

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

**SAMSUNG ELECTRONICS CO., LTD. AND
SAMSUNG ELECTRONICS AMERICA, INC.,**
Petitioners

v.

MAXELL, LTD.,
Patent Owner

Inter Partes Review No.: IPR2024-00717

**PETITION FOR INTER PARTES REVIEW OF U.S. PATENT NO.
11,223,757 UNDER 35 U.S.C. §§ 311-319 AND 37 C.F.R. §§ 42.1-100, ET SEQ**

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TABLE OF CLAIMS

[1pre] 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;
[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.
[2] The image recording device according to claim 1, wherein the first camera is enabled in accordance with the command voice.
[3] The image recording device according to claim 1, wherein the first standby time is settable or selectable by a user.
[4] The image recording device according to claim 1, wherein the second standby time is settable or selectable by a user.
[5] The image recording device according to claim 1, wherein the controller causes an elapse state of the first standby time from the photographing trigger to

the recording start of the image signal to the recorder to be displayed on the touch display.
[6] The image recording device according to claim 1, wherein the controller causes an elapse state of the second standby time from the photographing trigger to the recording start of the image signal to the recorder to be displayed on the touch display.
[7] The image recording device according to claim 1, wherein the storage is an internal storage of the image recording device.
[8] The image recording device according to claim 1, wherein the storage is an external storage connected to the image recording device.
[9pre] The image recording device according to claim 1, further comprising,
[9a] a communication unit including circuitry and configured to perform communication with a server device on the Internet,
[9b] wherein the recorder is configured to record the first image signal input from the first camera or the second image signal from the second camera in the server device through the communication unit.
[10pre] The image recording device according to claim 1, further comprising,
[10a] a command voice storage configured to store a command voice for instructing photographing,
[10b] wherein the recorder is configured to perform control such that a command voice to be recorded in the command voice storage is received from the audio input interface and stored in the command voice storage as a command voice registration process, and
[10c] in the first photographing process, the recorder determines that the command voice instructs the photographing when the command voice input to the audio input interface is identical to the command voice stored in the command voice storage, and determines that the command voice does not instruct the photographing when the command voice input to the audio input interface is not identical to the command voice stored in the command voice storage.
[11pre] An image recording method of an image recording device, comprising:
[11a] photographing an object and acquiring an image signal by a first camera or a second camera, the first camera being arranged on the same face side of a touch display and configured to acquire a first image signal, the second camera being arranged on an opposite side of the touch display and configured to acquire a second image signal;
[11b] in a case that the first camera is used for photographing: receiving a command voice from an audio input interface;

[11c] determining whether or not the command voice includes a first instruction to start a recording of the first image signal;
[11d] performing a first standby process during a first predetermined time when the command voice includes the first instruction and when the first camera is enabled and the second camera is disabled; and
[11e] start recording the first image signal acquired by the first camera after the first predetermined time; and
[11f] in a case that the second camera is used for photographing: receiving a touch operation instruction from the touch display;
[11g] determining whether or not the touch operation instruction includes a second instruction to start a recording of the second image signal;
[11h] performing a second standby process during a second predetermined time when the touch operation instruction includes the second instruction and when the second camera is enabled and the first camera is disabled; and
[11i] start recording the second image signal acquired by the second camera after the second predetermined time,
[11j] wherein the first predetermined time is set to be longer than the second predetermined time, and
[11.k] wherein the first predetermined 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 predetermined 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.

I. INTRODUCTION

Samsung Electronics Co. Ltd. and Samsung Electronics America, Inc. (“Petitioners”) request *inter partes* review of claims 1-11 (“Challenged Claims”) of U.S. Patent No. 11,223,757 (“’757 patent,” EX1001), owned by Maxell, Ltd. (“PO”).

