

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

SAMSUNG ELECTRONICS CO., LTD. and
SAMSUNG ELECTRONICS AMERICA, INC.,
Petitioner,

v.

MAXELL, LTD.,
Patent Owner.

IPR2024-00717
Patent 11,223,757 B2

Before NEIL T. POWELL, TERRENCE W. McMILLIN, and
KEVIN C. TROCK, *Administrative Patent Judges*.

TROCK, *Administrative Patent Judge*.

JUDGMENT
Final Written Decision
Determining All Challenged Claims Unpatentable
35 U.S.C. § 318(a)

I. INTRODUCTION

We have authority to hear this *inter partes* review under 35 U.S.C. § 6. This Final Written Decision issues pursuant to 35 U.S.C. § 318(a) (2018) and 37 C.F.R. § 42.73 (2019). For the reasons discussed herein, we determine that Petitioner, Samsung Electronics Co. Ltd. and Samsung Electronics America, Inc. (collectively, “Petitioner”) has shown by a preponderance of the evidence that claims 1–11 (the “challenged claims”) of U.S. Patent No. 11,223,757 B2 (Ex. 1001, “the ’757 patent”) are unpatentable. *See* 35 U.S.C. § 316(e) (2018); 37 C.F.R. § 42.1(d) (2019).

II. BACKGROUND

A. *Procedural History*

Petitioner filed a Petition, Paper 1 (“Pet.” or “Petition”), to institute an *inter partes* review of the challenged claims. Maxell, Ltd. (“Patent Owner”) timely filed a Preliminary Response, Paper 7 (“Prelim. Resp.”). Based on the record at that time, we issued a Decision granting *inter partes* review. Paper 9 (“Dec.” or “Institution Decision”).

After institution, Patent Owner filed a Response (Paper 15, “PO Resp.”), Petitioner filed a Reply (Paper 18, “Pet. Reply”), and Patent Owner filed a Sur-reply (Paper 21, “Sur-reply”).

On August 14, 2025, an oral hearing was held. A transcript of the hearing is made part of the record. Paper 25.

B. Real Party in Interest

Petitioner identifies Samsung Electronics Co. Ltd. and Samsung Electronics America, Inc. as the real parties in interest. Pet. 95. Patent Owner identifies itself as the real party in interest. Paper 4, 1.

C. Related Proceedings

According to the parties, the '757 patent is the subject of the following action: *Maxell, Ltd. v. Samsung Electronics Co. Ltd. and Samsung Electronics America, Inc.*, No. 5:23-cv-00092-RWS (E.D. Tex.). Pet. 95; Paper 4, 1.

D. The '757 Patent (Ex. 1001)

The '757 patent relates to “a video recording device including a plurality of imaging units and a camera function control program.” Ex. 1001, 1:6–8. Figure 4 of the '757 patent is reproduced below.

F I G. 4

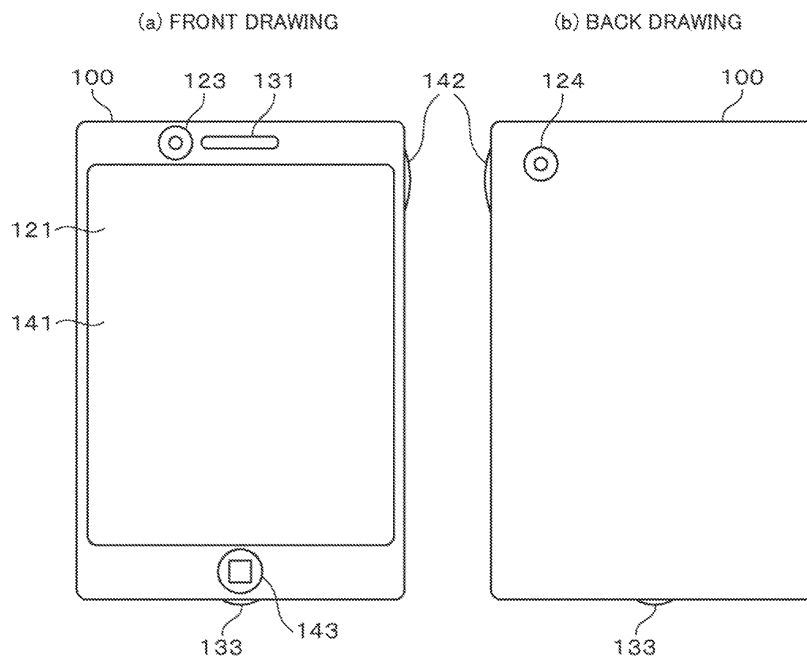


Figure 4 depicts video recording device 100, such as a smartphone, having a front face (a) and a rear face (b). Ex. 1001, 7:49–54. Display unit 121 and first imaging unit (camera unit) 123 are arranged on the front face (a) side of video recording device 100, while second imaging unit (camera unit) 124 is arranged on the rear face (b) of video recording device 100. *Id.* at 7:54–60. The ’757 patent refers to “the first imaging unit 123 arranged on the same face as that of the display unit 121” as an “in camera,” and “the second imaging unit 124 arranged on the side opposite to the display unit 121” as an “out camera.” *Id.* at 7:60–64.

According to the ’757 patent, “a subject located in front of a user is photographed using the . . . out camera,” while the in camera is used to photograph a self-image of the user. Ex. 1001, 2:6–15.

The ’757 patent acknowledges that “many technologies for performing a recording process to be triggered upon voice recognition have been disclosed.” Ex. 1001, 1:30–32. The ’757 patent refers to a “Patent Document 1,” that describes a pre-existing technology where two kinds of camera operations exist: 1) immediately performing a photographing operation when a command voice is recognized; and 2) performing a photographing operation after a predetermined amount of time elapses after voice-recognition occurs. *Id.* at 1:33–45. The ’757 patent identifies “Patent Document 1” as JP 1-191840 A, which is a Japanese patent relating to a voice recognition camera operated by voice input by named inventors Yasushi Hoshino and Takeshi Kakita assigned to Konica Minolta, Inc. *See id.* at 1:46–50; Ex. 1002, 93.

The ’757 patent also acknowledges the pre-existence of mobile phones with “two camera units, one camera unit is provided on the side of a same face (front face) as that of a monitor, and the other is provided on the

side of a face (rear face) that is opposite to that of the monitor.” Ex. 1001, 2:1–7.

The ’757 patent explains, however, that “in a case where a voice recognition function is applied to an information terminal device (video recording device) including two cameras of the out camera and the in camera, in order to photograph a subject in a natural pose, it is necessary to adjust photographing timing depending on which camera is used.” Ex. 1001, 2:32–37. The ’757 patent notes that

in a case where a self-image is photographed using the in camera, when voice recognition is made, and immediately the photographing process is started, there is a problem in that the user is photographed with the form of his mouth to be in a state immediately after the utterance of the command voice. In order to avoid this, it is necessary to delay the start of the photographing process after the voice recognition by a predetermined time.

Id. at 2:23–31.

Figure 9 of the ’757 patent is reproduced below.

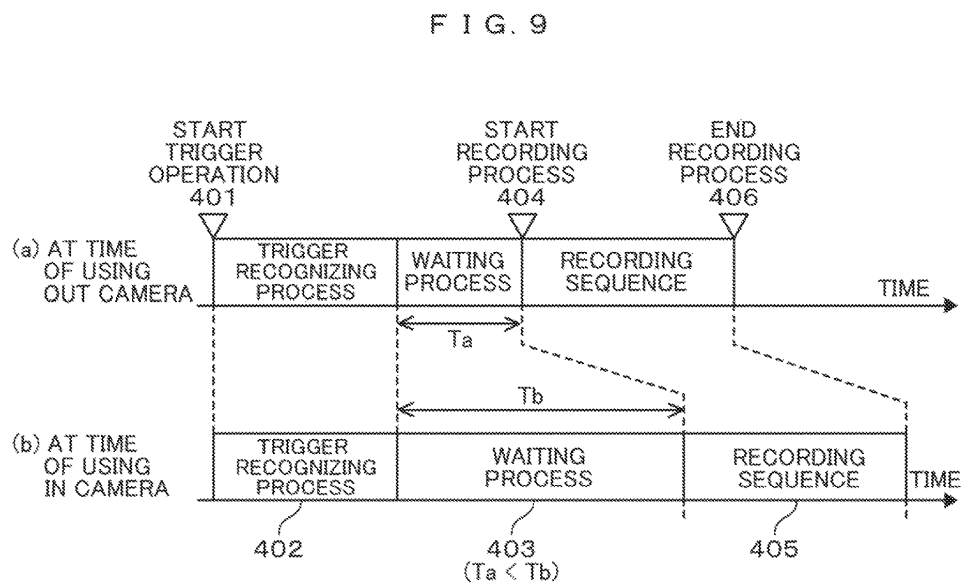


Figure 9 depicts “a process of controlling switching between recording start delay times . . . in accordance with which one of the two cameras is used.”

Ex. 1001, 9:42–47. In the process, “a standby process 403 of a predetermined time” is performed after “a trigger operation start 401 (an input of a command voice)” and “a trigger recognition process 402 (a process of recognizing a command voice)” and before “a recording process start 404.” *Id.* at 9:48–53. As shown in Figure 9(a), when out camera 124 is used to photograph a subject, standby process 403 of standby time Ta is performed. *Id.* at 9:56–58. On the other hand, as shown in Figure 9(b), when in camera 123 is used to photograph a subject, standby process 403 of standby time Tb is performed. *Id.* at 9:58–61. The ’757 patent explains that “the standby time Tb is set to be longer than the standby time Ta ($T_a < T_b$),” such that “a delay time until the recording process start 404 from the trigger operation start 401 is longer at the time of using the in camera illustrated in (b) than at the time of using the out camera illustrated in (a).” *Id.* at 9:62–10:1.

E. Challenged Claims

Petitioner challenges claims 1–11 of the ’757 patent. Pet. 1. Claims 1 and 11 are independent. Claim 1 is directed to “[a]n image recording device configured to execute a plurality of different photographing processes,” and claim 11 is directed to “[a]n image recording method of an image recording device.” Ex. 1001, 16:8–9, 17:34–35. Claim 1 is generally illustrative and reproduced below.

[1pre]¹ An image recording device configured to execute a plurality of different photographing processes, comprising:

[1a] an audio input interface configured to receive a command voice;

¹ Alpha-numerical designation adopted by Petitioner. *See* Pet. vii–ix.

- [1b] a touch display arranged on a first surface of the image recording device and configured to display an image signal and receive a touch operation instruction;
- [1c] a first camera arranged on a same side of the touch display and configured to photograph an object and acquire a first image signal;
- [1d] a second camera arranged on an opposite side of the touch display and configured to photograph an object and acquire a second image signal;
- [1e] a recorder configured to record at least one of the first image signal or the second image signal on a storage; and
- [1f] a controller,
- [1g] wherein the controller is configured to:
 - control such that, when the audio input interface receives the command voice giving a first instruction to start a recording of an image signal, the recorder starts a recording of the first image signal acquired by the first camera on the storage in response to the first instruction,
 - [1h] control such that, when the touch display receives the touch operation instruction giving a second instruction to start a recording of an image signal, the recorder starts a recording of the second image signal acquired by the second camera on the storage in response to the second instruction, and
 - [1i] control such that a first standby time of a case where the first camera is enabled and the second camera is disabled is longer than a second standby time of a case where the second camera is enabled and the first camera is disabled,
 - [1j] wherein the first standby time is a time from a recognition of the first instruction to a start of the recording of the first image signal acquired by the first camera, and the second standby time is a time from a recognition of the second instruction to a start of the recording of the second image signal acquired by the second camera.

Id. at 16:8–48.

F. Evidence

Petitioner relies upon the following evidence:

- (1) U.S. Patent Application Publication No. US 2014/0247368 A1, filed March 4, 2013, published September 4, 2014 (“Chinn”) (Ex. 1004);
- (2) Japanese Unexamined Patent Application Publication No. P2001-305642A, published November 2, 2001 (“Takahashi”) (Ex. 1005);
- (3) U.S. Patent Application Publication No. US 2010/0137026 A1, published June 3, 2010 (“Kim”) (Ex. 1008);
- (4) U.S. Patent Application Publication No. US 2010/0026815 A1, published February 4, 2010 (“Yamamoto”) (Ex. 1009);
- (5) CASIO EXILIM Digital Camera EX-V7 User’s Guide (“EX-V7”) (Ex. 1014);
- (6) U.S. Patent Application Publication No. US 2009/0167881 A1, published July 2, 2009 (“Thorn”) (Ex. 1011); and
- (7) Declaration of R. Michael Guidash (Ex. 1003).

Patent Owner relies upon the declaration of Jacob O. Wobbrock (Ex. 2005).

G. Asserted Grounds of Unpatentability

Claim(s) Challenged	35 U.S.C. §	Reference(s)/Basis
1–8, 10, 11	103 ²	Chinn, Takahashi, EX-V7
9	103	Chinn, Takahashi, EX-V7, Kim
1–3, 7–10	103	Kim, Yamamoto, Thorn
4–6, 11	103	Kim, Yamamoto, Thorn, Chinn

Pet. 1.

III. ANALYSIS

A. Level of Ordinary Skill

In determining whether an invention would have been obvious at the time it was made, we consider the level of ordinary skill in the pertinent art at the time of the invention. *Graham v. John Deere Co.*, 383 U.S. 1, 17 (1966). “The importance of resolving the level of ordinary skill in the art lies in the necessity of maintaining objectivity in the obviousness inquiry.” *Ryko Mfg. Co. v. Nu-Star, Inc.*, 950 F.2d 714, 718 (Fed. Cir. 1991).

Petitioner describes a person of ordinary skill in the art as a person having “a Bachelors’ degree in electrical or computer engineering or a comparable field of study, plus approximately two to three years of professional experience with camera technology.” Pet. 5. Petitioner’s

² According to Petitioner, the ’757 patent claims priority through several applications to App. No. PCT/JP2013/074728, filed on September 9, 2013, after the March 16, 2013, effective date of the § 103 provisions in the Leahy-Smith America Invents Act (“AIA”), Pub. L. No. 112-29. Pet. 5. Patent Owner does not appear to contest this. Accordingly, we cite to post-AIA § 103.

declarant, Mr. Guidash, provides testimony supporting this description of the level of ordinary skill in the art. Ex. 1003 ¶¶ 27–30. Patent Owner agrees with Petitioner’s description of a person of ordinary skill in the art. PO Resp. 5. Patent Owner’s declarant, Dr. Wobbrock, provides supporting testimony. Ex. 2005 ¶¶ 60–61.

The parties’ description of a person of ordinary skill is consistent with the subject matter of the ’757 patent. We, therefore, adopt the parties’ assessment of a person of ordinary skill in the art as a person with a bachelor’s degree in electrical or computer engineering or a comparable field of study, plus approximately two to three years of professional experience with camera technology.

B. Claim Construction

For this *inter partes* review, the Board applies the same claim construction standard as that applied in federal courts. *See* 37 C.F.R. § 42.100(b) (2023). Under this standard, claim terms “are generally given their ordinary and customary meaning” as understood by a person of ordinary skill in the art in question at the time of the invention. *Phillips v. AWH Corp.*, 415 F.3d 1303, 1312–13 (Fed. Cir. 2005) (en banc). “In determining the meaning of the disputed claim limitation, we look principally to the intrinsic evidence of record, examining the claim language itself, the written description, and the prosecution history, if in evidence.” *DePuy Spine, Inc. v. Medtronic Sofamor Danek, Inc.*, 469 F.3d 1005, 1014 (Fed. Cir. 2006) (citing *Phillips*, 415 F.3d at 1312–17).

Because the meaning of a claim term as understood by persons of skill in the art may not be immediately apparent, we may look to “those sources available to the public that show what a person of skill in the art would have

understood disputed claim language to mean.” *Innova/Pure Water, Inc. v. Safari Water Filtration Systems, Inc.*, 381 F.3d 1111, 1116 (Fed. Cir. 2004). These sources may include extrinsic evidence concerning relevant scientific principles, the meaning of technical terms, and the state of the art. However, such extrinsic evidence is “less significant than the intrinsic record in determining ‘the legally operative meaning of claim language.’” *Phillips*, 415 F.3d at 1317.

Only those terms that are in controversy need be construed, and only to the extent necessary to resolve the controversy. *See Nidec Motor Corp. v. Zhongshan Broad Ocean Motor Co.*, 868 F.3d 1013, 1017 (Fed. Cir. 2017); *Vivid Techs., Inc. v. Am. Sci. & Eng’g, Inc.*, 200 F.3d 795, 803 (Fed. Cir. 1999).

1. First Camera/Second Camera

In the Petition, Petitioner advises that “In the District Court Litigation, PO apparently construes these terms as including a first/front camera that is “arranged on a same face (front face) [of the image recording device] as that of the display unit” as discussed in the ’757 patent at 7:56-58; *see also* 2:55-57.” Pet. 6. Petitioner makes a similar statement with respect to the recited “second camera.” *See id.* at 7. With respect to both cameras, Petitioner states that it “adopt[s] this apparent construction for the purposes of this Petition.” *Id.* at 6–7.

In the Response, Patent Owner states that “no construction is necessary and that the plain and ordinary meaning of these claim terms is abundantly clear.” PO Resp. 6. Patent Owner asserts that “both the claims and specification make clear that the plain and ordinary meaning is an arrangement of two cameras such that one camera is on the same side as the

touch display and the second camera is opposite to the touch display.” *Id.* at 7.

In the Reply, Petitioner takes the position that “the Board need not construe these terms to render a final decision in this matter.” Pet. Reply 3. In the Sur-reply, “Patent Owner agrees that the Board need not construe these terms.” Sur-reply 1. Because there is no controversy between the parties with respect to these terms, we decline to construe them. *See Nidec Motor Corp.*, 868 F.3d at 1017.

2. Claim Limitation [1i]

In the Reply, Petitioner contends that Patent Owner

In arguing that claim limitation [1i] is not rendered obvious by Petitioners’ prior art, PO and its expert argue that “[t]he claim provides clear antecedent basis and requires that the first camera is enabled and the second camera is disabled *in response to the command voice*.” EX2005, ¶78 (emphasis added); POR, 10. To show this “clear antecedent basis,” however, PO and its expert is forced to “link[]” cherry-picked bits and pieces from three different limitations -- [1g], [1i] and [1j]. *Id.* But this construction is simply incorrect, unsupported by the claim language itself, the ’757 patent’s specification and claim construction principles.

Reply 4.

In the Sur-reply, Patent Owner states that it disagrees that the POR sets forth a claim construction. Rather, as explained below and in the POR, Petitioners ignore the antecedent basis based on a plain and ordinary reading of the claim as informed by the claim as a whole. *See, e.g.*, POR, 9-10; EX2005, ¶78.

Sur-reply 1.

Because the parties disagree on their understanding of the interpretation and scope of limitation 1[i] and its impact on the question of obviousness, we discuss this limitation more fully in Section III.E.2.a below.

C. Patentability Challenges

Petitioner presents four grounds challenging the patentability of particular claims of the '757 patent under 35 U.S.C. § 103. Petitioner challenges (Ground 1) claims 1–8, 10, and 11 based on the combined teachings of Chinn, Takahashi, and EX-V7; (Ground 2) claim 9 based on the combined teachings of Chinn, Takahashi, EX-V7, and Kim; (Ground 3) claims 1–3 and 7–10 based on the combined teachings of Kim, Yamamoto, and Thorn; and (Ground 4) claims 4–6 and 11 based on the combined teachings of Kim, Yamamoto, Thorn, and Chinn. Pet. 1.

1. Principles of Law

A claim is unpatentable under 35 U.S.C. § 103 if the differences between the claimed invention and the prior art are such that the claimed invention as a whole would have been obvious before the effective filing date of the claimed invention to a person having ordinary skill in the art to which the claimed invention pertains. The question of obviousness is resolved on the basis of underlying factual determinations, including: (1) the scope and content of the prior art; (2) any differences between the claimed subject matter and the prior art; (3) the level of skill in the art; and (4) objective evidence of nonobviousness, i.e., secondary considerations. *See Graham*, 383 U.S. at 17–18. At this stage, neither party has presented evidence on the fourth *Graham* factor.

The Supreme Court has made clear that we apply “an expansive and flexible approach” to the question of obviousness. *KSR Int’l Co. v. Teleflex Inc.*, 550 U.S. 398, 415 (2007). Whether a patent claiming the combination of prior art elements would have been obvious is determined by whether the improvement is more than the predictable use of prior art elements according to their established functions. *Id.* at 417. Reaching this conclusion,

however, requires more than a mere showing that the prior art includes separate references covering each separate limitation in a claim under examination. *Unigene Labs., Inc. v. Apotex, Inc.*, 655 F.3d 1352, 1360 (Fed. Cir. 2011). Rather, obviousness requires the additional showing that a person of ordinary skill at the time of the invention would have selected and combined those prior art elements in the normal course of research and development to yield the claimed invention. *Id.*

2. Relevant Prior Art

a. Chinn (Ex. 1004)

Chinn is a U.S. Patent Application Publication that published on September 4, 2014, based on an application filed on March 4, 2013, which was before the earliest priority date of the '757 patent. Ex. 1001, code (63); Ex. 1004, codes (43), (22). Petitioner asserts that Chinn is prior art under post-AIA 35 U.S.C. § 102(a)(2). Pet. 7.

Chinn discloses technologies relating to “ready click” camera control, wherein “[t]he camera control system may be configured to provide any of a variety of voice-interactive features, such as a voice-activated shutter, a voice-activated timer, a voice-activated flash” Ex. 1004 ¶ 2.

