing demands from the mobile device." Any reduction in the correction processing would result in an efficiency gain at the server, not the mobile device. Therefore, Petitioner does not explain sufficiently how adding Yoon's monitoring and capturing features on the mobile device would reduce the computation burden on the mobile device.

Id. at 30–31 (internal citations omitted). The Board panel further determined that Nepomniachtchi's skew-correction algorithm was computationally intensive because the petitioner's expert admitted as much, and reasoned that "a relevant artisan would have used the *server* to perform [Nepomniachtchi's] correction processing, instead of the mobile device, in order to avoid excessive burden on the mobile device, slower response times, and user dissatisfaction." *Id.* at 33. Thus, the Wells Fargo IPR panel found that Patent Owner's evidence undermined the petitioner's argument on the particular facts of that proceeding, including the particular technical features of prior art references not asserted here. We do not understand the Wells Fargo IPR panel to have made general findings of teachings away that would be applicable to prior art references not asserted in that proceeding. As such, the Wells Fargo IPR panel's findings are of marginal relevance here.

Second, Patent Owner argues that "alignment of the document relative to the camera is only one of many factors that impact the quality of a captured image, particularly when capturing an image of a check for deposit processing," and that adding Luo's automatic capture to Acharya's system

would have ignored those other factors, resulting in images not sufficient for deposit. PO Resp. 54–55; Sur-reply 17 ("[T]here is no dispute that the automatic capture technique taught by Luo triggers capture of an image based solely on whether the edges of the document line up with the reference lines displayed on the screen. As Dr. Creusere explains, a [person of ordinary skill in the art] would have been discouraged from using this technique for check image capture because there are a multitude of factors that impact whether a captured check image can be successfully processed for deposit, many of which have nothing to do with alignment or 'projective distortion' that Luo purportedly corrects." (citing Ex. 2115 ¶¶ 27, 28, 36)). According to Patent Owner, Luo's approach has "two drawbacks":

> (1) Luo's system will automatically capture images when the reference lines are aligned, even if the image is insufficient for deposit for other reasons not analyzed by Luo; and (2) Luo's system will <u>not</u> capture images when the reference lines are <u>not</u> aligned, even if the overall image is sufficient for deposit.

PO Resp. 55. Patent Owner argues that the first alleged drawback "results in an increase in the number of deposit errors" and the second "results in user frustration." *Id.* (citing Ex. 2115 ¶ 36). Patent Owner further argues that

> a [person of ordinary skill in the art] would have expected Luo's single-criterion automatic capture technique to be less effective and undesirably burden[some] to the mobile processor implement[ation] in comparison to [the] existing manual capture technique employed by Acharya and [Nepomniachtchi], and ImageNet, and would have been discouraged from making the combination, particularly in view of the limited and uncertain benefits of doing so described above.

Id. at 38.

In support of this argument, Dr. Creusere testifies that, in Petitioner's combination of Acharya and Luo, the camera "would automatically capture

a check image when the reference lines are substantially aligned with the edges of the check, regardless of the quality of the image with respect to other factors such as brightness, contrast, focus, background, legibility of critical information such as the MICR line, and so forth." Ex. 2115 ¶ 36 (citing Ex. 2105 ¶¶ 58–62). On the other hand, Dr. Creusere testifies, "the Acharya/Luo combination would also only capture images when the reference lines are at least substantially aligned with the edges of the check, even if the overall image was suitable for deposit." *Id.* According to Dr. Creusere, "[b]oth of these concerns would discourage a person of ordinary skill in the art from making the combination in the first place, particularly given the alternatives available in the art." *Id.* Dr. Creusere does not identify the basis for his testimony that an Acharya/Luo combination would ignore other image quality factors that he states a skilled artisan would have considered "critical." Thus, we assign little weight to this testimony. It also is inconsistent with Luo, which states that its "camera system 100 can be used to capture only precise, clear text data images, which can be downloaded to another location before any optical character recognition is performed," and that

> the present invention helps users to accurately and reliably capture an image of the front of an object, where the object plane 310 is substantially parallel to the image plane 320. Therefore, the projective distortion in the image is reduced, and the image is clearer and more accurate. With reduced projective distortion, it is more likely to perform an accelerated image capture process, such as an optical character recognition process performed on a text image, with high accuracy.