II. STATEMENT OF PRECISE RELIEF REQUESTED

Petitioners request cancelation of the Challenged Claims in view of the following grounds:

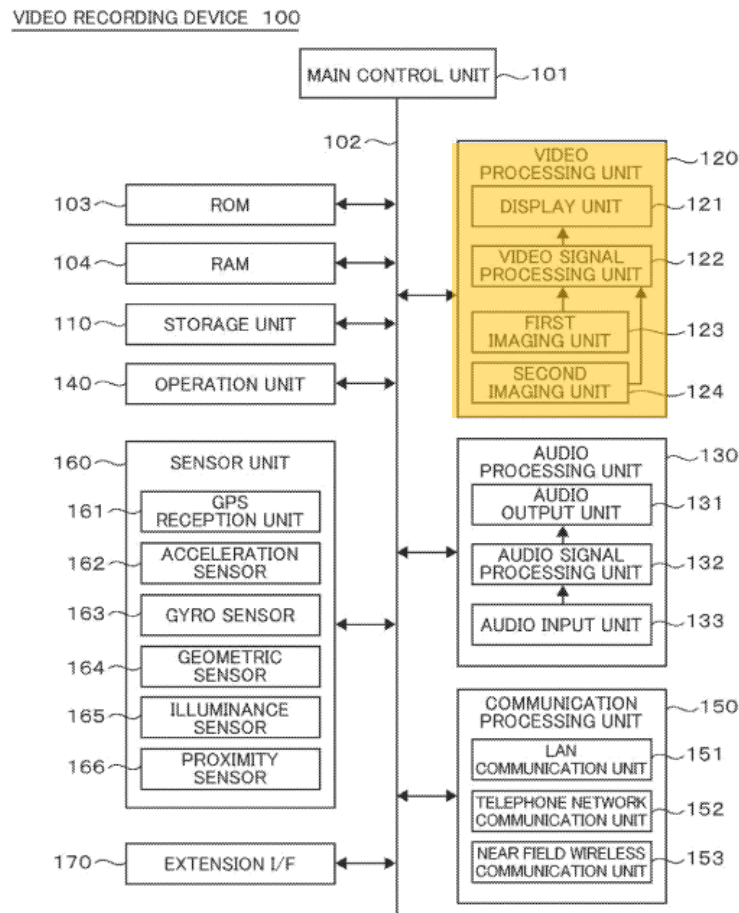
Ground	Claims	Stat. Basis	Prior Art
1	1-8, 10-11	35 U.S.C. § 103	Chinn, Takahashi, EX-V7
2	9	35 U.S.C. § 103	Chinn, Takahashi, EX-V7, Kim
3	1-3, 7-10	35 U.S.C. § 103	Kim, Yamamoto, Thorn
4	4-6, 11	35 U.S.C. § 103	Kim, Yamamoto, Thorn, Chinn

III. THE ’757 PATENT

A. Overview

The ’757 patent is directed to a video processing unit 120 having a display unit 121, first imaging unit 123 and second imaging unit 124. EX1001, 4:46-60. The first and second imaging units are front and rear cameras that acquire images. EX1001, 3:58-4:3; 4:55-60.