Chinn’s Figure 1 is reproduced below:

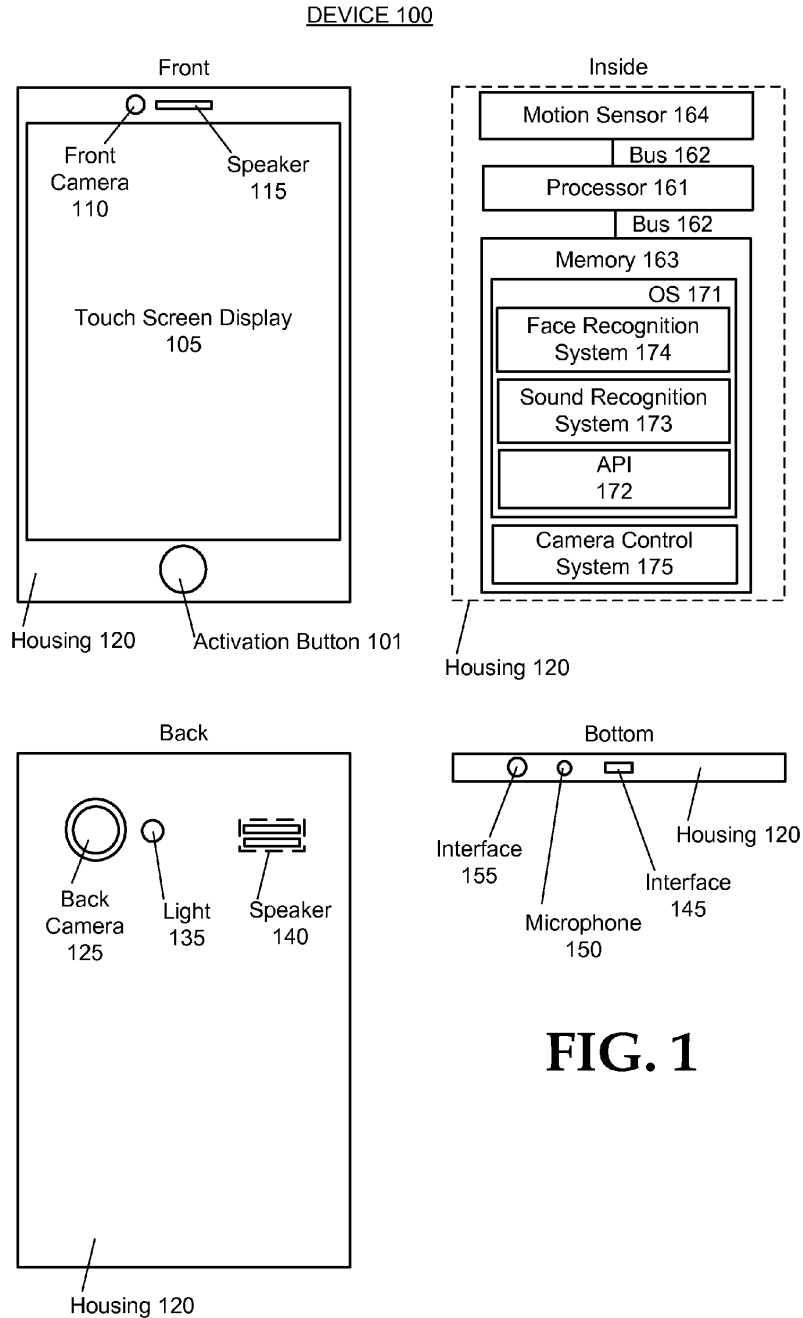


FIG. 1

Chinn's Figure 1, above, depicts a front view, back view, bottom view, and inside view of a device 100, which may be mobile device such as a smart phone. Ex. 1004 ¶ 16. The device 100 includes, *inter alia*, touch screen display 105, front camera 110, back camera 125, microphone 150, sound recognition system 173, and camera control system 175. *Id.* Chinn discloses that the camera control system 175 may be configured to produce

User Interface (UI) on the display 105. *Id.* ¶ 17; *see also id.* ¶ 22, Fig. 2. Chinn also discloses that the sound recognition system 173 may be configured to recognize a predetermined camera activation sound pattern, such as the words “ready click,” in sound data received via microphone 150, and the camera control system 175 may be configured to activate camera 110 and/or camera 125 in response. *Id.* ¶ 23. According to Chinn, the camera control system 175 may respond to “a variety of other voice commands, such as a ‘set timer’ command, a ‘set flash’ command, a ‘set focus’ command” *Id.* ¶ 25.

Chinn’s Figure 3 is reproduced below:

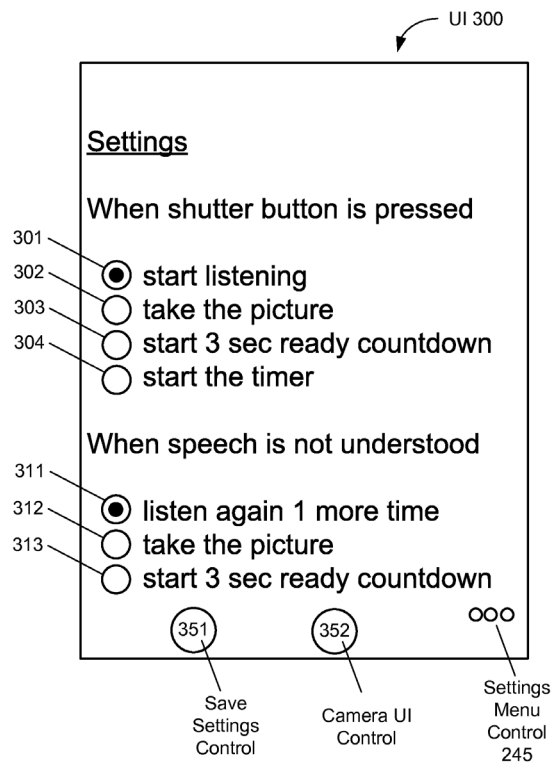


FIG. 3

Chinn’s Figure 3, above, depicts an example of a settings menu UI 300 that the camera control system 175 may be configured to present on a display such as touch screen display 105. Ex. 1004 ¶ 35. According to Chinn, the

settings menu includes a menu category that provides controls for selecting actions by camera control system 175 when a shutter control is pressed. *Id.* ¶ 36. For example, when the “start 3 sec ready countdown” control 303 is selected, “the camera control system 175 starts a countdown (such as a three second countdown or any other countdown duration) and then takes a picture/initiates video recording in response to user selection of shutter control” *Id.* ¶ 39. Chinn also discloses that when the “start the timer” control 304 is selected, “in response to user selection of shutter control 233, camera control system 175 starts a timer and then takes a picture/initiates video recording after the time period specified for the timer elapses.” *Id.* ¶ 40.

Chinn’s Figure 4 is reproduced below.

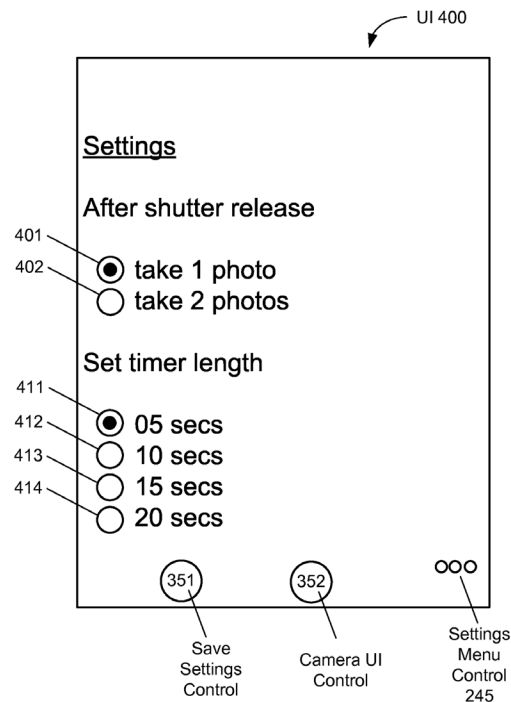


FIG. 4

Chinn’s Figure 4, above, depicts another example of a settings menu UI 400, which the camera control system 175 may be configured to present on a

display such as touch screen display 105. Ex. 1004 ¶ 45. According to Chinn, the settings menu includes a menu category that provides controls 411, 412, 413, and 414 for selecting timer length settings. *Id.* ¶ 48. Chinn explains that the “[c]amera control system 175 may be configured to apply a selected timer length setting in response to user activation of timer initiation control . . . , and/or in connection with shutter control . . . when control 304 is selected, as described in connection with FIG. 3.” *Id.*

b. Takahashi (Ex. 1005)

Takahashi is a Japanese Unexamined Patent Application Publication that published on November 2, 2001, more than one year before the earliest priority date of the ’757 patent. Ex. 1001, code (63); Ex. 1005, codes (43). Petitioner asserts that Takahashi is prior art under post-AIA 35 U.S.C. §§ 102(a)(1), (a)(2). Pet. 7.

Takahashi relates to performing photography of a subject, where the photographer is the subject, using voice audio input. Ex. 1005, code (57). Takahashi notes that with the conventional technologies, where photographic functions and operations are controlled via voice audio input through a microphone provided on the rear surface of the camera, photography via voice audio input is difficult if the photographer is the subject. *Id.* ¶ 7; *see also id.* ¶ 8.

Figure 1 of Takahashi is reproduced below.

【図1】

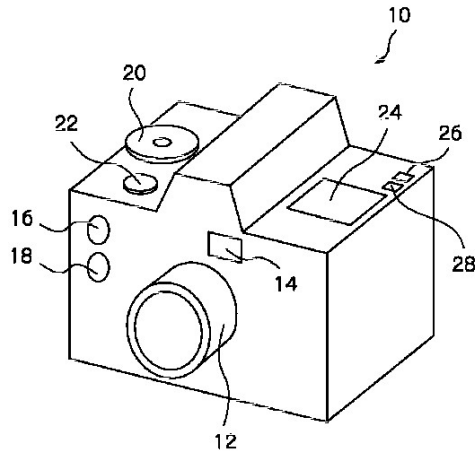


Figure 1 of Takahashi, above, depicts an image capturing device having a camera body 10, a lens barrel 12, a forward directional microphone 16 for inputting voice audio from the subject, a light-emitting diode (LED) 18, a mode dial 20, a shutter release button 22, and a liquid crystal display 24. Ex. 1005 ¶¶ 16–17.

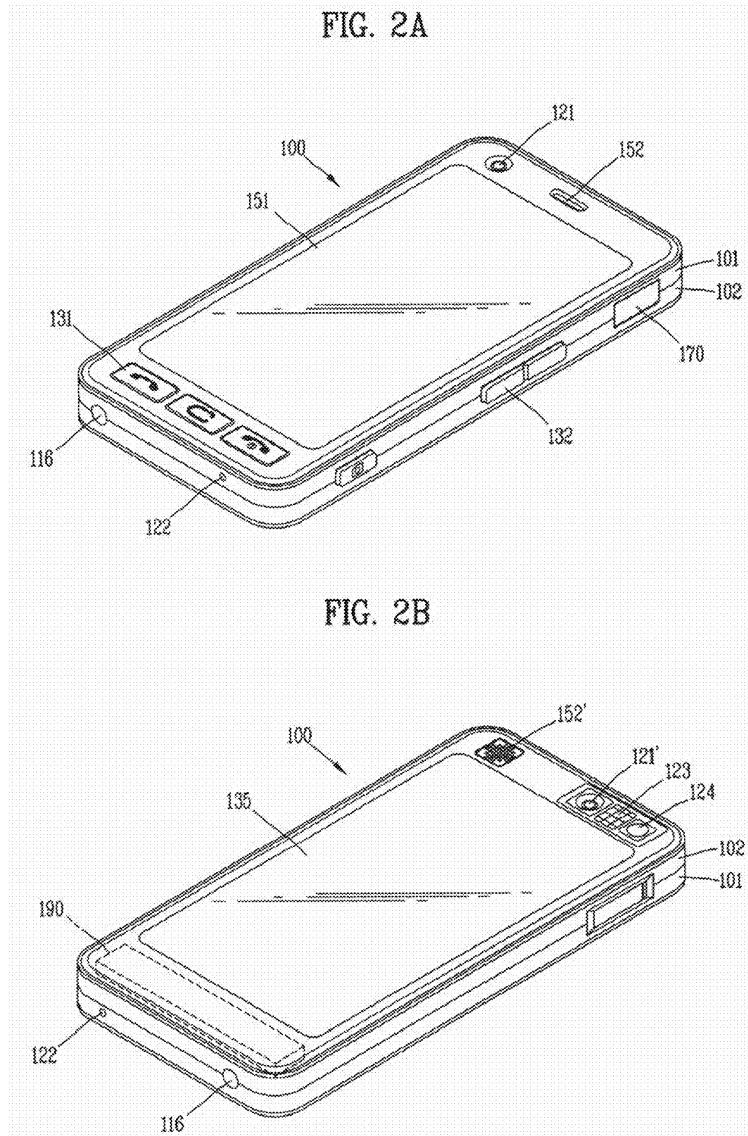
According to Takahashi, the mode dial 20 is used to set a voice audio registration mode, and a first voice audio pattern for focus adjustment and a second voice audio pattern for shutter release are registered in response to voice audio input using the microphone 16. Ex. 1005, code (57). Takahashi describes that when voice audio photography mode is set, a voice audio recognition process is performed on voice audio input using the microphone 16. *Id.* According to Takahashi, the light-emitting diode 18 provided on the front of the camera body 10 blinks during voice audio recognition, “letting the photographer know whether or not the voice audio has been recognized, enabling the photographer to continuously operate the camera using voice audio input without moving from that location.” *Id.* ¶ 41. Takahashi explains that it is “possible to accurately focus on the photographer, who is acting as the subject, by means of the photographer speaking the first voice

audio pattern in the location to be photographed, and take the picture.” *Id.* Takahashi further explains that “[r]ecognition of the second voice audio pattern launches the timer circuit . . . and releases the shutter after a prescribed amount of time has elapsed, giving the photographer time to adjust his or her facial expression and pose during that time” and “mak[ing] it possible to be photographed accurately with the desired facial expression and while not in the middle of speaking.” *Id.*

c. Kim (Ex. 1008)

Kim is a U.S. Patent Application Publication that published on June 3, 2010, more than one year before the earliest priority date of the ’757 patent. Ex. 1001, code (63); Ex. 1008, code (43). Petitioner asserts that Kim is prior art under post-AIA 35 U.S.C. §§ 102(a)(1), (a)(2). Pet. 8.

Kim relates to “a mobile terminal and a method of controlling a display of the mobile terminal.” Ex. 1008 ¶ 2. Figures 2A and 2B of Kim, depicting front and rear views of a mobile terminal, are reproduced below. *Id.* ¶¶ 13–14.



Kim's Figure 2A, above, depicts display 151, audio output unit 152, camera 121, and microphone 122 provided to the front case 101 of a mobile terminal 100. *Id.* ¶¶ 90–91. Kim's Figure 2B, above, depicts a camera 121' provided to the rear case 102 on the backside of the terminal body. *Id.* ¶ 94.

Kim also describes a mobile terminal 100 as including a memory to store various types of data to support the processing, control, and storage requirements of the mobile terminal 100. Ex. 1008 ¶¶ 44, 80. According to Kim, the memory may be of any type or combination of suitable volatile and non-volatile memory or storage devices. *Id.* ¶ 81. Kim further describes

that “[t]he mobile terminal 100 is able to operate in association with a web storage for performing a storage function of the memory . . . on Internet.”

Id.

d. Yamamoto (Ex. 1009)

Yamamoto is a U.S. Patent Application Publication that published on February 4, 2010, more than one year before the earliest priority date of the ’757 patent. Ex. 1001, code (63); Ex. 1009, code (43). Petitioner asserts that Yamamoto is prior art under post-AIA 35 U.S.C. §§ 102(a)(1), (a)(2). Pet. 8.

Yamamoto relates to “a technology for starting capturing of an image in response to a sound.” Ex. 1009 ¶ 2. Yamamoto seeks to solve the problems with the speech recognition shutter function of cameras by efficiently storing an image “that is captured at a time reflecting a time at which a certain sound is input and that is an image desired by a user” “in accordance with a single speech command.” *Id.* ¶¶ 4–8.

Figure 1 of Yamamoto is reproduced below.

FIG. 1

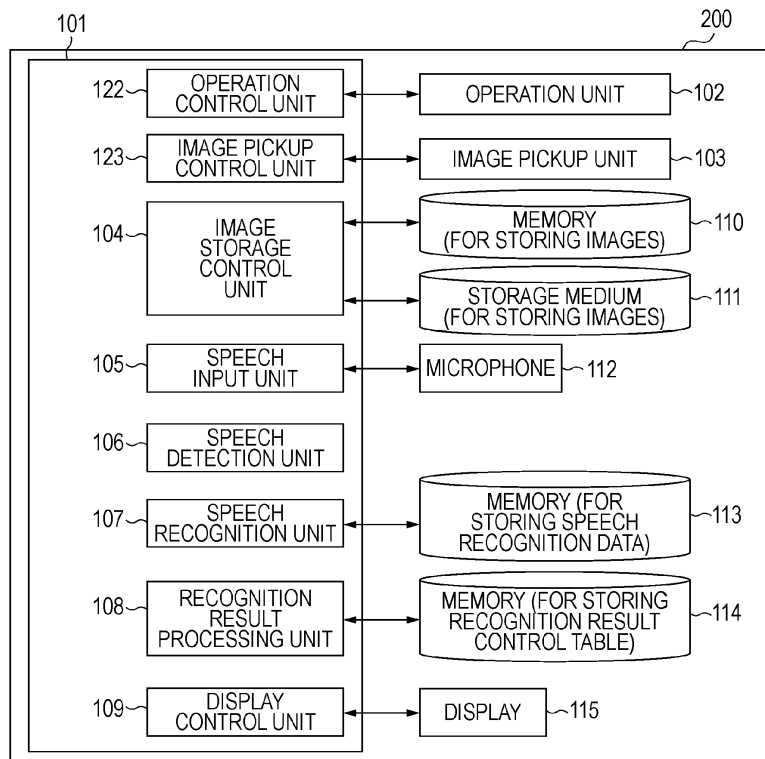


Figure 1 of Yamamoto, above, depicts a functional block diagram of a digital camera 200, which includes a control unit 101, an operation unit 102, an image pickup unit 103, a memory (for storing images) 110, a storage medium (for storing images) 111, a microphone 112, a memory (for storing speech recognition data) 113, a memory (for storing a recognition result control table) 114, and a display 115. Ex. 1009 ¶¶ 31–33.

Figure 10 of Yamamoto is reproduced below.

FIG. 10

COMMAND	PROCESSING
Shoot	HOLD IMAGE CAPTURED AT TIME OF START OF UTTERANCE
Go	HOLD IMAGE CAPTURED AT TIME OF START OF UTTERANCE
Cheese	HOLD IMAGE CAPTURED AT TIME OF END OF UTTERANCE
Say Cheese	HOLD IMAGE CAPTURED AT TIME AT WHICH CERTAIN PERIOD OF TIME HAS PASSED FROM TIME OF END OF UTTERANCE
Five Four Three	HOLD IMAGE CAPTURED AT TIME AT WHICH CERTAIN PERIOD OF TIME HAS PASSED FROM TIME OF START OF UTTERANCE
Spot Metering	ACTIVATE SPOT METERING
Center Metering	ACTIVATE CENTER-WEIGHTED METERING
Use a Flash	ACTIVATE STROBE LIGHT
No Fash	DEACTIVATE STROBE LIGHT

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Figure 10 of Yamamoto, above, shows an example of a recognition result control table, to which the recognition result processing unit 108 (shown in Figure 1 above) refers when determining camera control corresponding to a recognition result. Ex. 1009 ¶¶ 211, 213. According to Yamamoto, “‘Shoot’, ‘Go’, ‘Cheese’, ‘Say Cheese’, and ‘Five Four Three’ are speech commands for starting an image capturing operation” *Id.* ¶ 205.

Figures 6–8 of Yamamoto are reproduced below.