Ex. 1004, 7. Thus, Luo itself states that its image capture technique would have been sufficient to capture images of high image quality, which suggests that it would have been able to capture images of checks suitable for deposit.

Petitioner responds that Patent Owner's argument that the combination would replace manual capture with autocapture is misplaced because Acharya does not describe how it captures check images. Reply 9–10. As explained above, we agree. Petitioner also argues that, even if using autocapture, a skilled artisan would still apply judgement and knowledge in obtaining check images. *Id*. at 10–11. Petitioner points to Dr. Creusere, who testified on cross-examination that a skilled artisan would have understood that an image needs to have a sufficient light brightness and could manually adjust the position of a digital camera to achieve sufficient brightness, and that it was general logic and common sense that someone would want an acquired image to be in focus. Ex. 1037, 61:14–62:5, 67:3–7. Thus, a skilled artisan would have recognized that a user of the mobile device of Acharya and Luo would still have taken steps to ensure a high quality image, even with automatic capture.

Petitioner also introduces evidence, including testimony from Dr. Mowry, that camera phones in 2008 had features such as autofocus and automatic exposure controls. Reply 11–12; Ex. 1036 ¶¶ 28–34 (citing Exs. 1053–1055). Dr. Cruesere admitted as much. Ex. 1037, 67:13–21, 68:1–6. As noted above, a skilled artisan would have been an experienced engineer. We credit Dr. Mowry's testimony that Luo's autocapture feature would have been used with such admittedly known techniques. Ex. 1036 ¶¶ 28–34; Reply 11–12; *see also KSR*, 550 U.S. at 421 ("A person of ordinary skill is also a person of ordinary creativity, not an automaton."). Thus, we disagree with Patent Owner's argument that a skilled artisan would have been dissuaded from combining Acharya and Luo.

Patent Owner argues that the Wells Fargo IPR panel concluded that, in a combination of Nepomniachtchi and Yoon (once again, references not

asserted in this proceeding), the system would automatically capture an image as soon as the borders of the check aligned with the alignment guide, even if it the image was not suitable for capture. PO Resp. 55 (citing Ex. 2108, 59); *see also id.* at 29 ("[T]he Board agreed that there would be drawbacks to the proposed combination [of Nepomniachtchi and Yoon] given that it would 'automatically capture the image as soon as the borders of the check image aligned with the rectangular alignment guide, whether or not the image was suitable in other respects.' The same criticism would apply to the proposed combination with Luo." (quoting Ex. 2108, 59)), 29–30 ("The Board agreed with Patent Owner that a [person of ordinary skill in the art] 'would have no reason to expect that a system evaluating only alignment and/or brightness prior to capture would automatically capture check images that were suitable for deposit processing based on all of the criteria identified in Nepomniachtchi' and that 'replacing a user's judgment that is based on numerous factors, with an auto-capture system based solely on alignment, would not minimize the need for retaking the images, but would instead introduce additional errors,' such as capturing images when the check is 'upside down' or does not have 'MICR information [] in the correct location' or has inadequate 'resolution or focus.'" (quoting Ex. 2108, 61)). The Wells Fargo IPR panel based its findings on admissions by the petitioner in that case that combining Nepomniachtchi and Yoon would replace the user's judgment about whether the image was aligned. Ex. 2108, 58. The Wells Fargo IPR panel also relied on admissions from the expert witness for the petitioner in that proceeding regarding Yoon, a reference not asserted in this proceeding. *Id.* at 60–61. Thus, the Wells Fargo IPR panel made its findings and conclusions based on the particular record of that

proceeding, which considered different prior art and testimony than Petitioner asserts here.