FIG. 6

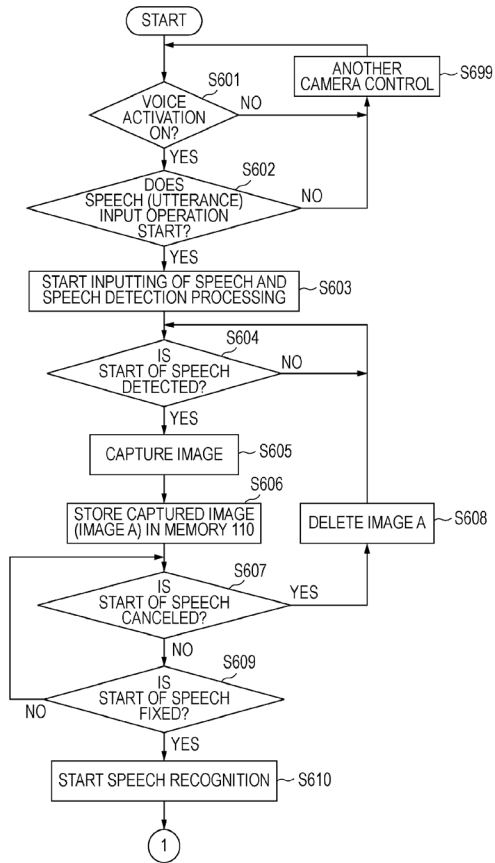


FIG. 7

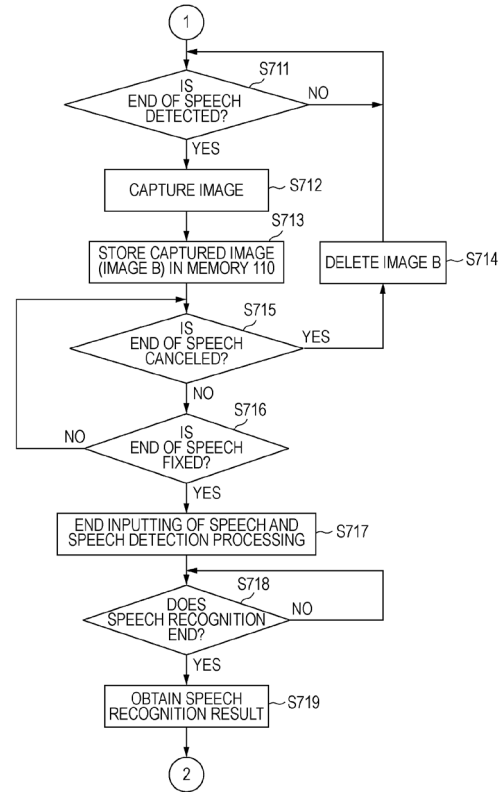
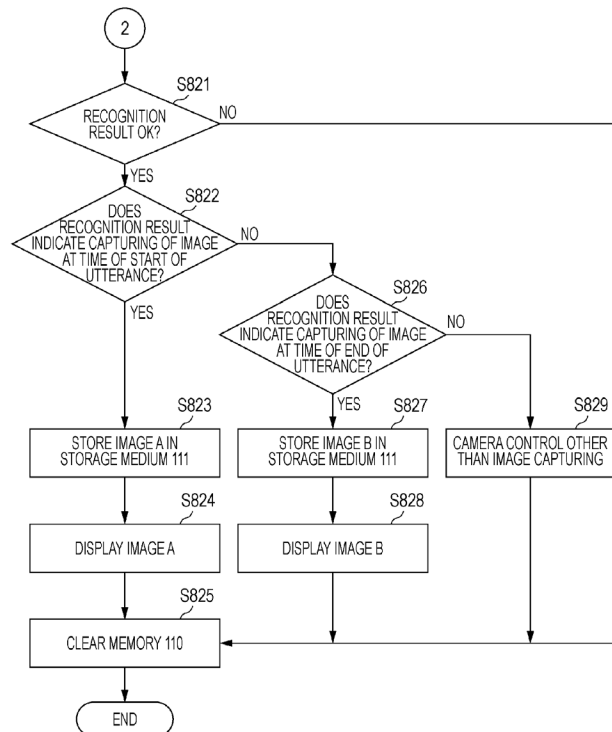


FIG. 8



Figures 6–8 of Yamamoto, above, depict flowcharts of processing performed by the digital camera 200 when capturing of an image is commanded by speech. Ex. 1009 ¶ 216. As shown in Figure 6, if a voice activation function is activated (YES in step S601) and if inputting of speech starts (YES in step S602), “the speech input unit 105 starts processing for receiving speech and the speech detection unit 106 starts speech detection processing in step S603.” *Id.* ¶¶ 218–219, 223. If the speech detection unit 106 detects the start of speech (YES in step S604), the image pickup unit 103 executes an image capturing operation in step S605 and the image storage control unit 104 stores the captured image (image A) in the memory 110 in step S606. *Id.* ¶¶ 231, 233–235.

As shown in Figure 7, if the speech detection unit 106 detects the end of speech (YES in step S711), the image pickup unit 103 captures an image in step S712 and the image storage control unit 104 stores the captured image (image B) in the memory 110 in step S713. Ex. 1009 ¶¶ 245, 247–248. Yamamoto describes a case in which “an image is captured after a certain period of time (for example, 0.5 seconds) passes after, in general, ‘Say Cheese’ or the like has uttered” and “the image pickup unit 103 captures an image after a predetermined delay time passes after the speech detection unit 106 has performed the detection operation for detecting the end of utterance ‘Say Cheese.’” *Id.* ¶¶ 249–250. After speech detection and speech recognition processing ends in steps S717 and S718, the recognition result processing unit 108 obtains a recognition result obtained by the speech recognition unit 107 in step S719. *Id.* ¶¶ 257, 259–260.

As shown in Figure 8, control of the digital camera 200 is determined based on the command included in the recognition result by referring to the recognition result control table in step S822. Ex. 1009 ¶ 264. According to

Yamamoto, if a recognized command is a word, such as “Shoot” or “Go,” that is a command for capturing an image at the time of the start of speech (YES in step S822), then the image storage control unit 104 stores image data of the image A on the storage medium 111 in step S823. *Id.* ¶ 265. If not, then it is determined whether the recognized command is a word, such as “Cheese,” that is a command for capturing an image at the time of the end of speech in step S826. *Id.* ¶ 268. If YES in step S826, then the image storage control unit 104 stores image data of the image B on the storage medium 111 in step S827. *Id.* ¶ 269.

e. EX-V7 (Ex. 1014)

EX-V7 is a user’s guide for CASIO EXILIM digital camera EX-V7. Ex. 1014, 1. Petitioner contends that EX-V7 was publicly available no later than October 10, 2008, and is therefore prior art under post-AIA 35 U.S.C. § 102(a)(1). Pet. 8 (citing Ex. 1010, 1, 2, 14, 19–294; Ex. 1014, 137, 199; Ex. 1003 ¶ 64; Ex. 1007, 2, 2:7–9).

EX-V7 describes a “self-timer” feature of the digital camera, wherein “pressing the shutter button starts a timer, and the shutter is released and the image is shot after a fixed amount of time.” Ex. 1014, 77. One of the self-timer types described by EX-V7 is “2-second self-timer” that can be used to “prevent blur due to hand movement” “[w]hen shooting under conditions that slow down the shutter speed.” *Id.*

f. Thorn (Ex. 1011)

Thorn is a U.S. Patent Application Publication that published on July 2, 2009, more than one year before the earliest priority date of the ’757 patent. Ex. 1001, code (63); Ex. 1011, code (43). Petitioner asserts that Thorn is prior art under post-AIA 35 U.S.C. §§ 102(a)(1), (a)(2). Pet. 9.

Thorn relates to “a system and method that monitors subjects in an image field and controls flash operation to minimize firing the flash while a subject is blinking.” Ex. 1011 ¶ 1. Noting that cameras rely on a flash in low light situations, Thorn observes that “if the flash is fired and image data for the photograph is captured while a person in the image field is blinking, then the resultant representation of the subject in the photograph will appear with his or her eye shut or partially shut.” *Id.* ¶ 3. Thorn describes “an improved blink detection and flash operation technique” to “improve the manner in which a photograph is taken in low light situations.” *Id.* ¶ 4. Thorn’s method includes the step of “delaying the firing of the flash and the capturing of the image data by an amount of time that is based on the statistical data to minimize firing the flash and capturing the image data during a blink of the one or more subjects.” *Id.* ¶ 5; *see also id.* ¶ 60 (“the process may be delayed a period of time to reduce the probability that one or more of the subjects will be blinking at the time that the flash 18 is fired and the sensor 16 captures image data for the photograph.”).

D. Obviousness over Chinn, Takahashi, EX-V7, and Kim (Grounds 1/2)

For Ground 1, Petitioner contends that claims 1–8, 10, and 11 are unpatentable under 35 U.S.C. § 103 as obvious over Chinn, Takahashi, and EX-V7. Pet. 10–47. For Ground 2, Petitioner contends that claim 9 is unpatentable under 35 U.S.C. § 103 as obvious over Chinn, Takahashi, EX-

V7, and Kim. *Id.* at 47–52. Petitioner submits the testimony of Mr. Guidash in support of these contentions. Ex. 1003 ¶¶ 68–154.

Patent Owner disputes certain aspects of Petitioner’s evidence and arguments. PO Resp. 8–26. Patent Owner provides the testimony of Dr. Wobbrock in support of its positions. Ex. 2005 ¶¶ 75–104.

We begin our analysis by considering Petitioner’s rationale for combining the teachings of Chinn, Takahashi, and EX-V7.

1. Rationale to Combine Chinn, Takahashi, and EX-V7

Petitioner contends that

[i]t would have been obvious to a POSITA to combine Chinn with Takahashi and EX-V7 by configuring a mobile phone with front and rear cameras as taught by Chinn to respond to a voice command to capture an image using the front camera after a first standby time as taught by Chinn and Takahashi, and to respond to a touch command to capture an image using the rear camera as taught by Chinn, with the first standby time being longer than a second standby time as taught by Chinn and EX-V7.

Pet. 10 (citing Ex. 1003 ¶ 68).

Petitioner asserts that “Chinn and Takahashi both relate to image capture devices (imaging devices) with manual and voice activated photographic processes” and that “EX-V7 also relates to an imaging device, and allows manual activation of a camera.” Pet. 10 (citing Ex. 1004 ¶¶ 4, 23, 30; Ex. 1005 ¶ 17; Ex. 1003 ¶ 69; Ex. 1014, 15–17). According to Petitioner, this makes “their devices particularly suitable for each other.” Pet. 10 (citing Ex. 1004 ¶¶ 16, 22, 23).

Petitioner explains that “both Chinn and Takahashi disclose delayed image capture after a voice command is given,” and therefore, a person of ordinary skill in the art “would have been motivated to look at Takahashi

and EX-V7 to improve Chinn, and vice-versa.” Pet. 10–11 (citing Ex. 1004 ¶¶ 2, 25, and 51 (use of “pre-amble” before image taking in response to voice command); Ex. 1005 ¶¶ 39, 40 (use of a standby state before image taking in response to voice command); Ex. 1003 ¶ 69).

According to Petitioner, a person of ordinary skill in the art “would have understood that having a delay between the utterance of the voice command and the taking of the image would allow a user time to pose between speaking the command and taking the image.” Pet. 11 (citing Ex. 1003 ¶ 70). Petitioner points out that

Takahashi discloses that “even if the voice audio from the photography location is recognized by the camera, the shutter release operation would occur immediately, meaning the photographer would be photographed while speaking, making it impossible for him or her to be photographed with the desired facial expression or pose,” stating that this” is a problem.”

Pet. 11 (citing Ex. 1005 ¶ 8).

Petitioner explains that “[t]o overcome this problem, Takahashi introduces a delay/standby from a recognition of a voice command to the start of the image capture.” Pet. 11 (citing Ex. 1005 ¶¶ 38–39). Takahashi explains that during this time, the photographer “adjusts his or her facial expression from having spoken the voice audio to a state ready to be photographed and waits for the camera shutter to be released.” Ex. 1005 ¶ 39.

Petitioner asserts that a person of ordinary skill in the art “would have found it obvious, and would have been motivated, to set a longer delay for a front-camera selfie than for a rear-camera, touch-initiated photograph.” Pet. 12. Petitioner also asserts that “Takahashi teaches that a delay considering facial movement is needed, and common sense dictates that it would be

longer than a delay for a touch photo meant to capture the current scene.”
Id. at 12–13. Petitioner argues that in light of the time delay disclosures in Chinn and EX-V7, a person of ordinary skill in the art

would have found it obvious to select a 10-second standby time for a front-camera 110, voice-activated selfie (to give the user time after speaking the voice command to obtain a desired facial expression) and, e.g., a 2 second standby time for a rear-camera 125, touch-activated photo (to prevent blur due to hand movement).

Id. at 13 (citing Ex. 1003 ¶ 75).

Petitioner argues that “[a]dding such standby times would simply involve applying a known technique (i.e., a delay as disclosed by Takahashi and EX-V7) to a known device ready for improvement (Chinn’s two camera device) to yield predictable results (a selfie with desired facial features and photographs without blurred images).” Pet. 13 (citing Ex. 1003 ¶ 76).

Petitioner also asserts that a person of ordinary skill in the art would have had a reasonable expectation of success in combining Chinn, Takahashi and EX-V7 as Chinn had the technology to do so (e.g., voice activation, selection of the front camera, delay timer), and these modifications involved only routine skill. Pet. 14 (citing Ex. 1003 ¶ 77).

Patent Owner contends that “[t]here is no motivation to combine Chinn, Takahashi, and EX-V7.” PO Resp. 13 (emphasis omitted). Patent Owner criticizes Petitioner’s use of the Chinn reference by arguing that

[n]either Petitioners nor their expert provide any analysis on why a POSITA would be motivated to change Chinn’s voice and touch instructions to a single voice instruction process when Chinn provides its own solution that repeatedly emphasizes a separation of tasks and voice instructions.

Id. at 13–14 (citing Ex. 1004 ¶¶ 23, 25; Ex. 2005 ¶ 83). Patent Owner asserts that

neither Petitioners nor their expert provide any rationale as to why a POSITA would be motivated to redesign OS 171, Camera Control System 175, and user interfaces 200, 300, and 400 of Chinn to arrive at the claimed invention when Chinn has its own solution of camera selection.

PO Resp. 14 (citing Ex. 1004 ¶¶ 23, 25; Ex. 2005 ¶ 83).

Patent Owner contends that “a POSITA would not look to the earlier single, standalone cameras of Takahashi (April 2000) or EXV7 (May 2007) for improvements to the Chinn mobile device.” PO Resp. 14 (citing Ex. 2005 ¶ 83). Patent Owner argues that “modifying Chinn to arrive at the claimed invention would require a complete redesign of Chinn’s system.” PO Resp. 14.

Patent Owner also asserts that “Petitioners entirely fail to assert or analyze whether its references are analogous art to the ’757 Patent.” PO Resp. 40.

We disagree with Patent Owner. Two separate tests define the scope of analogous prior art: (1) whether the art is from the same field of endeavor, regardless of the problem addressed and, (2) if the reference is not within the field of the inventor’s endeavor, whether the reference still is reasonably pertinent to the particular problem with which the inventor is involved. *In re Klein*, 647 F.3d 1343, 1348 (Fed. Cir. 2011).

Here, Chinn, Takahashi, and EX-V7 are clearly from the same field of endeavor as the ’757 patent: digital image recording devices. For example, the ’757 patent explains,

a device to which the present invention is applied will be referred to as a “video recording device” and may be a recording device that records video signals from a plurality of cameras . . . on a recording medium. More specifically, in addition to any one of a camera-attached mobile phone and a smartphone . . . the device may be a digital still camera . . . a

personal digital assistants (PDA) . . . a notebook PC (personal computer). In addition, the device may be a video camera capable of capturing a moving image, a portable gaming device, or the like or any other portable digital device.

Ex. 1001, 3:54–4:3.

By comparison, Chinn is directed to a “ready click camera control” for “[c]amera devices . . . equipped with a camera, a microphone, a processor, a memory, and a camera control system stored in the memory and executable by the processor.” Ex. 1004, code (57). Takahashi “relates to image capturing devices, and more particularly relates to an image capturing device suitable for application to silver halide film cameras or digital cameras which use electronic control to control image capturing operations.” Ex. 1005 ¶ 1. And EX-V7 is a user guide for Casio’s Exilim digital camera. Ex. 1014, 1.

Petitioner asserts in the Petition, supported by the testimony of its declarant, Mr. Guidash, that “Chinn and Takahashi both relate to image capture devices (imaging devices) with manual and voice activated photographic processes” and “EX-V7 also relates to an imaging device, and allows manual activation of a camera.” Pet. 10 (citing Ex. 1004 ¶¶ 4, 23, 30; Ex. 1005 ¶ 17; Ex. 1003 ¶ 69; Ex. 1014, 15–17). Petitioner also asserts that this makes “their devices particularly suitable for each other.” Pet. 10 (citing Ex. 1004 ¶¶ 16, 22, 23; *see also* Ex. 1003 ¶ 69).

Mr. Guidash also testifies that “Chinn discloses a two-camera system with front and rear cameras, while Takahashi and EX-V7 disclose a one-camera system.” Ex. 1003 ¶ 75 (citing Ex. 1004, Fig. 1; Ex. 1005, Fig. 1; Ex. 1014, 15–17), *see also id.* ¶ 78 (“Chinn discloses a camera device 100 comprising ‘a device activation button 101, touch screen display 105, front

camera 110, ..., back camera 125, ..., microphone 150.”) (citing Ex. 1004, ¶ 16, Fig. 1).

Even Patent Owner’s declarant, Dr. Wobbrock, testifies that “Chinn describes technologies relating to ‘ready click’ camera control. Camera devices may be equipped with a camera, a microphone, a processor, a memory, and a camera control system stored in the memory and executable by the processor.” Ex. 2005 ¶ 69. Dr. Wobbrock also testifies that “Takahashi discloses a one-camera system for taking photographs using voice audio input in cases where the photographer is the subject.” *Id.* ¶ 70. As for EX-V7, Dr. Wobbrock testifies that “EX-V7 is a digital camera user guide. EX-V7 discloses a one-camera system that includes a 2-second self-timer ‘to prevent blur due to hand movement.’” *Id.* ¶ 74.

The record, therefore, provides substantial evidence to support a finding that Chinn, Takahashi, and EX-V7 are all from the same field of endeavor as the ’757 patent, and thus all qualify as analogous art to the ’757 patent. *In re Klein*, 647 F.3d at 1348.

We also disagree with Patent Owner’s contention that “[t]here is no motivation to combine Chinn, Takahashi, and EX-V7.” PO Resp. 13 (emphasis omitted). A reason to combine teachings from the prior art “may be found in explicit or implicit teachings within the references themselves, from the ordinary knowledge of those skilled in the art, or from the nature of the problem to be solved.” *WMS Gaming Inc. v. Int’l Game Tech.*, 184 F.3d 1339, 1355 (Fed. Cir. 1999) (citing *In re Rouffet*, 149 F.3d 1350, 1357 (Fed. Cir. 1998)). “Under the correct [obviousness] analysis, any need or problem known in the field of endeavor at the time of invention and addressed by the patent can provide a reason for combining the elements in the manner claimed.” *KSR*, 550 U.S. at 420.

Here, the Petition provides a persuasive rationale for combining the teachings of Chinn, Takahashi, and EX-V7, which is amply supported by the testimonial evidence of Mr. Guidash and the cited references. For example, Petitioner explains that

both Chinn and Takahashi disclose delayed image capture after a voice command is given. EX1004, ¶¶2, 25, and 51 (use of “pre-amble” before image taking in response to voice command); EX1005, ¶¶39, 40 (use of a standby state before image taking in response to voice command). A POSITA therefore would have been motivated to look at Takahashi and EX-V7 to improve Chinn, and vice-versa.

Pet. 10–11 (citing Ex. 1003 ¶ 69).

Petitioner goes on to explain that

Chinn, Takahashi and EX-V7 are concerned with the benefits of a delay between manual shutter activation and image capture. EX1003, ¶74. Chinn discloses a 2-second timer to delay manual activation of its rear camera, EX1004, ¶48, and EX-V7 explicitly discloses a 2-second self-timer “to prevent blur due to hand movement.” EX1014, 77. Thus, EX-V7 provides further motivation to implement such a delay in the Chinn-Takahashi device.

Pet. 12 (citing Ex. 1003 ¶ 74).

Petitioner further explains that

Chinn discloses a two-camera system with front and rear cameras, while Takahashi and EX-V7 disclose a one-camera system. EX1004, FIG. 1; EX1005, FIG. 1; EX1014, pp. 15-17; EX1003, ¶75. In the Chinn device, the front camera typically would be used for a selfie to allow the user to see the image to be captured on the front display. EX1003, ¶75. A POSITA would have found it obvious, and would have been motivated, to set a longer delay for a front-camera selfie than for a rear-camera, touch-initiated photograph. Takahashi teaches that a delay considering facial movement is needed, and common sense dictates that it would be longer than a delay for a touch photo meant to capture the current scene.

Pet. 12.

Petitioner also explains that

Chinn discloses embodiments in which the camera control system 175 is configured for a 10 second standby time after detecting a “set time: 10 seconds” voice command. EX1004, ¶¶27. Chinn also discloses several shorter standby times for a rear camera in response to a touch activation of a control button 233, including 0, 2, 3 and 5 second standby times.” EX1004, ¶¶30, 39, 48 and Figs. 2-4. EX-V7 also discloses a 2-second self-timer “to prevent blur due to hand movement.” EX1014, p. 77. A POSITA would have found it obvious to select a 10-second standby time for a front-camera 110, voice-activated selfie (to give the user time after speaking the voice command to obtain a desired facial expression) and, e.g., a 2 second standby time for a rear-camera 125, touch-activated photo (to prevent blur due to hand movement) in light of these disclosures.

Pet. 13 (citing Ex. 1003 ¶ 75). Thus, contrary to Patent Owner’s argument, the Petition, supported by Mr. Guidash’s testimony and the references, provides substantial evidence to support a finding that Petitioner has articulated a rationale to combine that teachings of Chinn, Takahashi, and EX-V7 in the manner described.

Patent Owner also argues that “a POSITA would not look to the earlier single, standalone cameras of Takahashi (April 2000) or EXV7 (May 2007) for improvements to the Chinn mobile device.” PO Resp. 14 (citing Ex. 2005 ¶ 83).

We disagree with Patent Owner. Here, Takahashi explains that a time delay is needed when using a camera to take a self-portrait in order to “release[] the shutter after a prescribed amount of time has elapsed, giving the photographer time to adjust his or her facial expression and pose during that time. This makes it possible to be photographed accurately with the

desired facial expression and while not in the middle of speaking.” Ex. 1005 ¶ 41. Takahashi explains that otherwise “the shutter release operation would occur immediately, meaning the photographer would be photographed while speaking, making it impossible for him or her to be photographed with the desired facial expression or pose, which is a problem.” *Id.* ¶ 8.

Chinn describes a two-camera system in the form of a mobile smart phone having front and back cameras where the “camera control system may be configured to provide any of a variety of voice-interactive features, such as a voice-activated shutter.” Ex. 1004 ¶¶ 2, 16. Chinn explains that “[t]he camera control system 175 may be configured to activate the camera, which may be either or both of [front] camera 110 and/or [back] camera 125, to take a photograph or begin recording a video in response to . . . the words ready click.” *Id.* ¶ 23. Chinn also explains that a time-delay may be used such that “camera control system 175 may adapt its response to user selection of shutter control 233, so that, in response to user selection of shutter control 233, camera control system 175 starts a timer and then takes a picture/initiates video recording after the time period specified for the timer elapses. For example, the time period may be 10, 15, or 20 seconds, or any other time period.” *Id.* ¶ 40.

Mr. Guidash explains why a person of ordinary skill in the art would combine the time-delay camera shutter features taught by Takahashi to solve the self-portrait problem in a two-camera system as taught by Chinn, which we credit. Mr. Guidash explains that

[i]n the Chinn device, the front camera typically would be used for a selfie to allow the user to see the image to be captured on the front display. In my opinion, a POSITA would have found it obvious, and would have been motivated, to configure the length of the standby time for a front camera selfie in such a

device to be longer than a delay for a rear-camera, touch-initiated photograph. Takahashi teaches that a delay is required due to facial movement, and it is common sense that this delay would be longer than that required for a standard touch-initiated photograph where it is desired to capture the moment and scene that is presently being viewed. Chinn discloses embodiments in which the camera control system 175 is configured for a 10 second standby time after detecting a “set time: 10 seconds” voice command. EX1004, ¶27. Chinn also discloses several shorter standby times for a rear camera in response to a touch activation of a control button 233, including 0, 2, 3 and 5 second standby times.” EX1004, ¶¶30, 39, 48 and Figs. 2-4. EX-V7 also discloses a 2-second self-timer “to prevent blur due to hand movement.” EX1014, p. 77. A POSITA, in my opinion, would have found it obvious to select a 10 second standby time for a front-camera 110, voice-activated selfie (to give the user time after speaking the voice command to obtain a desired facial expression) and, e.g., a 0 or 2 second standby time for a rear-camera 125, touch-activated photo (to prevent blur due to hand movement) in light of these disclosures.

Ex. 1003 ¶ 75.

Thus, contrary to Patent Owner’s argument, the Petition, supported by Mr. Guidash’s testimony and the teachings of the references themselves, provides substantial evidence to support a finding that Petitioner has sufficiently articulated a reason to combine that teachings of Chinn, Takahashi, and EX-V7 in the manner described by the Petition.

Finally, Patent Owner argues that “neither Petitioners nor their expert provide any rationale as to why a POSITA would be motivated to redesign OS 171, Camera Control System 175, and user interfaces 200, 300, and 400 of Chinn to arrive at the claimed invention when Chinn has its own solution of camera selection.” PO Resp. 14 (citing Ex. 1004 ¶¶ 23, 25; Ex. 2005 ¶ 83). Patent Owner argues that “modifying Chinn to arrive at the claimed

invention would require a complete redesign of Chinn's system." PO Resp. 14.

We disagree with Patent Owner. The test for obviousness is not whether the features of a secondary reference may be incorporated into the system of the primary reference, or whether Chinn's system needs to be completely redesigned as Patent Owner suggests. Rather, the test is what the combined teachings of the references would have suggested to those of ordinary skill in the art. *In re Keller*, 642 F.2d 413, 425 (CCPA 1981). Moreover, "if 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." *KSR*, 550 U.S. at 417.

Here, Takahashi recognizes that using a time-delay for a camera's shutter is necessary when taking self-portraits because otherwise "the shutter release operation would occur immediately, meaning the photographer would be photographed while speaking, making it impossible for him or her to be photographed with the desired facial expression or pose, which is a problem." *Id.* ¶ 8. Because Takahashi teaches that using a time-delay shutter is necessary when taking self-portraits in a single-camera system, a person of ordinary skill in the art would similarly recognize that using a time-delay shutter release when taking self-portraits would also improve a two-camera system in the same way, and that using such a technique in a two-camera system is an obvious improvement. *KSR*, 550 U.S. at 417.

Accordingly, based upon the complete record, we are persuaded that Petitioner has demonstrated by a preponderance of the evidence that a person of ordinary skill in the art would have had a reasoned basis to combine the teachings of Chinn, Takahashi, and EX-V7 in the manner

described in the Petition and would have had a reasonable expectation of success in that endeavor.

2. Independent Claim 1

We now consider the evidence and arguments of the parties directed to independent claim 1. For Ground 1, Petitioner contends that claim 1 is unpatentable under 35 U.S.C. § 103 as obvious over the combined teachings of Chinn, Takahashi and EX-V7. *See* Pet. 10–47. Petitioner submits the testimony of Mr. Guidash in support of its contentions. *See* Ex. 1003 ¶¶ 68–143.

Patent Owner disputes certain aspects of Petitioner’s evidence and arguments directed to claim 1, in particular limitations [1g], [1i], and [1j]. *See* PO Resp. 8–24. Patent Owner submits the declaration of Dr. Wobbrock in support of its contentions. *See* Ex. 2005 ¶¶ 75–101. Patent Owner does not contest Petitioner’s evidence and arguments directed to the other portions of claim 1, namely the preamble and limitations [1a]–[1f] and [1h]. *See id.* We first consider the parties’ evidence and arguments directed to contested limitations [1i], [1g] and [1j].

a. Contested Limitation [1i]

Limitation [1i] recites “*control such that a first standby time of a case where the first camera is enabled and the second camera is disabled is longer than a second standby time of a case where the second camera is enabled and the first camera is disabled.*” The parties’ arguments rely on different interpretations of the scope of limitation [1i].

i. The Parties’ Arguments

In its Response, Patent Owner asserts that “[t]he claim provides clear antecedent basis and requires that the first camera is enabled and the second camera is disabled in response to the command voice.” PO Resp. 10 (citing

Ex. 2005 ¶ 78). Patent Owner makes several arguments that each rely in some measure on Patent Owner's interpretation of the language of limitation [1i]. These arguments include:

1) "Petitioners have failed to demonstrate that the first instruction results in the first camera being enabled and the second camera being disabled." *Id.* at 15 (citing Ex. 2005 ¶ 84). "[T]he claims cover 'a case where the first camera is enabled and the second camera is disabled' that is triggered by the first instruction, which is the command voice." *Id.* at 16 (citing Ex. 2005 ¶ 84). "Then, the claims switch to cover 'a case where the second camera is enabled and the first camera is disabled.'" PO Resp. 16. Limitation [1i] is not met because neither camera in Chinn would change from an enabled state to a disabled state. *Id.*; and

2) The "first standby time of a case where the first camera is enabled and the second camera is disabled" corresponds to "recording of the first image signal acquired by the first camera on the storage in response to the first instruction," which is the voice command. *Id.* at 20 (citing Ex. 1001, Claim [1g]; Ex. 2005 ¶ 94). Similarly, the "standby time of a case where the second camera is enabled and the first camera is disabled" corresponds to "recording of the second image signal acquired by the second camera on the storage in response to the second instruction," which is a touch instruction. *Id.* (citing Claim [1h]).

In its Reply, Petitioner argues that in order "[t]o show this 'clear antecedent basis,' however, PO and its expert is forced to 'link[]' cherry-picked bits and pieces from three different limitations -- [1g], [1i] and [1j]. But this construction is simply incorrect, unsupported by the claim language itself, the '757 patent's specification and claim construction principles." Pet. Reply 4 (citing PO Resp. 10; Ex. 2005 ¶ 78).

Petitioner argues that Patent Owner’s “construction requires the first camera to be enabled and the second camera to be disabled ‘in response to the command voice.’” Pet. Reply 5 (citing Ex. 2005 ¶ 78; PO Resp. 10). Petitioner argues that “[t]his language is not found in any claim limitation, let alone limitations [1g], [1i] and [1j].” Pet. Reply 5. According to Petitioner, “[t]he only claim limitation/function that is arguably ‘in response to the command voice’ is the starting of the ‘recording of the first image signal,’ which according to limitation [1g] is ‘in response to the first instruction’ given by the command voice. Pet. Reply 6 (citing Ex. 1001, 16:25–31).

Petitioner argues that

[t]he language “a case where” does not require that the first camera is being enabled and the second camera is being disabled in this scenario— instead, it only requires that the first camera is enabled and the second camera is disabled without restriction to how the first camera becomes enabled and the second becomes disabled. The plain meaning of the claim language broadly covers the scenario where the first camera is already enabled and the second camera is already disabled before the command voice is received, in addition to the scenario where the first camera is enabled and the second camera is disabled in response to the command voice.

Pet. Reply 6; *see* Ex. 1001, 16:38–42.

Petitioner also argues that Patent Owner’s “construction requiring the first camera to be enabled and the second camera to be disabled ‘in response to the command voice’ reads out the preferred/only embodiment of how the claimed image recording device (i.e., device 100) operates.” Pet. Reply 7. Petitioner directs us to Figure 10 of the ’757 patent, shown below.

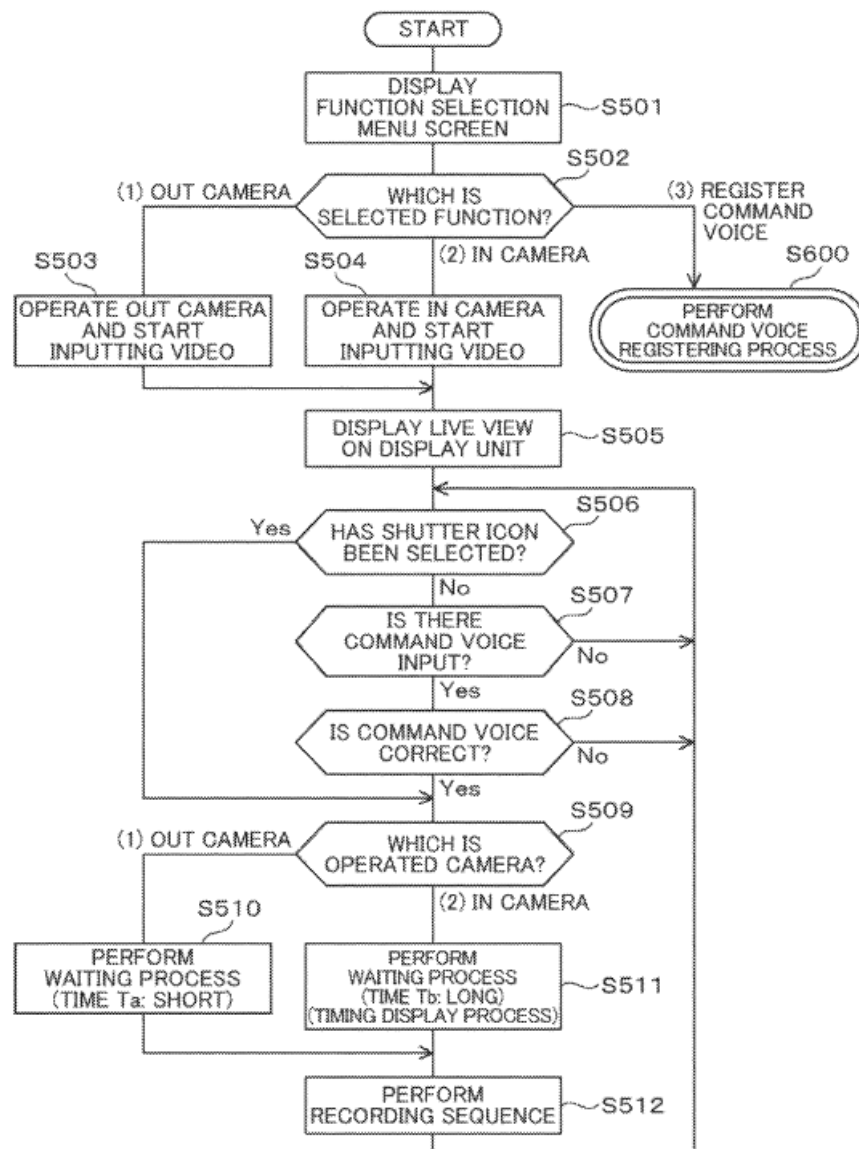


Figure 10 “is a flowchart that illustrates the flow of a camera operation of the video recording device 100.” Ex. 1001, 3:41–42. Petitioner asserts that Figure 10 “is the *only* flowchart identified as describing how device 100 performs the ‘camera operation.’” Pet. Reply 7–8. Petitioner asserts that “[a]ccording to Dr. Wobbrock, ‘Figure 10 starts with the display function selection menu screen, and that menu screen is the screen referred to in figure 6.’” *Id.* at 9 (citing Ex. 1015, 14:2–13 (referring to S501)). Petitioner asserts that “as admitted by Dr. Wobbrock, according to the

description of FIG. 10, pressing button 312 [shown on Fig. 6] is the only way to enable the front/in camera.” Pet. Reply 9 (citing Ex. 1015, 20:16–21:3). Petitioner argues that “Dr. Wobbrock admitted that the front/in camera is enabled at this point.” Pet. Reply 10 (citing Ex. 1015, 23:14–24:4). Petitioner points out that “although the front/in camera is enabled and outputting image signals, *there has not been a receipt or detection of a command voice*, which is determined at steps S507 and S508 [in Fig. 10], which is after step S504.” Pet. Reply 11 (citing Ex. 1001, 11:30–59).

According to Petitioner, Dr. Wobbrock admitted that “the initiation of the first or second standby times does not even occur until step S510 or S511 after step S509 determines which camera icon/button (i.e., button 311 or 312 of FIG. 6) was selected by the user.” Pet. Reply 11 (citing Ex. 1015, 38:5–40:19). Petitioner asserts that “Dr. Wobbrock reluctantly agreed that his claim construction requiring “that the command voice which gives the first instruction also enables the first camera, disables the second camera, initiates the standby time, and then results in a recording of the image signal” is “not what’s happening in figure 10.” Pet. Reply 12 (citing Ex. 1015, 43:8–45:20 (“figure 10 is concerned with the pressing of button 312 in figure 6 or 311 in figure 6, which are using the in or out camera, having pressed a button on the screen”))).

Petitioner also argues that Patent Owner’s claim construction would render claim 2 superfluous. Claim 2 recites “The image recording device according to claim 1, wherein the first camera is enabled in accordance with the command voice.” Ex. 1001, 16:49–51. Petitioner argues that claim 2’s “limitation is rendered superfluous in view of the PO’s construction of claim 1 that requires the first camera is enabled “in response to the command voice.” Pet. Reply 13.

Petitioner further argues that under Patent Owner's construction claim 2 is broader than claim 1. Petitioner points to Dr. Wobbrock's testimony where he explains that

[i]n the case of claim 2, it is enabling the first camera. It's silent as to the second camera. That's not mentioned in claim 2. And so claim 2 is concerned with the enabling of the first camera. Claim 1 is, as I just described, concerned with enabling the first camera and disabling the second camera.

Pet. Reply 13 (citing Ex. 1015, 54:7–55:2).

In its Sur-reply, Patent Owner asserts that

the claim language clearly traces the antecedent basis for “the first instruction” in element [1.j] to “the command voice giving a first instruction” in element [1.g]. POR, 9-10; EX2005, ¶78. At the same time, the antecedent basis for “the first standby time” in element [1.j] comes from “a first standby time of a case where the first camera is enable and the second camera is disabled” in element [1.i]. *Id.* As a result, claim 1 requires that the command voice enables the first camera and disables the second camera. *Id.*

Sur-reply 2.

Patent Owner asserts that “[i]t is Petitioners who misconstrue the claims,” arguing that the specific language of limitation [1i] “*a case where the first camera is enabled and the second camera is disabled*” cannot be read as “a case where the first camera is already enabled and the second camera is already disabled,” because such a reading “disregards the plain meaning” of the claim. Sur-reply 3 (citing Ex. 1014, 53:16–22).

Patent Owner argues that

[t]he command voice given in Chinn is limited to setting a timer that has no connection to which camera is to be enabled. In contrast, the single command voice in claim 1 enables the first camera, disables the second camera, and initiates a first standby time. EX2005, ¶80. Thus, Chinn does not disclose the claimed voice command.

Sur-reply 4.

Patent Owner also argues that a “plain reading” of claim 1 “does not require a recitation of the preferred embodiment.” *Id.* Patent Owner contends that Petitioner “would require the impossible” because “[i]f everything in the specification were required to be read into the claims . . . there would be no need for claims.” *Id.* (citing *SRI Int'l v. Matsushita Elec. Corp. of Am.*, 775 F.2d 1107, 1121 (Fed. Cir. 1985)).

Patent Owner further argues that a “plain reading” of claim 1 “does not render claim 2 superfluous.” Sur-reply 5. Patent Owner argues that

[t]he natural reading of claim 2 is narrower than claim 1. Independent claim 1 describes two cases where different cameras as enabled or disabled. Claim 2 describes an additional case—an additional functionality—required by the image processing device. For example, as explained by Dr. Wobbrock, claim 2 describes a third case where the first camera is enabled and the second camera is not considered. *See* EX1015, 54:7-55:2. Thus, the scope of claim 2 encompasses a device with more capabilities than claim 1 and is narrower.

Sur-reply 5.

Patent Owner contends that claim 1 “requires that the first camera is enabled and the second camera is disabled in response to the command voice.” PO Resp. 10 (citing Ex. 2005 ¶ 78), *see also* Sur-reply 2 (“claim 1 requires that the command voice enables the first camera and disables the second camera”). According to Patent Owner, “Petitioners have failed to demonstrate that the first instruction results in the first camera being enabled and the second camera being disabled.” PO Resp. 15 (citing Ex. 2005 ¶ 84); *see also* Sur-reply 3 (Petitioner’s position “disregards the plain meaning that the first camera becomes enabled and the second camera becomes disabled.”).

ii. *Claim Analysis*

We disagree with Patent Owner’s proposed construction of claim 1. The words of a claim are generally given their ordinary and customary meaning as understood by a person of ordinary skill in the art when read in the context of the specification and prosecution history. *Phillips*, 415 F.3d at 1313. The person of ordinary skill in the art is deemed to read the claim term not only in the context of the particular claim in which the disputed term appears, but also in the context of the entire patent, including the specification. *Multiform Desiccants, Inc. v. Medzam, Ltd.*, 133 F.3d 1473, 1477 (Fed. Cir. 1998).

Claim 1 is directed to an image recording device configured to execute different photographing processes. Ex. 1001, 16: 8–9. Claim 1 recites a number of limitations, including “*an audio input interface*” “*a touch display*” “*a first camera*” “*a second camera*” “*a recorder*” and “*a controller.*” *Id.* at 16:10–24. The recited “*controller*” (limitation [1f]) has a number of recited control configurations, including when to start a recording of a first image signal by the first camera (limitation [1g]), when to start a recording of a second image signal by the second camera (limitation [1h]), and setting the length of a first and second standby time based on the state of the first and second cameras (limitation [1i]).

The disputed claim limitation [1i] reads as follows: “*control such that a first standby time of a case where the first camera is enabled and the second camera is disabled is longer than a second standby time of a case where the second camera is enabled and the first camera is disabled.*” Read in the context of claim 1, limitation [1i] describes one type of “*control*” for the “*controller*” recited in limitation [1f]. Limitation [1i] describes a type of “*control such that a first standby time . . . is longer than a second standby*

time.” The first and second standby times recited in limitation [1i] involve two different situations (“*of a case*”). In the first situation, or case, “*the first camera is enabled and the second camera is disabled.*” In the second situation, or case, “*the second camera is enabled and the first camera is disabled.*” The plain meaning of limitation [1i] then when read in its entirety is that the “*first standby time*” (where the first camera is enabled and the second camera is disabled) “*is longer than a second standby time*” (where the second camera is enabled and the first camera is disabled).

This understanding of the plain meaning of limitation [1i] has substantial support in the ’757 patent. For example, Figure 4 of the ’757 patent is shown below.

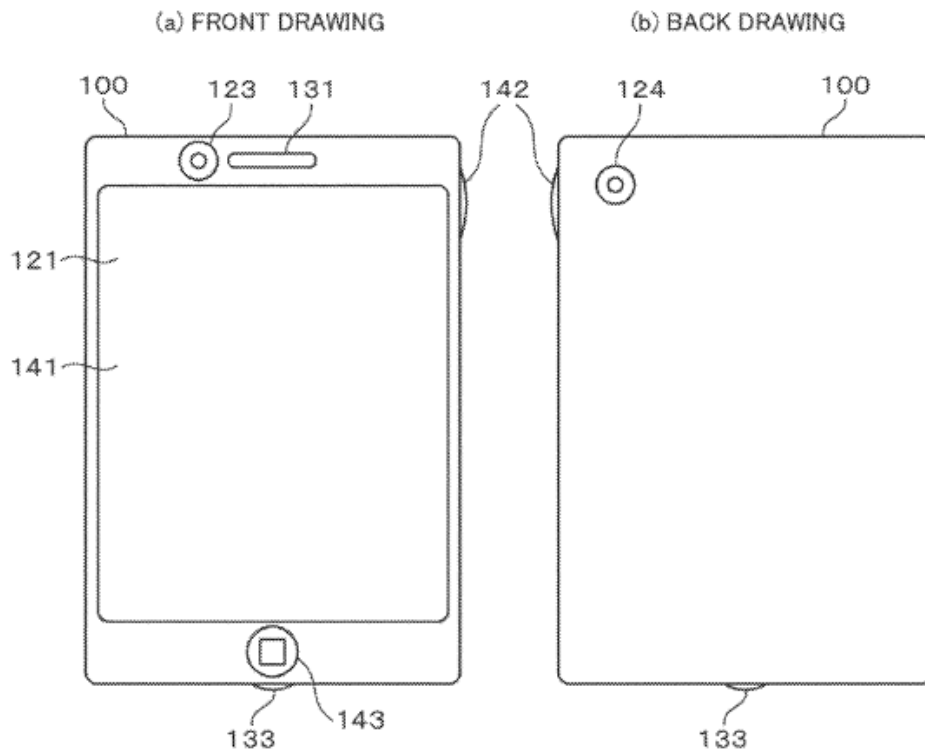


Figure 4 shows front (a) and back (b) external views of video recording device 100, such as a smartphone. Ex. 1001, 7:49–53. The ’757 patent explains that

[o]n the front face side of the video recording device 100, a display unit 121 is arranged. The first imaging unit (camera unit) 123 is arranged on a same face (front face) as that of the display unit 121, and the second imaging unit (camera unit) 124 is arranged on a face (rear face) opposite to the display unit 121. Hereinafter, the first imaging unit 123 arranged on the same face as that of the display unit 121 will be referred to as an “in camera,” and the second imaging unit 124 arranged on the side opposite to the display unit 121 will be referred to as an “out camera.”