Patent Owner further argues that "Petitioner has stated affirmatively that the prior art lacks the teachings required to determine, by monitoring an image for automatic capture, when the captured image will meet the requirements for deposit." PO Resp. 55–60; *see also* Sur-reply 21. Here, Patent Owner points to Petitioner's Motion for Summary Judgement of Enablement in the Texas case, which Patent Owner opposed, and Petitioner lost. PO Resp. 56 (citing Ex. 2114, 21); Tr. 45:20–47:9. Although the exhibit provided by Patent Owner is heavily redacted, it appears that, in the Texas case, Petitioner argued that the Specification of the '779 patent did not describe additional monitoring criteria to ensure that a check image is in a form suitable for deposit, and the prior art did not include the teachings missing from the '779 patent. Ex. 2114, 21–25. Thus, at most, Petitioner argued that the prior art did not provide more detail than the '779 patent itself. In any case, Patent Owner opposed that motion and Petitioner did not prevail. Thus, any such statements in Petitioner's Motion for Summary Judgement of Enablement are of marginal value here.

For its fourth category of arguments, Patent Owner contends that Luo describes its automatic capture as an alternative approach to manual capture, and that Luo does not state that automatic capture is necessary to reduce projective distortion or blurring. PO Resp. 57 (citing Ex. 1004, 6). According to Patent Owner, "a [person of ordinary skill in the art] reading Luo would expect that the same benefits could be achieved by simply displaying the reference lines on the screen and providing an 'indication' to the user when the lines are substantially parallel to the edges of the document, as described in Luo." *Id.* (citing Ex. 1004, 6–7). Patent Owner

argues that "Petitioner never explains why a [person of ordinary skill in the art] would have been motivated to go beyond the primary embodiment of Luo and add the automatic capture alternative." *Id.*; *see also* Sur-reply 11 ("Petitioner offers no reason why a [person of ordinary skill in the art] would have been motivated to adopt the automatic capture option of Luo if the manual capture embodiment already provided the same benefits."). Patent Owner argues that using Luo's reference lines with manual capture, and without automatic capture, "would . . . provide the stated benefits of Luo, [and] would also avoid the downsides of the combination described above, such as increased errors and user dissatisfaction due to automatically capturing images at the wrong times." PO Resp. 57–58 (citing Ex. 2115 ¶ 35); *see also id.* at 38 ("The Petition provides no explanation as to why, even if a [person of ordinary skill in the art] would be motivated to aid an alignment guide monitored by the processor, it would then choose to add auto-capture, which would strip away human ability to ensure that other criteria that are necessary for a successful deposit are satisfied."). Patent Owner argues that "there must be a factual basis for why a [person of ordinary skill in the art] would strip away human judgment regarding the multiple factors that the Reply acknowledges can result in an image of sufficient quality, and replace it with automatic capture." Sur-reply 11 (citing Ex. 2115 ¶ 35).[17]

[17] Patent Owner also argues that the Wells Fargo IPR panel was not persuaded that a skilled artisan would have been motivated to add Yoon's automatic capture feature to Nepomniachtchi. Sur-reply 10–11 (citing Ex. 2108, 54). The Wells Fargo IPR panel reached its findings and conclusions based on the particular facts of that case, including prior art references not at issue in this proceeding. Thus, they are of marginal, if any, relevance here.

In response, Petitioner argues that, "as Luo makes clear that, once the mobile device determines that the alignment guide monitoring criterion is satisfied, capturing an image using autocapture (instead of manual capture) is merely a choice between the two ways Luo gave to capture an image, both of which are equally suitable." Reply 8 (citing Ex. 1002 ¶ 119).