Id. at 7:54–64. The ’757 patent explains that “in a case where a voice recognition function is applied to an information terminal device (video recording device) including two cameras of the out camera and the in camera, in order to photograph a subject in a natural pose, *it is necessary to adjust photographing timing depending on which camera is used.*” *Id.* at 2:32–37 (emphasis added).

The ’757 patent also explains that

[i]n a general subject photographing process, it is preferable that a delay time until the start of a recording process after a shutter operation (in this embodiment, including the input of a command voice used as a trigger for starting a recording process) is as close as possible to zero. However, in a case where the user himself is photographed (self-image photographing) using a camera that starts a recording process using a voice input as a trigger, such a delay time is not preferable since the user is photographed with his mouth in a state immediately after the utterance of a command voice in that case. In order to avoid this, in this embodiment, a predetermined delay time until the start of a recording process after the input of a command voice is provided. In other words, *a control process is performed such that switching to a delay*

time until the start of recording after detection of a trigger for starting the recording process is made in accordance with a photographing target (an external subject/a self-image) or a photographing method (the out camera/the in camera).

Ex. 1001, 9:23–41 (emphasis added).

The '757 patent further explains that the delay time until the recording process starts from a trigger operation is longer when using the first or “in camera” to take, for example, a self-portrait or “selfie,” than when using the second or “out camera” to take a picture of a distant subject. *See* Ex. 1001, 9:64–10:6 (“the delay time is automatically switched over in accordance with selection of one of the second imaging unit 124 (out camera) and the first imaging unit 123 (in camera)”). A comparison of these delay times is shown in Figure 9, below.

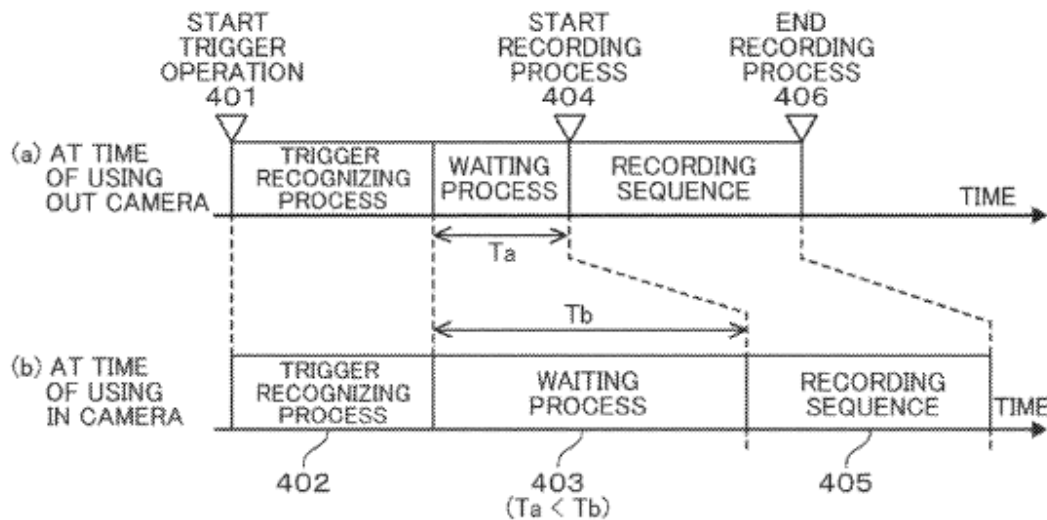


Figure 9 is a diagram that illustrates a process of controlling switching between recording start delay times. Ex. 1001, 3:39–40. The '757 patent explains that in a case where a subject is photographed using the second imaging unit 124 (out camera), a standby process 403 of a standby time T_a is performed. *Id.* at 9:56–64. On the other hand, as illustrated in (b), in a case

where a subject is photographed using the first imaging unit 123 (in camera), a standby process 403 of a standby time T_b is performed. *Id.* Here, the standby times of both the cases are different from each other, and the standby time T_b is set to be longer than the standby time T_a ($T_a < T_b$). *Id.*

The Specification does not support Patent Owner's proposed construction that claim 1 "requires that the first camera is enabled and the second camera is disabled in response to the command voice." PO Resp. 10. Indeed, Patent Owner's construction is problematic not only because it finds no express support in claim 1 or the '757 specification, but, as pointed out by Petitioner, it is at odds with the only embodiment in the Specification that illustrates the logical sequence of the operation flow of video recording device 100. Figure 10 from the '757 patent is shown below.

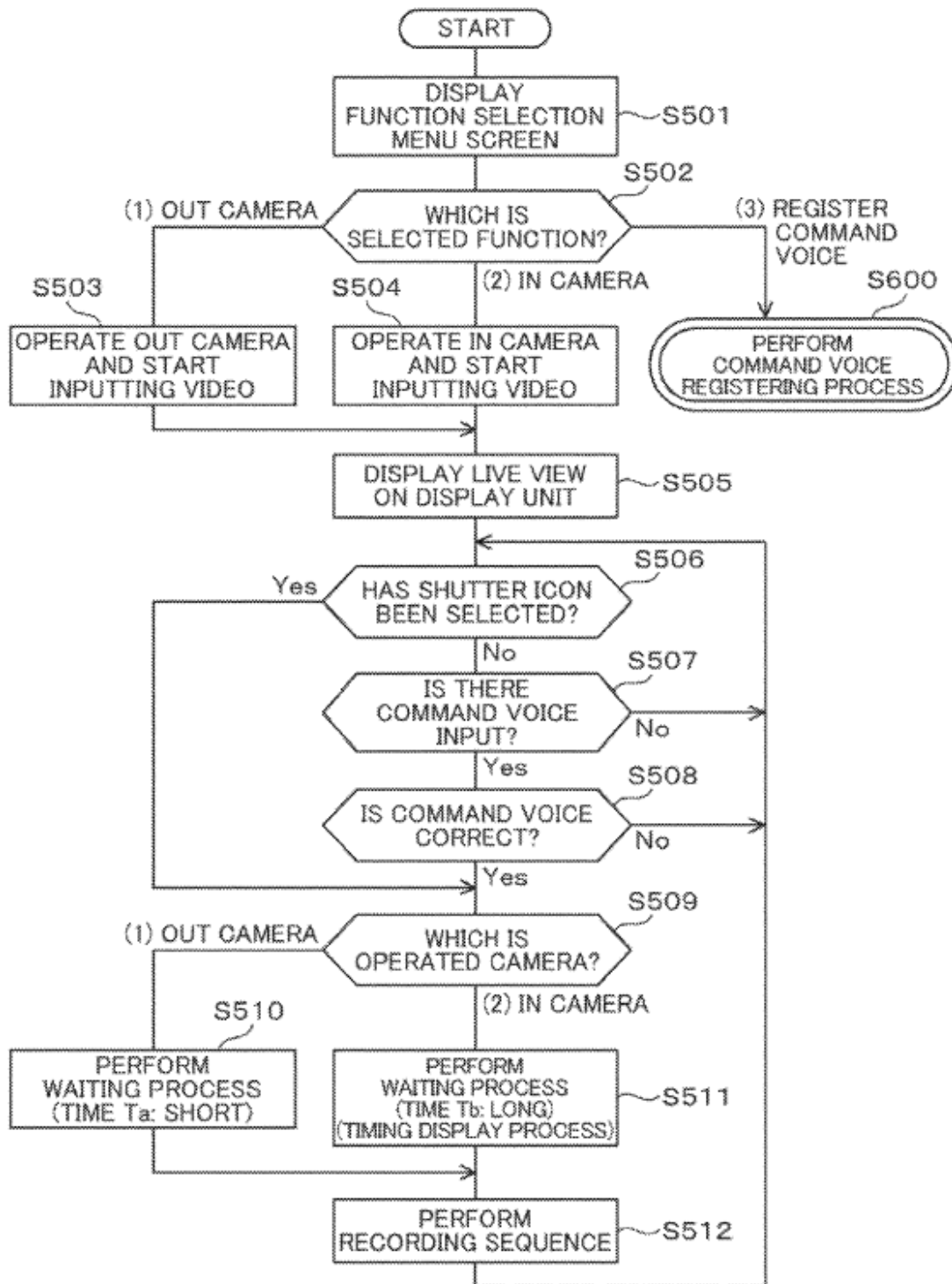


Figure 10 is a block diagram that illustrates the flow of camera operation of video recording device 100. Ex. 1001, 3:41–42. According to

the '757 specification, and as illustrated in Figure 10, the operation of video recording device 100 starts at Step S501 with the display of the function selection menu screen, which is shown in Figure 6, below. *Id.* at 11:3–6.

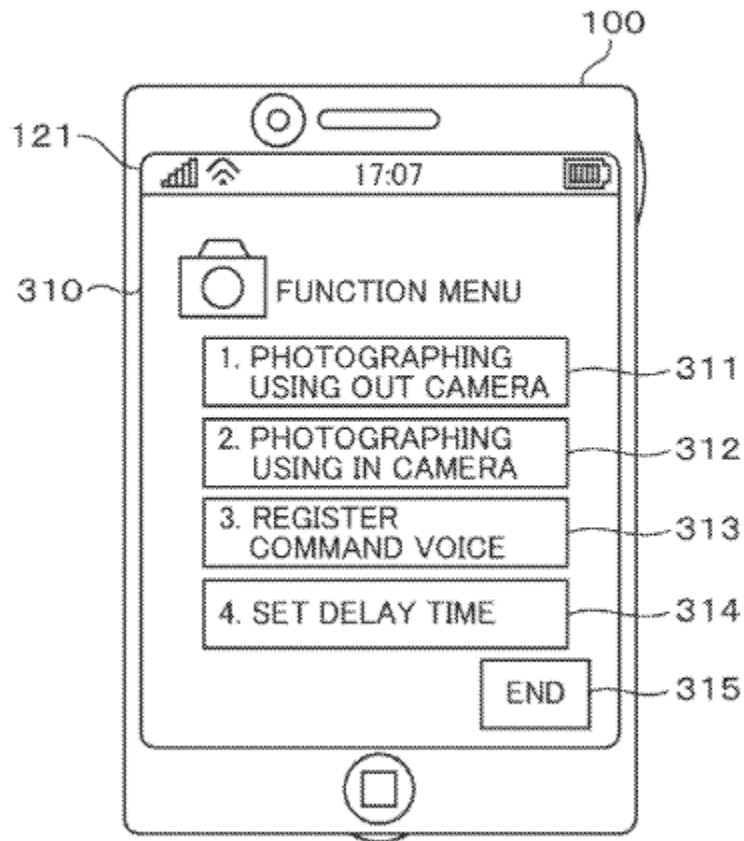


Figure 6 depicts a camera function selection screen. The function menu depicted in Figure 6 allows a user to choose between photographing using the “out camera” (311), photographing using the “in camera” (312), registering a command voice (314) or setting a time delay (314). The '757 specification explains that

In S502, in a case where the user selects (1) the out camera selection icon 311, the camera function executing unit 104b enables the second imaging unit 124, starts inputting video data from the out camera (S503), and displays the input video data on the display unit 121 as a live view (S505). On the other hand, in a case where the user selects (2) the in camera

selection icon 312, the camera function executing unit 104b enables the first imaging unit 123, starts inputting video data from the in camera (S504), and displays the input video data on the display unit 121 as a live view (S505).

Ex. 1001, 11:7–17 (emphasis added). Here, the ’757 specification expressly and unequivocally states that it is the user selection of the out camera selection icon 311 or the in camera selection icon 312 in connection with the camera function executing unit 104b that *enables* the second imaging unit 124 or *enables* the first imaging unit 123, respectively, not a command voice as Patent Owner erroneously contends.

Figure 10 and the ’757 specification make clear that the consideration of a command voice does not occur until Step S507, *after* camera function executing unit 104b has already enabled second imaging unit 124 or first imaging unit 123 in Steps S502 –S505. *See* Ex. 1001, 11:38–47. Indeed, Patent Owner’s declarant, Dr. Wobbrock, acknowledged that the front/in camera would already have been enabled by this point. Ex. 1015, 23:14–25:13.

Accordingly, Patent Owner’s contention that “claim 1 requires that the command voice enables the first camera and disables the second camera” (Sur-reply 2), is not supported, and indeed is contradicted by the ’757 specification.

Moreover, “a claim interpretation that excludes a preferred embodiment from the scope of the claim is rarely, if ever, correct.” *On-Line Techs., Inc. v. Bodenseewerk Perkin-Elmer GmbH*, 386 F.3d 1133, 1138 (Fed. Cir. 2004). To the extent that Figure 10 is the only flowchart in the ’757 patent illustrating the logical flow of camera operation of video recording device 100, Patent Owner’s claim construction would exclude that

embodiment. Patent Owner’s counsel acknowledged as much at oral argument.

JUDGE TROCK: Is the embodiment in Figure 10 captured by your claim construction, or is it outside the scope of your construction? Which is it?

MR. BRUNEEL: I think it would be outside the scope of the way we've presented the claims, yes.

Paper 25, 27:9–13.

Petitioner points out additional reasons to reject Patent Owners claim construction—that Patent Owner’s claim construction would make claim 2 broader than claim 1 or would make claim 2 superfluous. These arguments provide additional reasons to reject Patent Owner’s claim construction.

For example, Claim 2 recites “[t]he image recording device according to claim 1, wherein the first camera is enabled in accordance with the command voice.” Ex. 1001, 16:49–50. If we were to accept Patent Owner’s construction, that claim 1 “requires that the first camera is enabled and the second camera is disabled in response to the command voice” (PO Resp. 10), then what is the purpose of claim 2 if claim 1 already requires the first camera to be enabled in accordance with the command voice? At that point claim 2 would add nothing to further limit claim 1 and would be superfluous. This is clearly problematic, for a dependent claim that does not limit its independent claim is improper because a dependent claim must be *narrower* than the independent claim. 35 U.S.C. § 112, ¶ 4 (“a claim in dependent form shall contain a reference to a claim previously set forth and then specify a further limitation of the subject matter claimed.”); *see also Pfizer, Inc. v. Ranbaxy Labs., Ltd.*, 457 F.3d 1284, 1291–1292 (Fed. Cir. 2006).

Dr. Wobbrock’s testimony illustrates how dependent claim 2 would fail to limit claim 1 under Patent Owner’s construction:

[i]n the case of claim 2, it is enabling the first camera. It’s silent as to the second camera. That’s not mentioned in claim 2. And so claim 2 is concerned with the enabling of the first camera. Claim 1 is, as I just described, concerned with enabling the first camera and disabling the second camera.

Pet. Reply 13 (citing Ex. 1015, 54:7–55:2).

Accordingly, based upon our consideration of the entirety of the record, we determine that Patent Owner’s proffered construction that claim 1 requires that the command voice enable the first camera and disable the second camera as part of limitation [1i] is not supported by the intrinsic record of the ’757 patent. Instead, we find that the preponderance of the evidence demonstrates that the ordinary and customary meaning of limitation [1i] to a person of ordinary skill in the art at the relevant time period would mean a first standby time, where the first camera is enabled and the second camera is disabled, is longer than a second standby time, where the second camera is enabled and the first camera is disabled.

iii. Prior Art Teaching of Limitation [1i]

Petitioner contends that “[t]he Chinn-Takahashi-EX-V7 combination renders obvious this limitation.” Pet. 29 (citing Ex. 1003 ¶ 99). With respect to the recited claim language “a case where the first camera is enabled and the second camera is disabled,” Petitioner asserts that “Chinn discloses or renders obvious activating the front camera 110 (i.e., first camera) to output image signals when a voice command is received and the front camera is selected via, e.g., via the camera selection control 242.” Pet. 29 (citing Pet. § VI.A (motivation to combine Chinn with Takahashi and EX-V7); Ex. 1003 ¶ 100). According to Petitioner, a person of ordinary skill

in the art “would have understood that the need to activate the front camera 110 means that it was previously disabled.” Pet. 29. Petitioner also asserts that a person of ordinary skill in the art “would have also understood that because only the front camera 110 is activated, the back camera 125 (i.e., second camera) would remain disabled.” *Id.* (citing Ex. 1003 ¶ 100).

Petitioner argues that “[t]o the extent not expressly disclosed in Chinn, [a person of ordinary skill in the art] would have found it obvious to configure Chinn’s camera control system 175 to keep rear camera 125 disabled while capturing an image using the front camera 110 and vice-versa.” Pet. 29. According to Petitioner, the “[b]enefits of doing so include reducing power consumption and increasing battery life.” *Id.* (citing Ex. 1003 ¶ 100).

With respect to the recited claim language “a case where the second camera is enabled and the first camera is disabled,” Petitioner explains, “Chinn discloses activating the back camera 125 (i.e., second camera) in response to the user selection of the camera activation control 233 on the touch panel 105/UI 200 when the back camera is selected via the camera selection control 242.” *Id.* at 30 (citing Ex. 1003 ¶ 101). According to Petitioner, a person of ordinary skill in the art “would have understood that the need to activate the back camera 125 means that it was previously disabled,” and a person of ordinary skill in the art “would have also understood or at least found obvious that because only the back camera 125 is activated, the front camera 110 (i.e., first camera) remains disabled.” *Id.* (citing Ex. 1003 ¶ 101). The “[b]enefits of doing so,” Petitioner argues, “include reducing power consumption and increasing battery life.” Pet. 30.

With respect to the recited claim language “a first standby time . . . is longer than a second standby time,” Petitioner asserts that a person of ordinary skill in the art

would have found it obvious to configure the camera control system 175 in the Chinn-Takahashi-EX-V7 combination for a 10 second standby time after detecting a ‘set timer: 10 seconds’ voice command to capture selfie using the front camera as taught by Chinn (EX1004, ¶ 27) and for a 2 second standby time after detecting a touch command via camera activation control 233 when the rear camera has been selected via control 242 as taught by the combination of Chinn and EX-V7.

Pet. 30 (citing Ex. 1004 ¶ 48; Ex. 1014, 77; Ex. 1003 ¶ 102).

In its Response, Patent Owner makes a number of arguments with respect to limitation [1i] that are premised on its proposed construction that claim 1 requires the command voice enable/disable the first/second camera as part of limitation [1i]. *See, e.g.*, PO Resp. 9 (“Chinn does not disclose a voice command for enabling the first camera and disabling the second camera”) (emphasis omitted). Because we decline to adopt Patent Owner’s proposed construction in Section III.D.2.a.ii, above, we do not repeat Patent Owner’s arguments here premised on or incorporating that erroneous construction.

a) First/Second Camera Is Enabled/Disabled

Patent Owner does, however, contend that “Chinn does not disclose the first camera *being enabled* and the second camera *being disabled*,” language which is similar, but not identical to, the actual language of limitation [1i]. PO Resp. 15 (emphasis omitted and added). Limitation [1i] recites in pertinent part: “a case where the first camera *is enabled* and the second camera *is disabled*.” Ex. 1001, 16:38–42 (emphasis added).

Patent Owner asserts that “[n]one of Petitioners, Mr. Guidash, or Chinn provide a disclosure of disabling a camera that was previously enabled.” PO Resp. 16. Patent Owner argues that

the camera of Chinn may either stay enabled or may never have been enabled initially, thus not requiring a change to a “disabled” state. This results in a scenario where limitation [1.i] is not met because neither camera in Chinn would change from an enabled state to a disabled state.

Id. at 17 (citing Ex. 2005 ¶ 86).

Patent Owner also contends that the teachings of Chinn and the ’757 patent both undermine Petitioner’s position because Chinn teaches that its camera control system 175 may be configured to activate either or both of camera 110 and/or camera 125 (PO Resp. 16 (citing Ex. 1004 ¶ 23)), and the ’757 patent teaches a scenario where “both the first imaging unit 123 (in camera) and the second imaging unit 124 (out camera) are simultaneously enabled, and two units of video are input.” PO Resp. 17 (emphasis omitted) (citing Ex. 1001, 13:32–36; Ex. 2005 ¶ 86).

Patent Owner also contends that Chinn does not disclose the second case where the second camera is enabled and the first camera is disabled, for reasons that are similar to Patent Owner’s arguments directed to the first case. PO Resp. 19 (citing Ex. 2005 ¶ 90).

Patent Owner further contends that Petitioner’s argument that the benefits of a camera remaining disabled include reducing power consumption and increasing battery life are incorrect, because according to Patent Owner, “in modern mobile devices, including those around September 2013, it would be more efficient for battery life to keep both cameras powered on, and switch between an active and inactive state based on the user’s selection.” PO Resp. 18 (citing Pet. 30; Ex. 2005 ¶ 87).

There does not appear to be any dispute between the parties that Chinn teaches a camera control system 175 that may be configured to activate a first and/or second camera by voice or touch. *See, e.g.*, Ex. 1004 ¶¶ 23, 25, 30, 40. The dispute between the parties appears to be centered on whether Petitioner’s proffered evidence demonstrates “disabling a camera that was previously enabled.” *See* PO Resp. 16 (“None of Petitioners, Mr. Guidash, or Chinn provide a disclosure of disabling a camera that was previously enabled.”), *see also id. at* 19 (“Chinn does not disclose disabling any camera and Petitioners fail to demonstrate otherwise.”). We are persuaded that Petitioner’s evidence demonstrates that the recited features of limitation [1i] are taught by the asserted art or would have been obvious to one of ordinary skill in the art at the relevant time period.

Chinn’s Figure 1 is shown below.

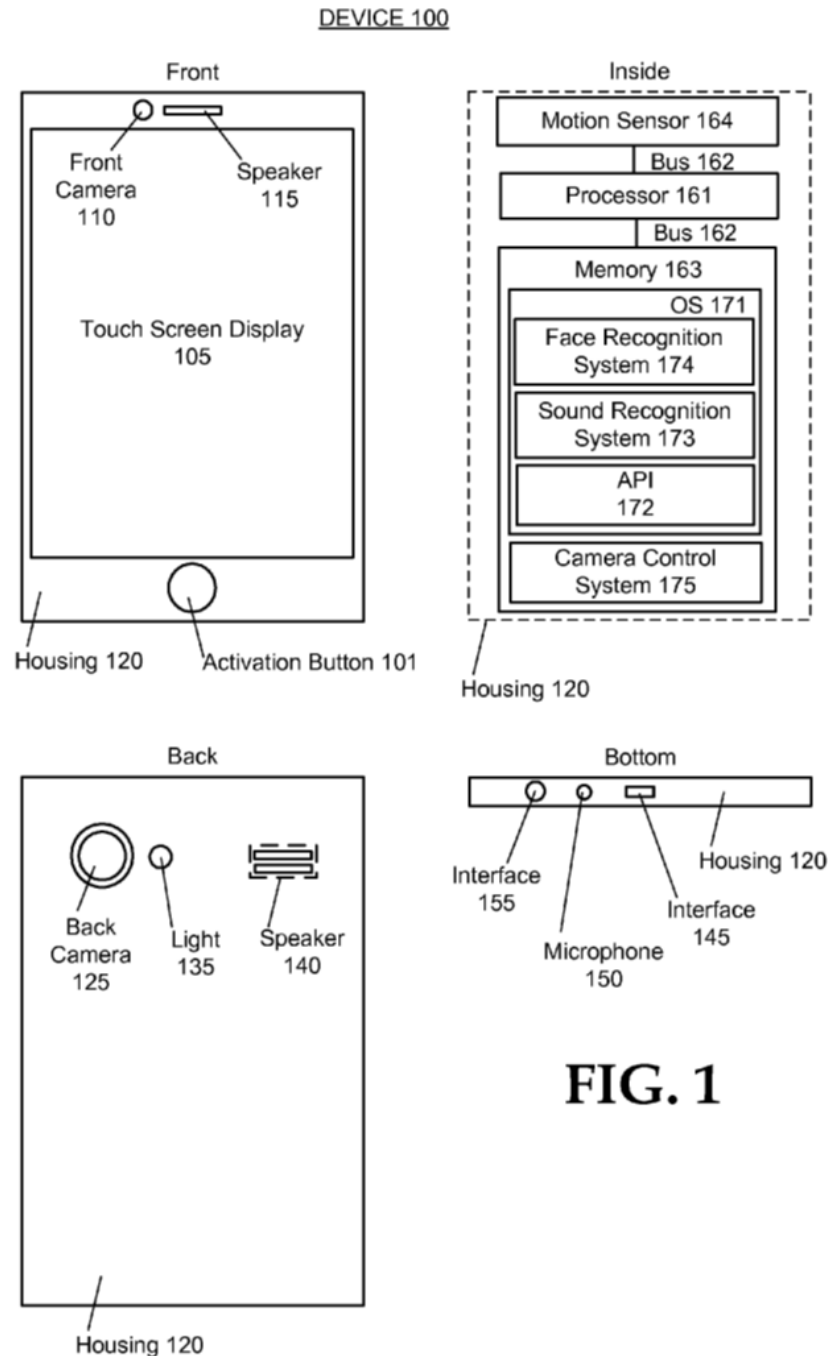


FIG. 1

Chinn's Figure 1 graphically illustrates the front, back, inside and bottom of device 100, which may take the form of a smart phone. Ex. 1004 ¶ 16, Fig. 1. The front of device 100 depicts camera 110, touch screen 105, and activation button 101. *Id.* The back of device 100 depicts back camera 125. *Id.* Speakers 115 and 140 are depicted on the front and back of device 100

respectively. *Id.* Microphone 150 is depicted on the bottom view of device 100. *Id.* The inside view of device 100 shows sound recognition system 173 and camera control system 175, among other internal components. *Id.*

Chinn explains that “camera control system 175 may be configured to activate the camera, which may be either or both of camera 110 and/or camera 125, to take a photograph or begin recording a video in response to the predetermined camera activation sound pattern.” Ex. 1004 ¶ 23.

Chinn’s Figure 2 is shown below.

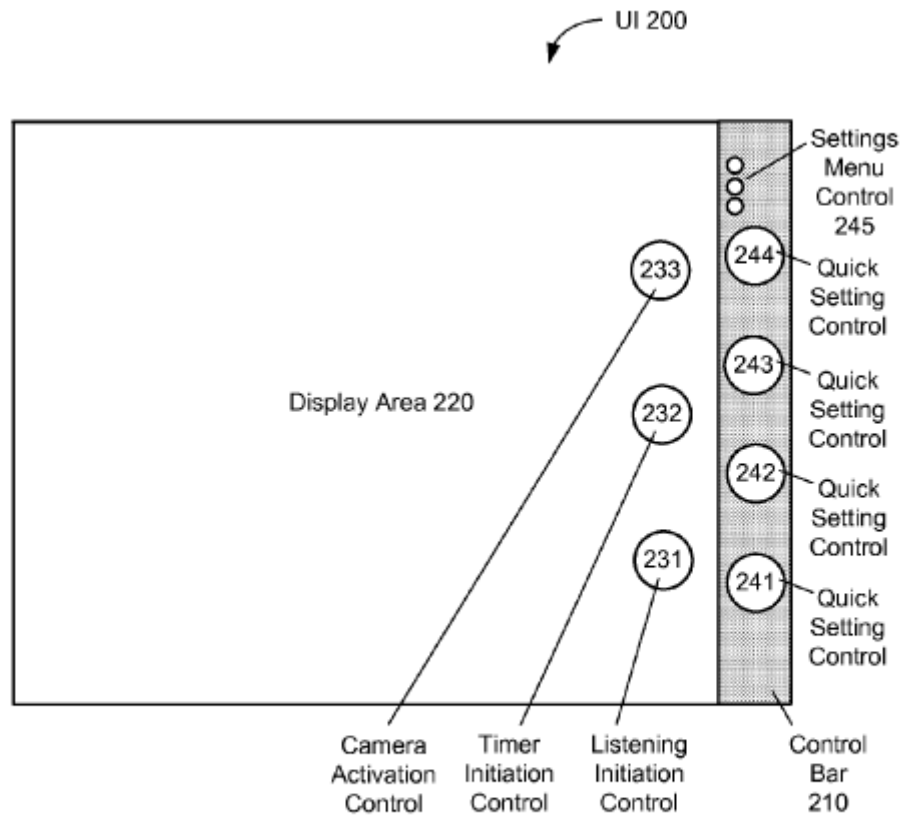


FIG. 2

Chinn’s Figure 2 illustrates user interface (UI) 200 comprising display area 220 and control bar 210. Ex. 1004 ¶ 22. According to Chinn, camera control system 175 may be configured to present UI 200 on a display such as

a touch screen. *Id.* Display area 220 depicts camera activation control button 233, timer initiation control button 232, and listening initiation control button 231. *Id.* Chinn explains that “[c]amera control system 175 may be configured [to] receive commands from a user via UI 200, and to execute received commands with the device 100.” *Id.*

Chinn explains that

Camera activation control 233 may also be referred to herein as a shutter control. In some embodiments, camera control system 175 may be configured to immediately activate the camera 125 in response to user selection of the camera activation control 233. In some embodiments, camera control system 175 may be configured to provide controls for user selection of settings adapting response of the camera control system 175 to selection of the camera activation control 233. Camera activation control 233 may therefore comprise a user-configurable camera activation control, which allows a camera 125³ to be activated in a manner specified by the user of the camera device 100.

Ex. 1004 ¶ 30.

Chinn also explains that

camera control system 175 may adapt its response to user selection of shutter control 233, so that, in response to user selection of shutter control 233, camera control system 175 starts a timer and then takes a picture/initiates video recording after the time period specified for the timer elapses. For example, the time period may be 10, 15, or 20 seconds, or any other time period.

Id. ¶ 40.

³ Chinn explains that “[c]amera 125 will generally be referred to as an example camera in this disclosure, understanding that *either camera 110 or 125 may be included in operations discussed herein.*” Ex. 1004 ¶ 23 (emphasis added).

Chinn therefore expressly teaches that camera control system 175 may be configured to activate front camera 110 (“*a case where the first camera is enabled*”) to take a photograph or begin recording a video in response to a predetermined camera activation sound pattern (“*command voice giving a first instruction to start a recording of an image signal*”). Ex. 1004 ¶ 23.

We also agree with Petitioner that a person of ordinary skill in the art would have understood that because only the front camera 110 in Chinn had been activated, that the back camera 125 (i.e., the second camera) would not have been activated and would remain disabled until activated. Pet. 29 (citing Ex. 1003 ¶ 100).

Mr. Guidash testifies, and we agree, that a person of ordinary skill in the art would understand that the need to activate a camera means that it was previously disabled (Ex. 1003 ¶ 100), such that it would not be able to take a photograph or record a video until it was activated or enabled. The evidence of record shows that in two-camera devices, such as a smartphone with front and rear facing cameras, it is necessary to first activate or enable a camera in order for it to start recording images. Patent Owner’s declarant, Dr. Wobbrock, testifies that according to the ’757 patent, it is necessary for a camera to first be activated or enabled before it can capture image data. *See* Ex. 1015, 25:8–13 (“if the camera weren’t enabled, it couldn’t capture image data.”).

Dr. Wobbrock’s testimony thus begs the question, “In what state is a camera in a two-camera device when it is not activated or enabled?” Petitioner’s declarant, Mr. Guidash, provides a reasoned answer. He testifies that if one of the two cameras was enabled, the other camera would be disabled, except in special circumstances. Mr. Guidash testifies that “it was essentially ubiquitous in the relevant timeframe; that if one camera was

enabled the other camera was disabled, unless it was a specific application where simultaneous image capture was used to create a combined image from the two cameras.” Ex. 2007, 31:17–23.

Mr. Guidash also testifies as to the rationale for having only one camera enabled at a time—to conserve battery life. Mr. Guidash testifies that

[a] person of ordinary skill in the art would understand that when one camera is operating the other camera is disabled, primarily for the benefit of power consumption. In the relevant time of these -- the prior art references, as well as the '757 patent, one of the if not the biggest power-consuming devices in a mobile phone were the cameras, and battery life was severely degraded by continuous operation of a camera. And as a result it was commonly, if not ubiquitously, done to have only one camera enabled at a time.

Id. at 29:12–25. Mr. Guidash’s testimony on cross-examination is consistent with the testimony in his declaration. *See* Ex. 1003 ¶¶ 100–101.

b) First Standby Time/Second Standby Time

Patent Owner contends that “Chinn does not disclose a first standby time that is longer than a second standby time.” PO Resp. 19 (emphasis omitted). Patent Owner argues that “Chinn fails to describe the length of time for the timer,” and instead, “the length of time is left to the purview of the user.” *Id.* Patent Owner argues that “the claims articulate that it is the controller that provides for the longer first standby time in comparison to the second standby time, not the user,” and that “[l]eaving such a determination to user, as Petitioners describe, ignores the advantages of the ’757 Patent.” *Id.* at 20–21 (citing Ex. 2005 ¶¶ 93, 95; Ex. 1001, 6:42–45, 9:42–47, 12:12–19). Patent Owner contends that “automatic switching that does not require user intervention” such as “recording start timing switching” is part of the

inventiveness of the '757 Patent” and therefore “Chinn’s user-selected timers do not meet the claim limitation.” PO Resp. 21 (citing Ex. 2005 ¶¶ 95–96).

We disagree with Patent Owner. Nothing in the claims limits how the standby times are selected or how they are provided to the system. Rather, the claims recite what the standby times are (“*the first/second standby time is a time from a recognition of the first/second instruction to a start of the recording of the first/second image signal acquired by the first/second camera*”), and how long they are in comparison to each other (“*a first standby time . . . is longer than a second standby time*”). Ex. 1001, 16:38–48 (emphasis added). Nothing in the claim language precludes a user from selecting the standby times and nothing in the claim language precludes the controller from using a standby time selected by a user. Based on the claims, even if a user enters a standby time, the controller still controls the various components of the system to conduct the recording process as required by the claim. This includes implementing the standby time and then writing the image signal from the camera to the storage device after the standby time has expired.

With respect to Patent Owner’s argument that “automatic switching” is part of the inventiveness of the '757 patent (PO Resp. 21), it is the claims that define the scope of the invention. It is a “bedrock principle” of patent law that “the claims of a patent define the invention to which the patentee is entitled the right to exclude.” *Innova*. 381 F.3d at 1115; *see also Vitronics Corp. v. Conceptronic, Inc.*, 90 F.3d 1576, 1582 (Fed. Cir. 1996) (“we look to the words of the claims themselves . . . to define the scope of the patented invention”).

iv. *Conclusion on Limitation [1i]*

Based upon the complete record, we find that Petitioner has established by a preponderance of the evidence that the combined teachings of Chinn, Takahashi, and EX-V7 meet the recited “*control such that a first standby time of a case where the first camera is enabled and the second camera is disabled is longer than a second standby time of a case where the second camera is enabled and the first camera is disabled,*” of limitation [1i].

b. *Contested Limitations [1g] and [1j]*

Limitation [1g] recites, “*wherein the controller is configured to: control such that, when the audio input interface receives the command voice giving a first instruction to start a recording of an image signal, the recorder starts a recording of the first image signal acquired by the first camera on the storage in response to the first instruction.*”

Limitation [1j]⁴ recites “*wherein the first standby time is a time from a recognition of the first instruction to a start of the recording of the first image signal acquired by the first camera, and the second standby time is a time from a recognition of the second instruction to a start of the recording of the second image signal acquired by the second camera.*”

For limitation [1g], Petitioner asserts that “Chinn discloses or renders obvious this limitation.” Pet. 26 (citing Ex. 1003 ¶ 96). According to Petitioner,

⁴ For limitation [1j], Petitioner contends that “[t]he Chinn-Takahashi-EX-V7 combination renders this limitation obvious.” Pet. 31 (citing Pet. §§ VI.B.10 (limitation [1i]), VI.A (Motivation to Combine Chinn with Takahashi and EX-V7); Ex. 1003 ¶ 103). Accordingly, we incorporate the parties’ positions and our analysis in Sections III.E.1 and III.E.2.a herein.

Chinn discloses the camera control system 175 (i.e., controller) is configured to respond to a voice command (e.g., “set timer: 10 seconds” or “ready click”) received by the microphone 150 and detected by the sound recognition system 173 to activate the front camera 110 “to take a photograph ... in response to the predetermined camera activation sound pattern”. EX 1004, ¶23. Front camera 110 is the claimed “first camera.” *See* limitation [1c]; EX1003, ¶96. The portion of the camera control system 175 responsible for taking a photograph and/or recording a video is the claimed “recorder.”

Pet. 26–27 (citing Ex. 1003 ¶ 96). Petitioner notes that Chinn “states that the camera control system 1[7]5 can be configured such that either or both of front camera 110 and/or rear camera 125 capture images in response to a voice command.” *Id.* at 26, n.4.

Petitioner asserts that a person of ordinary skill in the art would have understood that the taking of a photograph or recording of a video with the front camera 110 (i.e., first camera) in response to a ‘set timer: 10 seconds’ voice command (i.e., the command voice giving a first instruction) would require storing an image signal (i.e., the claimed first image signal) in storage (e.g., memory 163 or graphics memory).

Id. at 27 (citing Ex. 1003 ¶ 96).

Patent Owner contends that “claim 1 dictates that Chinn records a first image signal acquired by a first camera in response to the same first instruction that also starts the first standby time.” PO Resp. 22 (citing Ex. 2005 ¶ 97).

Patent Owner also contends that

Petitioners fail to meet their burden in showing the “first standby time is a time from a recognition of the first instruction to a start of the recording of the first image signal” and the “second standby time is a time from a recognition of the second instruction to a start of the recording of the second image signal.”

PO Resp. 23 (citing Ex. 2005 ¶ 99).

Patent Owner argues that

Chinn discloses providing separate instructions for setting a timer, activating a camera, and taking a picture. *See* EX1004, at Fig. 3 (showing UI 300 having “take the picture” setting 302 different from “start 3 sec ready countdown” setting 303 and “start the timer” setting 304); *id.* at Fig. 4 (showing UI 400 having “take [1/2] photo[s]” settings 401 and 402 different from “Start timer length” settings 411, 412, 413, and 414); EX2005, ¶99. Thus, Chinn cannot disclose the claimed “first instruction” that is required by claim elements [1.g] and [1.j] because even if an instruction of setting a timer begins a standby time in Chinn, Chinn does not disclose starting “a recording of the first image signal . . . on the storage in response to the first instruction,” because Chinn requires a second separate instruction to activate a camera, let alone begin recording of an image signal by the camera.

PO Resp. 23–24 (citing Ex. 2005 ¶ 99).

In its Reply, Petitioner points out that in Chinn

in response to a ‘set timer: 10 seconds’ command, camera control system 175 may output an audible notification by speaker 140 such as ‘timer set’, and camera control system 175 may then ***proceed to output an audible countdown to camera activation.***” EX1004, ¶27 (emphasis added); *see also* EX1003, ¶¶75, 83. Thus, Chinn discloses or renders obvious the claimed “a first instruction to start a recording of an image signal” because Chinn’s command voice sets the timer (e.g., 10 seconds) and then “proceeds . . . to camera activation.

Pet. Reply 16 (citing Ex. 1004 ¶ 27; Ex. 1003 ¶¶ 96, 100; Pet. 26–27, 29).

In its Sur-reply, Patent Owner repeats many of its same arguments, including

the Petition fails to set forth the claimed “first instruction” that is required by claim elements [1.g] and [1.j] because, even if an instruction of setting a timer begins a standby time in Chinn, Chinn does not disclose starting “a recording of the first image signal . . . on the storage in response to the first instruction,”

where Chinn requires a second separate instruction to activate a camera, let alone begin recording of an image signal by the camera.

PO Sur-reply 8 (citing Ex. 2005 ¶ 99).

We disagree with Patent Owner. Patent Owner's arguments appear to labor under the misconception that simply because Chinn describes a flexible system with multiple options and methods to activate, control, and operate a two-camera system that somehow Chinn's teachings preclude one of ordinary skill in the art from appreciating and utilizing the full scope of Chinn's teachings. "[W]hen a patent 'simply arranges old elements with each performing the same function it had been known to perform' and yields no more than one would expect from such an arrangement, the combination is obvious." *KSR*, 550 U.S. at 417 (quoting *Sakraida v. Ag Pro, Inc.*, 425 U.S. 273, 282). It is instructive to remember that "[a] person of ordinary skill [in the art] is also a person of ordinary creativity, not an automaton." *KSR* at 421.

Here, Chinn describes a two-camera system remarkably similar to the two-camera system disclosed and claimed in the '757 patent. *Compare, e.g.*, Ex. 1004, Fig.1, *with* Ex. 1001, Fig. 4. Both patents disclose a device which may be a smartphone having two cameras, a first front facing camera on the same side of the device as a touch-screen display, and a second rear-facing camera on the opposite or back side of the device. *Compare* Ex. 1004, Figs. 1, 3, 4, ¶¶ 16, 22, 23, 25, 27–30, 32, 36–44, 48, 72, *with* Ex. 1001, Figs. 4, 6, 10, 11, 4:4–13, 61–67, 5:18–29, 7:49–8:3, 8:34–47, 9:6–18, 10:64–11:17. Each device is capable of recording still photos and videos with its cameras. *Id.* Each device is also capable of sensing and responding to both voice and touch inputs to control and operate its cameras. *Id.*

Patent Owner argues that “Chinn discloses providing separate instructions for setting a timer, activating a camera, and taking a picture,” and thus concludes that “Chinn cannot disclose the claimed first instruction” because “Chinn requires a second separate instruction to activate a camera, let alone begin recording of an image signal by the camera.” PO Resp. 23–24. But merely because a reference teaches alternate, optional, and flexible ways to control and operate multiple cameras does not mean that it does not teach what is recited by the challenged claims.

Here, for example, Chinn teaches that both front camera 110 and rear camera 125⁵ can be activated to take a photograph or begin recording a video in response to an audio prompt. Chinn states that

sound recognition system 173 may be configured to recognize a predetermined camera activation sound pattern in the received sound data. *The camera control system 175 may be configured to activate the camera, which may be either or both of camera 110 and/or camera 125, to take a photograph or begin recording a video in response to the predetermined camera activation sound pattern.* For example, in some embodiments, the predetermined camera activation sound pattern may comprise three or more syllables, such as the words “ready click”. The camera control system 175 may be configured to activate the camera 125 to take a photograph or begin recording a video in response to the words “ready click”.

Ex. 1004 ¶ 23 (emphasis added).

⁵ It is important to bear in mind that with respect to cameras 110 and 125, Chinn notes that “[c]amera 125 will generally be referred to as an example camera in this disclosure, understanding that *either camera 110 or 125 may be included in operations discussed herein.* Ex. 1004 ¶ 23 (emphasis added).

Chinn also teaches that activation of its cameras may be initiated and controlled through the use of timers. For example, in response to touch control, Chinn teaches that

camera control system 175 may adapt its response to user selection of shutter control 233, so that, in response to user selection of shutter control 233, camera control system 175 starts a timer and then takes a picture/initiates video recording after the time period specified for the timer elapses. For example, the time period may be 10, 15, or 20 seconds, or any other time period. The timer may also provide for an audible countdown and/or a preamble phrase as described herein.

Ex. 1004 ¶ 40.