As we explained above, Acharya does not explain in detail how images of checks are captured (or what role human judgement would play), so Patent Owner does not have a basis to argue that Petitioner's combination would "strip away human judgment" from Acharya's technique. And as we preliminarily observed in the Institution Decision (Dec. 54–55), Luo describes both the reference lines and the automatic capture feature as beneficial to reducing projective distortion. Specifically, "[t]he reference line 135 is used to guide the user of the system 100 to position the image sensor 115 in an appropriate orientation with respect to, for example, a business card object," Ex. 1004, 4, and "when the straight edge 205 displayed on the preview window 125 is substantially parallel to the corresponding reference line 135, the system 100 can automatically capture the selected image and provide the user with or without instructions," *id.* at 6. Luo's reference lines help the user position the camera in an orientation that will result in the camera automatically capturing an image of the document. These features work together to capture an image with reduced projective distortion and the current record suggests that the combined features would have improved Acharya in the same way. Ex. 1002 ¶ 83; *see KSR*, 550 U.S. at 417. Moreover, as explained above, we find that the prior art does not teach away from automatic capture of images.

However, even if the evidence suggested that manual capture had advantages over automatic capture (it does not), "just because better

alternatives exist in the prior art does not mean that an inferior combination is inapt for obviousness purposes." *Mouttet*, 686 F.3d at 1334; *accord Fulton*, 391 F.3d at 1200. Rather, Luo "may be read for all that it teaches, including uses beyond its primary purpose." *Mouttet*, 686 F.3d at 1331. Luo expressly teaches automatic capture used in conjunction with reference lines, and describes the combined solution as one technique to reduce projective distortion in a captured image, resulting in more accurate optical character recognition. Ex. 1004, 6–7. For the reasons given above, we find that this teaching would have been similarly applicable to Acharya's images of checks captured and processed by optical character recognition, and would have improved the optical character recognition in a similar way, resulting in images of checks more likely to be in a form sufficient for deposit. *See KSR*, 550 U.S. at 417.

Patent Owner argues that the combination of Acharya and Luo is a situation in which disadvantages outweigh uncertain benefits. PO Resp. 56 (citing *Henny Penny Corp. v. Frymaster LLC*, 938 F.3d 1324, 1329 (Fed. Cir. 2019)). According to Patent Owner,

> the added complexity and disadvantages of replacing the user's decision to manually capture with an automatic capture triggered by alignment with a guide is insufficient to motivate a [person of ordinary skill in the art] to make the combination where a [person of ordinary skill in the art] knew of other, simpler solutions to the same problem that did not have the same drawbacks.

Sur-reply 15 (citing *Henny Penny*, 938 F.3d at 1329). We disagree. As explained above, the benefits of Luo's alignment guide and automatic capture to document capture, such as in Acharya, are not uncertain and, instead, are straightforward and expressly stated in Luo. Patent Owner's evidence of disadvantages is unpersuasive and rests primarily on its analysis

of prior art references not asserted by Petitioner and of marginal relevance to this proceeding.

In sum, on the complete record, Petitioner has shown that a skilled artisan would have had reasons with rational underpinning to combine the teachings of Acharya and Luo, with a reasonable expectation of success.

c) Claims 2, 7–10, and 15–17

Claim 10 is independent and recites a "non-transitory computer-readable medium comprising instructions for depositing a check," with instructions that track the functional limitations of claim 1. Petitioner cites to Acharya as teaching a computer-readable medium (memory 104) with computer-readable instructions for depositing a check. Pet. 66–69. We agree, and find that Acharya teaches a computer-readable medium with instructions for depositing a check. Patent Owner does not contest this allegation.

As to the remaining limitations of claim 10, Petitioner largely refers to its analysis of claim 1. *Id.* at 69–71. Patent Owner does not argue claim 10 separately. For the reasons given for claim 1, we find that Acharya and Luo teach each limitation of claim 10 and that a skilled artisan would have had reasons, with rational underpinning, to combine the teachings of Acharya and Luo, with a reasonable expectation of success.

Claim 2 depends from claim 1 and adds "wherein the processor is further configured to obtain financial information pertaining to the check from the captured image of the check." Petitioner cites to Acharya's description of using optical character recognition to recognize information such as the MICR line, routing number, and account number from a check.