Chinn teaches that the initiation of its timers is not limited to touch control, and may be initiated through audio commands. For example, Petitioner points out in Chinn that

in response to a ‘set timer: 10 seconds’ command, camera control system 175 may output an audible notification by speaker 140 such as ‘timer set’, and camera control system 175 may then ***proceed to output an audible countdown to camera activation.***”

Pet. Reply 16 (citing Ex. 1004 ¶ 27 (emphasis added by Petitioner); *see also* Ex. 1003 ¶¶ 75, 83).

Chinn, therefore, teaches a number of alternate ways to control and operate both front camera 110 and rear camera 125 using either touch or audio commands, and also teaches the use of variable timers in order to adjust the activation of either or both cameras and its initiation of photo or video recording.

Based upon the complete record, we are persuaded that Petitioner has established by a preponderance of the evidence that the combined teachings of Chinn, Takahashi, and EX-V7 meet the recited “*wherein the controller is configured to: control such that, when the audio input interface*

receives the command voice giving a first instruction to start a recording of an image signal, the recorder starts a recording of the first image signal acquired by the first camera on the storage in response to the first instruction” of limitation [1g], and the recited “wherein the first standby time is a time from a recognition of the first instruction to a start of the recording of the first image signal acquired by the first camera, and the second standby time is a time from a recognition of the second instruction to a start of the recording of the second image signal acquired by the second camera” of limitation [1j].

c. Uncontested Limitations

Patent Owner does not specifically contest any of the remaining portions of claim 1, namely [1pre]–[1f], [1h]. *See* PO Resp. 8–24. Petitioner provides evidence and argument, supported by the testimony of Mr. Guidash, that these uncontested portions of claim 1 are met by Petitioner’s proposed combination of Chinn, Takahashi, and EX-V7. *See* Pet. 14–29; Ex. 1003 ¶¶ 78–95, 97–98.

Based on the complete record, we are persuaded that Petitioner has demonstrated by a preponderance of the evidence that the combined teachings of Chinn, Takahashi, and EX-V7 meet these uncontested portions of claim 1, namely the preamble and limitations [1a]–[1f] and [1h].

d. Conclusion as to Independent Claim 1

Based on the complete record, we are persuaded that Petitioner has demonstrated by a preponderance of the evidence that the combined teachings of Chinn, Takahashi, and EX-V7 meet all the limitations of claim 1, and that a person of ordinary skill in the art at the relevant time period would have had reason to combine their teachings in the manner described, and would have had a reasonable expectation of success in that endeavor.

3. Independent Claim 11

Independent claim 11 is similar to independent claim 1, however claim 11 is directed to an image recording method of an image recording device. Ex. 1001, 17:34–18:38.

Petitioner relies on the evidence and arguments it provided for claim 1 to support its position with respect to claim 11, except for limitation [11i] where Petitioner provides separate support. *See* Pet. 45–47.

Patent Owner only contests limitations [11d] and [11h], relying on its evidence and arguments provided for limitations [1i] and [1j]. *See* PO Resp 25.

We have considered the evidence and arguments provided by the parties for independent claim 11, and for the reasons articulated above with respect to claim 1, we are persuaded that Petitioner has demonstrated by a preponderance of the evidence that the combined teachings of Chinn, Takahashi, and EX-V7 meet all the limitations of claim 11, and that a person of ordinary skill in the art at the relevant time period would have had reason to combine their teachings in the manner described, and would have had a reasonable expectation of success in that endeavor.

4. Dependent Claims 2–10

Petitioner contends that the combination of Chinn, Takahashi, and EX-V7 teaches or suggests the recited limitations of dependent claims 2–8 and 10. Pet. 31–45. Petitioner also contends the combination of Chinn, Takahashi, EX-V7, and Kim teaches or suggests the recited limitations of dependent claim 9. *Id.* at 47–52. Petitioner submits the testimony of Mr. Guidash in support of its contentions. *See* Ex. 1003 ¶¶ 104–154.

Patent Owner relies on its evidence and arguments with respect to claim 1 to argue that Petitioner has not shown that the asserted prior art teaches or renders obvious dependent claims 2–10. *See* PO Resp. 25–26.

We have considered Petitioner’s evidence and arguments that the combined teachings of Chinn, Takahashi, and EX-V7 meet the limitations of claims 2–8 and 10–11, as well as Petitioner’s evidence and arguments with respect to the addition of Kim and claim 9. We have also considered Patent Owner’s evidence and arguments of record. Based on the complete record, we are persuaded that Petitioner has demonstrated by a preponderance of the evidence that the combined teachings of Chinn, Takahashi, and EX-V7 meet all the limitations of dependent claims 2–8, and 10, and that the combined teachings of Chinn, Takahashi, EX-V7, and Kim meet the limitations of dependent claim 9, and that a person of ordinary skill in the art at the relevant time period would have had reason to combine their teachings in the manner described, and would have had a reasonable expectation of success in that endeavor.

5. Conclusion on Grounds 1 and 2

Based on the complete record, we are persuaded that Petitioner has demonstrated by a preponderance of the evidence that challenged claims 1–11 of the ’757 patent would have been obvious to a person of ordinary skill in the art at the relevant time period over the combined teachings of Chinn, Takahashi, EX-V7, and Kim.

E. Obviousness Over Kim, Yamamoto, Thorn and Chinn (Grounds 3/4)

Petitioner contends that claims 1–3 and 7–10 are unpatentable as obvious over Kim, Yamamoto, and Thorn (Ground 3), and that claims 4–6 and 11 are unpatentable as obvious over Kim, Yamamoto, Thorn, and Chinn

(Ground 4). *See* Pet. 52–94. Petitioner provides evidence, argument, and claim analysis, supported by the testimony of Mr. Guidash. *See* Ex. 1003 ¶¶ 155–249.

Patent Owner specifically disputes Petitioner’s evidence and arguments with respect to limitations [1i] and [1j] under Ground 3. *See* PO Resp 26–38. For the remaining claims of Grounds 3 and 4, Patent Owner relies on its evidence and arguments proffered under Grounds 1 and 2. *See* PO Resp. 39–40.

1. Rationale to Combine the Prior Art

Petitioner contends that “[i]t would have been obvious to a POSITA to combine Kim with Yamamoto and Thorn, and a POSITA would have been motivated and capable of doing so.” Pet. 52 (citing Ex. 1003 ¶ 155).

Petitioner explains that “Kim and Yamamoto both relate to imaging devices with manual and voice activated commands for commanding a camera to capture an image.” Pet. 52 (citing Ex. 1008 ¶¶ 54, 56, 64, 66, 160-165; Ex. 1009 ¶¶ 31, 82–83). According to Petitioner, “[b]oth devices have manual activation technology, *see* §§VIII.B.3, VIII.B.9, and voice activation technology, *see* §§VIII.B.2, VIII.B.8, already installed, making their devices particularly suitable for each other.” Pet. 52 (citing Ex. 1003 ¶ 156). Petitioner asserts that a person of ordinary skill in the art “would have been motivated to look at Yamamoto to improve Kim, and vice versa.” Pet. 52. “Similarly,” Petitioner asserts, “Thorn discloses manual image capture, EX1011, ¶37, and a POSITA would have been motivated to look at Thorn to improve Kim’s and Yamamoto’s manual imaging taking, and vice versa.” Pet. 52 (citing Ex. 1003 ¶ 156).

According to Petitioner, “all three references are concerned with ensuring that their respective users obtain the images they desire.” Pet. 52–

53 (citing Ex. 1008 ¶¶ 60, 120, 160–166; Ex. 1009 ¶¶ 5, 6, 8, 251, 382; Ex. 1011 ¶¶ 3–8; Ex. 1003 ¶ 157). Petitioner asserts that a person of ordinary skill in the art “would have understood that one way to improve Kim’s images taken with the front facing camera 121 (e.g., selfie) would be to implement a delay between the utterance of the voice command and the taking of the image, which would allow the photographer to pose before the image is taken.” Pet. 53 (citing Ex. 1003 ¶ 157). According to Petitioner, “Yamamoto discloses such a delay, among other voice activated processes.” Pet. 53 (citing Ex. 1009 ¶ 249; Ex. 1003 ¶ 157). Petitioner argues that the “implementation of a voice activated selfie, including a standby time delay, would have merely amounted to another voice command/operation on the Kim terminal 100, which was already implementing voice commands.” Pet. 53 (citing Ex. 1008 ¶¶ 56, 160–164; Ex. 1003 ¶ 157).

Petitioner asserts that a person of ordinary skill in the art “would have understood that one way to improve Kim-Yamamoto’s images taken with the back facing camera 121’ (e.g., manual activated photographs) would be to ensure that the subject is not blinking when the image is taken.” Pet. 53 (citing Ex. 1003 ¶ 158). According to Petitioner, “Thorn discloses waiting a predetermined second standby time of a length between about 100 milliseconds and about 200 milliseconds if a subject blinks when the image capture command is detected.” Pet. 53 (citing Ex. 1011 ¶ 60). Petitioner asserts that the “implementation of blink detection and an associated standby time delay as taught by Thorn in the Kim-Yamamoto device would have merely amounted to another back camera control function on the Kim-Yamamoto device, which was already performing back camera control functions.” Pet. 53–54 (citing Ex. 1008 ¶¶ 54, 94, 150; Ex. 1009 ¶¶ 211, 220, 281; Ex. 1003 ¶ 158).

Petitioner explains that “Kim discloses a two-camera system: front and back cameras, while Yamamoto and Thorn disclose a one-camera system.” Pet. 54 (citing Ex. 1008 ¶¶ 91, 94, 95; Ex. 1009 ¶¶ 31–34; Ex. 1011 ¶ 37; Ex. 1003 ¶ 159). According to Petitioner, “[i]n the Kim device, the front camera 121 is described as being used to show the user during a video call as well as being used for a ‘photographing mode.’” Pet. 54 (citing Ex. 1008 ¶¶ 54, 95). Petitioner asserts that “Kim is already adapted to image the user with its front camera 121 and could readily implement a voice activated [] selfie as taught by Yamamoto.” Pet. 54 (citing Ex. 1003 ¶ 159). Petitioner asserts that a person of ordinary skill in the art “would have been able to implement Yamamoto’s delayed voice activated image processes (e.g., “Say Cheese”) to delay image taking with Kim’s front camera as doing so would simply involve applying a known technique (i.e., delay/timer between voice utterance and image taking as taught by Yamamoto) to a known device ready for improvement (Kim’s two camera device) to yield predictable results (a properly taken selfie).” Pet. 54 (citing *KSR*, 550 U.S. at 416; Ex. 1003 ¶ 159). Petitioner argues that a person of ordinary skill in the art “would have had a reasonable expectation of success in modifying Kim with Yamamoto as Kim had the technology to do so (e.g., voice activation, selection of the front camera, imaging of the user, delay timer).” Pet. 54 (citing Ex. 1003 ¶ 160).

According to Petitioner, “[t]he Kim-Yamamoto device is adapted to take images with its back camera 121’ and could readably implement a non-zero standby delay when using that camera, and also when using the front camera 121 (although this is not necessary for this challenge), as taught by Thorn.” Pet. 55 (citing Ex. 1003 ¶ 161). Petitioner argues that a person of ordinary skill in the art “would have been able to implement Thorn’s blink

detection and delayed image capture processes to delay image taking with Kim's back camera 121' (and also the front camera 121) as doing so would simply involve applying a known technique (i.e., delay between a shutter activation and image taking as taught by Thorn) to a known device ready for improvement (Kim's back two camera device) to yield predictable results (a properly taken image)." Pet. 55 (citing *KSR*, 550 U.S. at 416; Ex. 1003, ¶ 161).

Petitioner asserts that a person of ordinary skill in the art "would have had a reasonable expectation of success in modifying Kim-Yamamoto with Thorn as Kim-Yamamoto had the technology to do so (e.g., manual activation of a back camera image and associated control functionality)." Pet. 55 (citing Ex. 1003 ¶ 162).

Patent Owner argues that "Petitioners fail to provide adequate analysis on why a POSITA would be motivated to combine the voice commands for capturing an images in Yamamoto with the dual camera system of Kim." PO Resp. 35 (citing Ex. 2005 ¶ 123). "For example," Patent Owner points out, "Petitioners allege that 'Kim and Yamamoto both relate to imaging devices with manual and voice activated command for commanding a camera to capture and image.'" PO Resp. 35 (citing Pet. 52). "However, upon cross examination, Mr. Guidash could not identify a voice activated command for commanding a camera to capture an image among the citations to Kim." PO Resp. 35 (citing Ex. 2007, 6:5–9:7). "Instead," Patent Owner points out, "the only voice activated commands grounded in Kim relate to 'a voice command that can be used to change the size or position of the area that's being displayed.'" PO Resp. 35 (citing Ex. 2007, 8:20–22). "Thus," Patent Owner argues, "Petitioners' stated premise of the motivation to combine Kim and Yamamoto fails." PO Resp. 35 (citing Ex. 2005 ¶ 123).

“Moreover,” Patent Owner argues, “neither Petitioners nor their expert provide any rationale on why a POSITA would be motivated to redesign the overall operation of Kim to arrive at the claimed invention when Kim is separately directed to a mobile terminal configured to display an image on an external display.” PO Resp. 35 (citing Ex. 1008 ¶ 2; Ex. 2005 ¶ 124). “In comparison,” Patent Owner argues, “Yamamoto and Thorn further diverge, describing ‘starting capturing of an image in response to a sound’ in a single-camera device (Ex. 1009 ¶¶ 1, 32) and monitoring subjects in an image field and controlling flash operations according to detected blinking by the subject in a single-camera device.” PO Resp. 36 (citing Ex. 1011, ¶¶ 1, 36; Ex. 2005 ¶ 124). “Additionally,” Patent Owner argues, “modifying Kim to arrive at the claimed invention would require a complete redesign of Kim’s system, and there is no rationale to do so beyond the hindsight driven analysis set forth by Petitioners.” PO Resp. 36 (citing Ex. 2005 ¶ 125).

We disagree with Patent Owner. The test for obviousness is what the combined teachings of the references would have suggested to those of ordinary skill in the art. *In re Keller*, 642 F.2d at 425. Accordingly, one cannot show non-obviousness by attacking references individually where, as here, the rejections are based on combinations of references. *Id.* Each reference must be read, not in isolation, but for what it fairly teaches in combination with the prior art as a whole. *See In re Merck & Co., Inc.*, 800 F.2d 1091, 1097 (Fed. Cir. 1986).

Here, Petitioner provides a persuasive rationale for combining the teachings of Kim, Yamamoto, and Thorn which is supported by the testimonial evidence of Mr. Guidash and the asserted references themselves. For example, Kim teaches a smart phone with front and rear cameras, a

touch-screen for accepting touch input, and a microphone for accepting audio input, where both the touch-screen and the microphone may be used to accept commands for controlling the device, much like the smart phone described in the '757 patent and the “image recording device” recited in independent claims 1 and 11 of the '757 patent. *Compare, e.g.*, Ex. 1008, Figs. 2A, 2B, ¶¶ 43, 56, 64–66, 91, 94, 113, 140, 149–150, 160, claim 5, *with* Ex. 1001, Fig. 4, 4:4–13, 4:44–64, 5:18–29, 7:49–64, 8:34–47, 9:618, 12:13–19, claims 1, 11.

Yamamoto teaches a camera system designed to capture and record images in response to recognized voice commands. Ex. 1009, Figs. 2A, 2B, ¶¶ 8–12. For example, Yamamoto describes a case where the camera’s voice-recognition feature may be used to recognize a particular word or phrase and then take a photograph after a pre-determined time-delay.

Yamamoto explains

Here, there is a case in which an image is captured after a certain period of time (for example, 0.5 seconds) passes after, in general, “Say Cheese” or the like has uttered (after /Z/ has uttered). In consideration of this, in the first embodiment, the image pickup unit 103 captures an image after a predetermined delay time passes after the speech detection unit 106 has performed the detection operation for detecting the end of utterance “Say Cheese”. With such a configuration, the number of kinds of image-capturing times that a user desires can be increased.

Id. ¶¶ 249–251.

Mr. Guidash testifies, which we credit, that a person of ordinary skill in the art

would have understood that one way to improve Kim’s images taken with the front facing camera 121 (e.g., selfie) would be to implement a delay between the utterance of the voice command and the taking of the image, which would allow the

photographer to pose before the image is taken. Yamamoto discloses such a delay, among other voice activated processes. EX1009, ¶249. The implementation of a voice activated selfie, including a standby time delay, would have merely amounted to another voice command/operation on the Kim terminal 100, which was already implementing voice commands.

Ex. 1003 ¶ 157 (citing Ex. 1008 ¶¶ 56, 160–164; Ex. 1009 ¶ 249).

The '757 patent acknowledges that it was already known in the art to use two kinds of voice-activated camera operations, one where a photographing operation is performed immediately after a command voice is recognized, for example when issuing a voice-command to take a picture of a distant landscape, and a second operation that allows for a natural pose of a subject by performing a photographing operation only after a predetermined time elapses after issuing a voice-command. *See* Ex. 1001, 1:33–44, Ex. 1002, 93 (identifying Patent Document 1, JP 01-191840 to Konica Corp., published 1989-08-01, submitted in parent app. 14/917,586).

Although not used by Petitioner in Grounds 3 and 4, Takahashi shows that it was already a known problem in the art to have a camera's shutter operate immediately upon issuing a voice-command when taking self-portraits. Takahashi describes the problem as

even if the voice audio from the photography location is recognized by the camera, the shutter release operation would occur immediately, meaning the photographer would be photographed while speaking, making it impossible for him or her to be photographed with the desired facial expression or pose, which is a problem. The present invention eliminates these drawbacks in the prior art and has as an object to provide an image capturing device which allows simple and reliable photography operations via voice audio input when the photographer is the subject.

Ex. 1005 ¶¶ 8–9. Takahashi provides a solution to this problem by teaching different voice recognition patterns that allow the user to control the camera

by voice and activate timers that “release[] the shutter after a prescribed amount of time has elapsed, giving the photographer time to adjust his or her facial expression and pose during that time. This makes it possible to be photographed accurately with the desired facial expression and while not in the middle of speaking.” *Id.* ¶ 41.

Mr. Guidash goes on to testify, which we also credit, that a person of ordinary skill in the art

would have understood that one way to improve Kim-Yamamoto’s images taken with the back facing camera 121’ (e.g., manual activated photographs) would be to ensure that the subject is not blinking when the image is taken. Thorn discloses waiting a predetermined second standby time of a length between about 100 milliseconds and about 200 milliseconds if a subject blinks when the image capture command is detected. EX1011, ¶60. The implementation of blink detection and an associated standby time delay as taught by Thorn in the Kim-Yamamoto device, would have merely amounted to another back camera control function on the Kim-Yamamoto device, which was already performing back camera control functions.

Ex. 1003 ¶ 158 (citing Ex. 1008 ¶¶ 54, 94, 150; Ex. 1009 ¶¶ 211, 220, 281).

We also credit Mr. Guidash’s testimony where he explains that

Kim discloses a two-camera system: front and back cameras, while Yamamoto and Thorn disclose a one-camera system. EX1008, ¶¶91, 94, 95; EX1009, ¶¶31-34; EX1011, ¶37. In the Kim device, the front camera 121 is described as being used to show the user during a video call as well as being used for a “photographing mode.” EX1008, ¶¶54, 95. As such, Kim is already adapted to image the user with its front camera 121 and could readily implement a voice activated a selfie as taught by Yamamoto. A POSITA, in my opinion, would have been able to implement Yamamoto’s delayed voice activated image processes (e.g., “Say Cheese”) to delay image taking with Kim’s front camera as doing so would simply involve applying a known technique (i.e., delay/timer between voice utterance and image taking as taught by Yamamoto) to a known device

ready for improvement (Kim's two camera device) to yield predictable results (a properly taken selfie).

Ex. 1003 ¶ 159. Mr. Guidash also explains how a person of ordinary skill in the art would have been able to adapt Thorn's blink detection and delayed image capture with Kim's front and back cameras, which we also accept. *Id.* ¶ 161.

Thus, contrary to Patent Owner's arguments and the testimony of Dr. Wobbrock, the Petition, supported by Mr. Guidash's testimony and the teachings of the references themselves, provides substantial evidence to support a finding that Petitioner has sufficiently articulated a reason to combine the teachings of Kim, Yamamoto, and Thorn in the manner proffered by the Petition.

Finally, Patent Owner argues that "neither Petitioners nor their expert provide any rationale as to why a POSITA would be motivated to redesign OS 171, Camera Control System 175, and user interfaces 200, 300, and 400 of Chinn to arrive at the claimed invention when Chinn has its own solution of camera selection." PO Resp. 14 (citing Ex. 1004 ¶¶ 23, 25; Ex. 2005 ¶ 83). Patent Owner argues that "modifying Chinn to arrive at the claimed invention would require a complete redesign of Chinn's system." PO Resp. 14.

We also disagree with Patent Owner and Dr. Wobbrock that "modifying Kim to arrive at the claimed invention would require a complete redesign of Kim's system." PO Resp. 36 (citing Ex. 2005 ¶ 125). The test for obviousness is not whether the features of a secondary reference may be incorporated into the system of the primary reference, or whether Kim's system needs to be completely redesigned as Patent Owner and Dr. Wobbrock assert. Rather, the test is what the combined teachings of the

references would have suggested to those of ordinary skill in the art. *In re Keller*, 642 F.2d at 425. Moreover, “if 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.” *KSR*, 550 U.S. at 417.

Here, the parties have agreed that a person of ordinary skill in the art is a person with a bachelor’s degree in electrical or computer engineering or a comparable field of study, plus approximately two to three years of professional experience with camera technology. *See* Sec. III.A, *supra*. We agree with Mr. Guidash that Petitioner’s proposed combination of the teachings of Kim, Yamamoto, and Thorn is within the level of skill in the art and would involve applying known techniques (e.g., a delay/timer between voice utterance/shutter activation and image taking as taught by Yamamoto and Thorn) to a known device ready for improvement (Kim’s two camera device) to yield predictable results (a properly taken self-portrait or photographic image). Ex. 1003 ¶¶ 155–162.

Accordingly, based upon the complete record, we are persuaded that Petitioner has demonstrated by a preponderance of the evidence that a person of ordinary skill in the art would have had a reasoned basis to combine the teachings of Kim, Yamamoto, and Thorn in the manner described in the Petition and would have had a reasonable expectation of success in that endeavor.

2. *Specifically Contested Limitations [1i] and [1j]*

a. *Contested Limitation [1i]*

Limitation [1i] recites, “*control such that a first standby time of a case where the first camera is enabled and the second camera is disabled is*

longer than a second standby time of a case where the second camera is enabled and the first camera is disabled.” Ex. 1001, 16:38–42 (emphasis added).

For this limitation, Petitioner contends that “[t]he Kim-Yamamoto-Thorn combination renders obvious this limitation.” Pet. 75 (citing Ex. 1003 ¶ 200). Petitioner asserts that “[t]he Kim-Yamamoto-Thorn combination discloses activating the front camera (i.e., first camera) when the e.g., ‘Say Cheese’ voice command is received.” Pet. 75 (citing limitation [1g]). According to Petitioner, a person of ordinary skill in the art “would have understood that the need to activate the front camera means that it was previously inactive/disabled.” *Id.* (citing Ex. 1003 ¶ 201). Petitioner asserts that a person of ordinary skill in the art “would have also understood that because only the front camera is activated, the back camera (i.e., second camera) would remain disabled.” Pet. 75. According to Petitioner, the “[b]enefits of doing so would be to reduce power consumption and increase battery life.” *Id.*

“Likewise,” Petitioner asserts, “Kim teaches activating the back camera 121’ (i.e., second camera) EX1009, 94-95, in response to the user performing an image capture input signal on the touch display 130.” Pet. 75 (citing limitation [1h]; Ex. 1003 ¶ 202). According to Petitioner, a person of ordinary skill in the art “would have understood that the need to activate the back camera means that it was previously disabled.” Pet. 75. Petitioner asserts that a person of ordinary skill in the art “would have also understood that because only the back camera is activated, the front camera (i.e., first camera) remains disabled.” *Id.* Petitioner asserts that the “[b]enefits of doing so would be to reduce power consumption and increase battery life.” *Id.* at 76.

Petitioner also asserts that “[t]he Kim-Yamamoto-Thorn combination renders obvious starting a recording of the first image signal acquired by the first camera on the storage in response to the first instruction.” Pet. 76 (citing Pet. § VIII.B.5; Ex. 1003 ¶ 203). Petitioner explains that in Yamamoto, “when the voice command is ‘Say Cheese,’ ‘an image is captured after a certain period of time (for example, 0.5 seconds) passes after . . . ‘Say Cheese’ or the like has [been] uttered.” Pet. 76 (citing Ex. 1009 ¶ 249) (alterations in original). “As such,” Petitioner argues, “Yamamoto discloses a 0.5 second delay before taking a voice activated image, which corresponds to the ‘first standby time.’” Pet. 76 (citing Ex. 1003 ¶ 204).

Petitioner acknowledges that “Kim does not disclose introducing any delays between the manual selection and the taking/recording of an image with the back facing camera 121’ (second camera).” Pet. 76 (citing Ex. 1003 ¶ 205). “Likewise,” Petitioner explains, “Yamamoto does not disclose introducing any delays between the manual operation of the manually-operated shutter button 201 and the taking/recording of an image.” Pet. 76 (citing Ex. 1009 ¶ 82; Ex. 1003 ¶ 205). Petitioner asserts that “[t]o the extent that this limitation is satisfied by a 0 second standby time, Kim and Yamamoto disclose or render it obvious.” Pet. 76 (citing Ex. 1003 ¶ 205).

Petitioner asserts that “[i]f this limitation requires a second standby time greater than 0, but less than Yamamoto’s 0.5 second first standby time, Thorn discloses it.” Pet. 77 (citing Ex. 1003 ¶ 206). Petitioner explains that “Thorn discloses calculating an average blink time for a subject about to be photographed based on the subject’s blink history, and discloses typical values of these average times as being between about 100 milliseconds and 300 milliseconds, with a default of 250 milliseconds being used if not

enough data has been collected.” Pet. 77 (citing Ex. 1011 ¶¶ 46, 60).
“These values,” Petitioner explains, “are predetermined values based on blink history calculated prior to the touch command for the back facing camera 121’ (second camera).” Pet. 77.

Petitioner explains that “Thorn also discloses the use of other predetermined time periods: ‘[i]n another embodiment, the delay may be a *predetermined amount of time*, such as about 100 ms, about 150 ms, about 250 ms or some other length of time.’” Pet. 77–78 (citing Ex. 1011 ¶ 60; Ex. 1003 ¶ 207) (alteration in original). According to Petitioner, “Thorn further discloses adding a standby period equal to the average blink time after a command to take a photograph if the subject is blinking at that moment.” Pet. 78 (citing Ex. 1011 ¶¶ 58–60, Fig. 5, steps 36, 38, 44).

“Thus,” Petitioner argues,

Thorn discloses waiting a predetermined second standby time of a length between about 100 milliseconds and about 200 milliseconds if a subject blinks when the image capture command is detected, and this second standby time is less than the 0.5 second (500 millisecond) first standby time used for the Yamamoto ‘Say Cheese’ voice command-activated front camera image capture.

Pet. 78 (citing Ex. 1003 ¶ 208).

Petitioner explains that “Thorn’s predetermined standby time that is only performed if a blink is detected when a touch command to enable the rear camera to capture an image is recognized is ‘a second standby time of *a case* where the second camera is enabled and the first camera is disabled’ as recited by this limitation: a case where the subject is blinking when the touch command is recognized.” Pet. 78–79 (citing Ex. 1003 ¶ 208).

Patent Owner contends that “Petitioner cannot show that the alleged prior art combination ties the alleged first standby time with the first camera

being enabled with reference to specific evidence,” because Yamamoto’s standby time “is dependent upon the input method alone” as “Yamamoto does not disclose multiple cameras” and Kim does not disclose disabling a first or second camera or associating such disabling to first and second standby times. PO Resp. 27–29.

Patent Owner also asserts that Petitioner “fails to explain **how** the ‘certain period of time’ of Yamamoto would be combined with Kim,” and that “[n]either Petitioner nor its expert provide any analysis on why a POSITA would be motivated to combine Yamamoto’s delay for a single camera device with the multiple camera device of Kim,” which lacks “any sort of voice activated image capture or corresponding standby time.” *Id.* at 29.

Patent Owner argues that

Petitioner’s conclusion is contradicted by the specification of the ’757 Patent which specifically discloses an example in Figure 12 describing “a screen on which two camera videos are composed and displayed. In this case, both the first imaging unit 123 (in camera) and the second imaging unit 124 (out camera) **are simultaneously enabled**, and two units of video are input.”

Id. at 30 (citing Ex. 1001, 13:32–36 (emphasis by Patent Owner)).

Patent Owner also argues that “Yamamoto does not disclose a voice command that results in the first camera being enabled and the second camera being disabled.” PO Resp. 31 (citing Ex. 2005 ¶ 114). While Patent Owner acknowledges that “Yamamoto discloses ‘speech commands for starting an image capturing operation,’” Patent Owner nonetheless argues that “none of the commands describe an enabled or disabled camera.” PO Resp. 31 (citing Ex. 1009 ¶ 205; Ex. 2005 ¶ 114). Patent Owner also asserts that because “Yamamoto only discloses a single camera . . . the concept of

selecting—let alone enabling—different cameras is necessarily absent from Yamamoto.” PO Resp. 31–32 (citing Ex. 1009 ¶ 205; Ex. 2005 ¶ 114). Parent Owner further argues that “none of Kim, Yamamoto, or Thorn discloses disabling of any camera and Petitioners fail to demonstrate otherwise.” PO Resp. 32.

Patent Owner also argues that “Petitioners’ reliance on Yamamoto’s description of a ‘0.5 second delay before taking a voice activated image’ (Pet. at 76 (citing EX1009, ¶249), is, at best, incomplete, particularly when paired with Kim’s silence regarding any standby time.” PO Resp. 32–33 (citing Ex. 2005 ¶ 117). Patent Owner asserts that “automatic switching that does not require user intervention is part of the inventiveness of the ’757 Patent,” and “Petitioners’ hindsight-driven selection of 0.5 seconds and 0 seconds, would rob the ’757 Patent of the advantages described therein.” PO Resp. 34 (citing Ex. 2005 ¶ 120).

We disagree with Patent Owner.

Patent Owner’s argument that Petitioner’s evidence is somehow deficient because Yamamoto’s “Say Cheese” standby time “is dependent upon the input method alone” as “Yamamoto does not disclose multiple cameras” and Kim does not disclose disabling a first or second camera, is unavailing. PO Resp. 27–29. One cannot show non-obviousness of the challenged claims by attacking the references individually where the asserted basis for unpatentability is the combined teachings of the references. *See Boundary Solns. Inc. v. Corelogic, Inc.*, 711 F. App’x 627, 631–632 (Fed. Cir. 2017) (citing *In re Keller*, 642 F.2d at 425).

Here, Petitioner is relying on the combined teachings of Kim, Yamamoto and Thorn to establish the unpatentability of the challenged claims. Petitioner is specifically relying on Kim’s teaching of a two-camera

system with front and back cameras, not Yamamoto. *See* Pet. 65–67; Ex. 1003 ¶¶ 179–184. Petitioner is relying on Yamamoto’s teaching of a standby time where a photographic image is captured after a predetermined time delay passes once a speech detection unit has detected the utterance of a particular spoken phrase. Pet. 71–73 (citing Ex. 1003 ¶¶ 192–194). With respect to the first/second standby times, and first/second enabled/disabled camera limitation, Petitioner is relying on the combined teachings of Kim, Yamamoto, and Thorn to meet this limitation, not Kim alone. *See* Pet. 75–79; Ex. 1003 ¶¶ 200–209.

Patent Owner’s arguments that Petitioner fails to explain how or why⁶ Yamamoto’s delay for a single camera device would be combined with Kim’s multi-camera device absent voice activated image capture or corresponding standby time, are also unavailing. PO Resp. 29. Mr. Guidash specifically testifies that a person of ordinary skill in the art

would have understood that one way to improve Kim’s images taken with the front facing camera 121 (e.g., selfie) would be to implement a delay between the utterance of the voice command and the taking of the image, which would allow the photographer to pose before the image is taken. Yamamoto discloses such a delay, among other voice activated processes. EX1009, ¶249. The implementation of a voice activated selfie, including a standby time delay, would have merely amounted to another voice command/operation on the Kim terminal 100, which was already implementing voice commands.

Ex. 1003 ¶ 157 (citing Ex. 1008 ¶¶ 56, 160–164).

Mr. Guidash also testifies that

Kim is already adapted to image the user with its front camera 121 and could readily implement a voice activated . . . selfie as

⁶ We consider Petitioner’s evidence and arguments to establish a rationale to combine the teachings of Kim, Yamamoto, and Thorn in Section III.F.1.

taught by Yamamoto. A POSITA, in my opinion, would have been able to implement Yamamoto's delayed voice activated image processes (e.g., "Say Cheese") to delay image taking with Kim's front camera as doing so would simply involve applying a known technique (i.e., delay/timer between voice utterance and image taking as taught by Yamamoto) to a known device ready for improvement (Kim's two camera device) to yield predictable results (a properly taken selfie).

Ex. 1003 ¶ 159.

Patent Owner's arguments that "Yamamoto does not disclose a voice command that results in the first camera being enabled and the second camera being disabled" are also unavailing. These arguments are premised on Patent Owner's proffered claim construction, which we have considered and rejected as discussed in Section III.E.2.a.ii, *supra*.

We have considered Parent Owner's argument that "none of Kim, Yamamoto, or Thorn discloses disabling of any camera, but find this argument unavailing. The evidence of record shows that in two-camera devices, such as a smartphone with front and rear facing cameras, it is necessary to first activate or enable a camera in order for it to start recording images. Patent Owner's declarant, Dr. Wobbrock, testifies that according to the '757 patent, it is necessary for a camera to first be activated or enabled before it can capture image data. *See* Ex. 1015, 25:8–13 ("if the camera weren't enabled, it couldn't capture image data.")). Dr. Wobbrock's testimony thus begs the question, "In what state is a camera in a two-camera device when it is not activated or enabled?"

Petitioner's declarant, Mr. Guidash, provides a reasoned answer. He testifies that if one of the two cameras was enabled, the other camera would be disabled, except in special circumstances. Mr. Guidash testifies that "it was essentially ubiquitous in the relevant timeframe; that if one camera was

enabled the other camera was disabled, unless it was a specific application where simultaneous image capture was used to create a combined image from the two cameras.” Ex. 2007, 31:17–23. Mr. Guidash also testifies as to the rationale for having only one camera enabled at a time—to conserve battery life. Mr. Guidash testifies that

[a] person of ordinary skill in the art would understand that when one camera is operating the other camera is disabled, primarily for the benefit of power consumption. In the relevant time of these -- the prior art references, as well as the '757 patent, one of the if not the biggest power-consuming devices in a mobile phone were the cameras, and battery life was severely degraded by continuous operation of a camera. And as a result it was commonly, if not ubiquitously, done to have only one camera enabled at a time.

Id. at 29:12–25. Mr. Guidash’s testimony on cross-examination is consistent with the testimony in his declaration. *See* Ex. 1003 ¶¶ 201–202.

Based upon the complete record, we find that Petitioner has established by a preponderance of the evidence that the combined teachings of Kim, Yamamoto, and Thorn meet the recited “*control such that a first standby time of a case where the first camera is enabled and the second camera is disabled is longer than a second standby time of a case where the second camera is enabled and the first camera is disabled,*” of limitation [1i].

b. Contested Limitation [1j]

Limitation [1j] recites, “*wherein the first standby time is a time from a recognition of the first instruction to a start of the recording of the first image signal acquired by the first camera, and the second standby time is a time from a recognition of the second instruction to a start.*” Ex. 1001, 16:43–48 (emphasis added).

For limitation [1j], Petitioner contends that “[t]he Kim-Yamamoto-Thorn combination renders this limitation obvious for reasons set forth for limitation [1i].” Pet. 79 (citing Pet. §§ VIII.B.8 (limitation [1g], VIII.B.10 (limitation [1i]; Ex. 1003 ¶ 210).

Petitioner explains that “Yamamoto discloses receiving a command voice for activating the first/front camera, particularly when taking an image of the user.” Pet. 71 (citing Pet. § VIII.B.2 (limitation [1a])). Petitioner points out that “Yamamoto discloses receiving several types of voice commands from a user to initiate respective processing for the device 200,” and “when the voice command is ‘Say Cheese,’ ‘an image is captured after a certain period of time (for example, 0.5 seconds) passes after . . . ‘Say Cheese’ or the like has [been] uttered.” Pet. 71–72, 76 (citing Ex. 1009 ¶ 249) (alteration in original). Petitioner argues that “[a]s such, Yamamoto discloses a 0.5 second delay before taking a voice activated image, which corresponds to the “first standby time.” Pet. 76 (citing Ex. 1003 ¶ 204).

Patent Owner contends that “Petitioners do not identify a standby time in any of Kim, Yamamoto, or Thorn that renders obvious the first standby time set forth in element [1.j].” PO Resp. 37 (citing Ex. 2005 ¶ 127). Patent Owner argues that the time delay described in Yamamoto is not the claimed “recognition of the first instruction,” because “[t]he processing time for recognition of an instruction happens after and *separately* from detecting the end of an utterance.” PO Resp. 38 (citing Ex. 1009 ¶ 55). Patent Owner also argues that “Yamamoto’s failure to distinguish these processing times demonstrates that it does not disclose the claimed first standby time.” PO Resp. 38 (citing Ex. 2005 ¶ 128). “Further,” Patent Owner argues, “the claim language explicitly excludes the capture time from the standby time.” PO Resp. 38.

We disagree with Patent Owner. Limitation [1j] recites in pertinent part “*the first standby time is a time from a recognition of the first instruction to a start of the recording of the first image signal.*” The claim only requires that the time of the first standby be from “*recognition of the first instruction*” to “*start of the recording.*”

Yamamoto teaches “a case in which an image is captured after a certain period of time (for example, 0.5 seconds) passes after, in general, ‘Say Cheese’ or the like has uttered (after /Z/ has uttered).” Ex. 1009 ¶ 249. Yamamoto also teaches that “image pickup unit 103 captures an image after a predetermined delay time passes after the speech detection unit 106 has performed the detection operation for detecting the end of utterance ‘Say Cheese.’” *Id.* ¶ 250. Thus, contrary to Patent Owner’s arguments, Yamamoto specifically teaches that image capture occurs (“*start of the recording*”) after a predetermined time delay passes (e.g. 0.5 seconds) *after* speech detection unit 106 has performed the detection operation (“*recognition of the first instruction*”).

Based upon the complete record, we are persuaded that Petitioner has established by a preponderance of the evidence that the combined teachings of Kim, Yamamoto, and Thorn meet the recited “*wherein the first standby time is a time from a recognition of the first instruction to a start of the recording of the first image signal acquired by the first camera, and the second standby time is a time from a recognition of the second instruction to a start of the recording of the second image signal acquired by the second camera*” of limitation [1j].

3. Remaining Limitations and Claims

Petitioner contends that the combination of Kim, Yamamoto, and Thorn teaches or suggests the remaining portions of independent claim 1,

namely the preamble and limitations [1a]–[1h], as well as the recited limitations of dependent claims 2–3 and 7–10. Pet. 55–75, 79–88.

Petitioner also contends the combination of Kim, Yamamoto, Thorn, and Chinn teaches or suggests the recited limitations of claims 4–6 and 11. *Id.* at 88–94. Petitioner submits the testimony of Mr. Guidash in support of its contentions. *See* Ex. 1003 ¶¶ 155–249.

Patent Owner does not present separate arguments or evidence contesting the remaining portions of claim 1 or claims 2–11 under Grounds 3 and 4. Rather, Patent Owner states that “[c]laims 2-3 and 7-10 all depend from independent claims for which Petitioners have failed to show that the Kim-Yamamoto-Thorn combination renders the independent claims unpatentable. Thus, for the same reasons, Claims 2-3 and 7-10 are not rendered unpatentable by the Kim-Yamamoto-Thorn combination.” PO Resp. 39 (citing Ex. 2005 ¶ 131). Patent Owner also states that “Ground 4 falls short of demonstrating that the Kim-Yamamoto-Thorn-Chinn combination would render obvious claims 4-6 and 11 for the same reasons discussed above.” PO Resp. 39 (citing Ex. 2005 ¶ 132). Patent Owner further states that “Petitioners refer back to §VIII.B.10 (element [1.i] in Ground 3) for their analysis of [limitations [11d] and [11h]]. For the reasons expressed above with respect to elements [1.i] and [1.j], Petitioners have not met their burden to show by a preponderance of the evidence that elements [11.d] and [11.h] are rendered unpatentable the Kim-Yamamoto-Thorn-Chinn combination.” PO Resp. 40 (citing Ex. 2005 ¶ 134).

We have considered Petitioner’s evidence and arguments that the combination of Kim, Yamamoto, and Thorn teaches or suggests the remaining portions of independent claim 1, namely the preamble and limitations [1a]–[1h], as well as the recited limitations of dependent claims

2–3 and 7–10. We have considered Petitioner’s evidence and arguments that the combination of Kim, Yamamoto, Thorn, and Chinn teaches or suggests the recited limitations of claims 4–6 and 11. We have also considered Patent Owner’s evidence and arguments of record. Based on the complete record, we are persuaded that Petitioner has demonstrated by a preponderance of the evidence that the combined teachings of Kim, Yamamoto, and Thorn meet the remaining portions of independent claim 1, namely the preamble and limitations [1a]–[1h], as well as meet the recited limitations of dependent claims 2–3 and 7–10. We are also persuaded that Petitioner has demonstrated by a preponderance of the evidence that the combined teachings of Kim, Yamamoto, Thorn, and Chinn meet the recited limitations of claims 4–6 and 11. We are further persuaded that Petitioner has demonstrated by a preponderance of the evidence that a person of ordinary skill in the art at the relevant time period would have had reason to combine these teachings in the manner described, and would have had a reasonable expectation of success in that endeavor.

4. Conclusion on Grounds 3 and 4

Based on the complete record, we are persuaded that Petitioner has demonstrated by a preponderance of the evidence that challenged claims 1–11 of the ’757 patent would have been obvious to a person of ordinary skill in the art at the relevant time period over the combined teachings of Kim, Yamamoto, Thorn, and Chinn.

IV. CONCLUSION⁷

For the foregoing reasons, we determine that Petitioner has demonstrated by a preponderance of the evidence that claims 1–11 of U.S. Patent 11,223,757 B2 are unpatentable on the bases set forth in the following table.

Claim(s) Challenged	35 U.S.C. §	Reference(s)/Basis	Claim(s) Shown Unpatentable	Claim(s) Not Shown Unpatentable
1–8, 10, 11	103	Chinn, Takahashi, EX-V7	1–8, 10, 11	
9	103	Chinn, Takahashi, EX-V7, Kim	9	
1–3, 7–10	103	Kim, Yamamoto, Thorn	1–3, 7–10	
4–6, 11	103	Kim, Yamamoto, Thorn, Chinn	4–6, 11	
Overall Outcome			1–11	

⁷ 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).

V. ORDER

Accordingly, it is

ORDERED that Petitioner has demonstrated by a preponderance of the evidence that claims 1–11 of U.S. Patent 11,223,757 B2 are unpatentable; and

FURTHER ORDERED that because this is a Final Written Decision, any party to the proceeding seeking judicial review of this Decision must comply with the notice and service requirements of 37 C.F.R. § 90.2.

IPR2024-00717
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