Pet. 57–58 (citing Ex. 1003, 2:50–56, 4:63–5:6). Based on this evidence, we find that Acharya teaches the additional limitation of claim 2.

Claims 7, 8, and 9 depend from claim 1 and add that the processor is configured to determine that the image of the check aligns with the alignment guide when at least one, two, and three edges, respectively, align with one, two, and three line portions of the alignment guide. Claims 15, 17, and 16 depend from claim 10 and add substantially the same limitations. As Petitioner points out, Figure 5 of Luo shows three reference lines with which the image of a business card can be aligned. Pet. 58–65. Luo states that "those skilled in the art should recognize that different numbers of reference lines 135 may be used according to different embodiments of the present invention, such as two, three, four or more baselines 135." Ex. 1004, 5. Based on this evidence, we find that Luo teaches the additional limitations of claims 7–9 and 15–17.

Patent Owner does not argue claims 2, 7–9, and 15–17 separately.

4. Conclusion of Obviousness

As explained above, the combination of Acharya and Luo teaches each limitation of claims 1, 2, 7–10, and 15–17. Petitioner has introduced persuasive evidence that a skilled artisan would have had reasons to combine the teachings of Acharya and Luo with a reasonable expectation of success. Patent Owner does not argue or introduce evidence of objective indicia of nonobviousness. In sum, upon consideration of all the evidence, we conclude that Petitioner has proved by a preponderance of the evidence that claims 1, 2, 7–10, and 15–17 would have been obvious over Acharya and Luo.

III. PATENT OWNER'S MOTION TO EXCLUDE

A. Exhibits 1053, 1054, and 1055

Patent Owner argues that Exhibits 1053–1055, which it describes as web page printouts of articles from a website called "Mobile Gazette" regarding the "Toshiba Portege G910 / G920," "i-Mate Ultimate 9502," and "Sony Ericsson XPERIA X1," respectively, are hearsay under Federal Rule of Evidence 802 and no hearsay exception applies. Mot. Exclude 1–3.

Petitioner argues that there is no dispute that the exhibits are authentic, the exhibits are probative, and the exhibits were relied upon and cited by Dr. Mowry in his testimony. Opp. Exclude 2–5.

In its Reply, Patent Owner argues that, although "an expert is entitled to rely on inadmissible evidence in reaching his or her opinions, an expert's citation to hearsay does not render the underlying information admissible, nor does relevance substitute for admissibility under the Federal Rules." Reply Exclude 1 (citing *Unified Patents Inc. v. American Patents LLC*, IPR2019-00482, Paper 132, at 53 (PTAB Aug. 3, 2022)).

We are persuaded that Exhibits 1053–1055 are admissible.

First, the exhibits are not hearsay. A statement is hearsay if it is one "the declarant does not make while testifying at the current trial or hearing" and "a party offers in evidence *to prove the truth of the matter asserted* in the statement." Fed. R. Evid. 801(c) (emphasis added).[18] In this case, Exhibits 1053–1055 are not offered to prove the truth of the matter asserted in these prior art articles; instead the exhibits are offered for the fact that their contents were in the prior art and available to those of ordinary skill in

[18] With some exceptions that do not apply here, the Federal Rules of Evidence apply to this proceeding. *See* 37 C.F.R. § 42.62(a), (b).

the art. *See*, *e.g.*, *Joy Techs., Inc. v. Manbeck*, 751 F. Supp. 225, 233 n.2 (D.D.C. 1990), *aff'd*, 959 F.2d 226 (Fed. Cir. 1992) ("A prior art document submitted as a 'printed publication' . . . is offered simply as evidence of what it describes, not for proving the truth of the matters addressed in the document. Therefore, it is not hearsay under Fed.R.Evid. 801(c)."). It does not matter whether the statements in the exhibits are true; what is relevant for our analysis is what was stated in the exhibits during the operative time period. *See Reis Biologicals, Inc. v. Bank of Santa Fe*, 780 F.2d 888, 890 (10th Cir. 1986) (statements offered not for their truth or falsity, but for the fact that they were made, are for a non-hearsay purpose).

Second, even if the exhibits were hearsay, they are still admissible. As an expert, Dr. Mowry may base his opinion "on facts or data in the case that the expert has been made aware of" and such sources "need not be admissible for the opinion to be admitted." Fed. R. Evid. 703. Patent Owner has not filed a motion to exclude Dr. Mowry's testimony based on those exhibits. *See* Mot. Exclude. Thus, Dr. Mowry's testimony relying on Exhibits 1053–1055 has been properly admitted.

An expert relying on evidence is not, by itself, sufficient for the admission of the evidence. Instead, if the evidence is otherwise inadmissible, such as hearsay, the evidence may only be admitted "if their probative value in helping the [fact finder] evaluate the opinion substantially outweighs their prejudicial effect." Fed. R. Evid. 703. On one hand, to the extent we consider the portions of Dr. Mowry's testimony quoting Exhibits 1053–1055, having the underlying exhibits is helpful to judge Dr. Mowry's credibility. On the other hand, Patent Owner has not identified any prejudice associated with the admission of the exhibits. *See* Mot. Exclude. Indeed, whether we admit or exclude the exhibits, the relevant language is

quoted in Dr. Mowry's testimony and in the record, minimizing any potential prejudice. Thus, the probative value of the exhibits that are quoted in admissible testimony substantially outweighs the unidentified prejudice.

Accordingly, Patent Owner's motion to exclude Exhibits 1053–1055 is denied.

B. Exhibit 1056

Patent Owner argues that Exhibit 1056 contains "excerpts of an expert report of Dr. Omid Kia, served by Petitioner in [the Texas case]." Mot. Exclude 3. Patent Owner argues that Exhibit 1056 is irrelevant under Federal Rules of Evidence 401 and 402 because it is not cited in a brief. *Id.* at 3–4. Neither party cites or relies upon Exhibit 1056 in its briefs, and we do not rely on that exhibit in this Decision. Accordingly, we dismiss Patent Owner's motion to exclude Exhibit 1056 as moot.

IV. CONCLUSION[19]

Petitioner has shown by a preponderance of the evidence that claims 1, 2, 7–10, and 15–17 would have been obvious. Patent Owner's Motion to

[19] Should Patent Owner wish to pursue amendment of the challenged claims in a reissue or reexamination proceeding subsequent to the issuance of this decision, we draw Patent Owner's attention to the April 2019 *Notice Regarding Options for Amendments by Patent Owner Through Reissue or Reexamination During a Pending AIA Trial Proceeding*. *See* 84 Fed. Reg. 16,654 (Apr. 22, 2019). If Patent Owner chooses to file a reissue application or a request for reexamination of the challenged patent, we remind Patent Owner of its continuing obligation to notify the Board of any such related matters in updated mandatory notices. *See* 37 C.F.R. § 42.8(a)(3), (b)(2).

Exclude is denied as to Exhibits 1053–1055 and dismissed as moot as to Exhibit 1056.

In summary:

Claims	35 U.S.C. §	Reference(s)/ Basis	Claims Shown Unpatentable	Claims Not shown Unpatentable
1, 2, 7–10, 15–17	103(a)	Acharya, Luo	1, 2, 7–10, 15–17	
Overall Outcome			1, 2, 7–10, 15–17	

V. ORDER

In consideration of the foregoing, it is hereby:

ORDERED, based on a preponderance of the evidence, that claims 1, 2, 7–10, 15–17 are unpatentable;

FURTHER ORDERED that Petitioner's Motion to Exclude (Paper 59) is *denied* as to Exhibits 1053–1055 and *dismissed as moot* as to Exhibit 1056;

FURTHER ORDERED, because this is a final written decision, the parties to this proceeding seeking judicial review of our Decision must comply with the notice and service requirements of 37 C.F.R. § 90.2.

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