FIG. 1



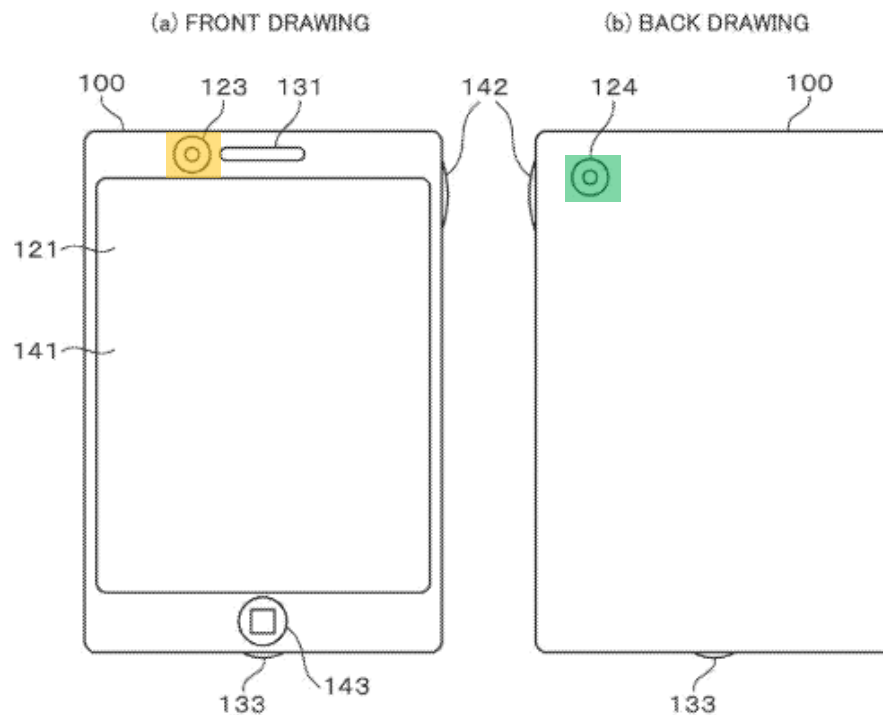
EXError! Reference source not found. FIG. 1.¹

“[T]he first imaging unit 123 used as an in camera photographing the user himself, and the second imaging unit 124 used as an out camera photographing a subject disposed on the periphery are selectively used.” EX1001, 4:60-64. In the illustrated embodiment, “[t]he first imaging unit (camera unit) 123 is arranged on a

¹ All emphasis, color, and annotations are added, unless otherwise indicated.

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.” EX1001, 7:56-60; FIG. 4:

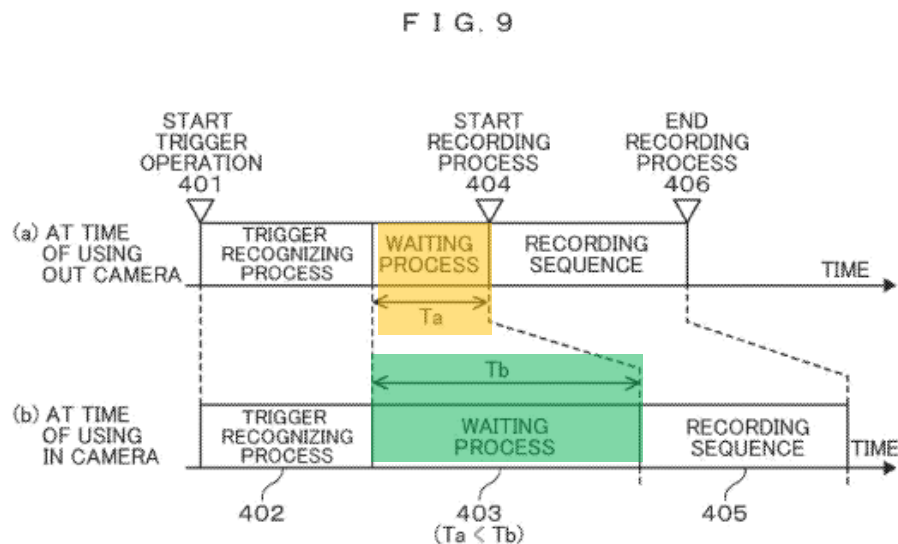
FIG. 4



The '757 patent discloses an “operation for delaying the start of recording” its camera function, particularly when the user is taking an image of herself/himself (referred to colloquially as a “selfie”) via a voice command. EX1001, 9:19-41. According to the '757 patent, “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.” EX1001, 9:23-33. “[T]o avoid this, ... a predetermined delay time until the start of a recording process after the input of a command voice is provided.” EX1001, 9:33-35.

A purported “distinctive feature” is the use of different delays for the front and rear cameras. The ’757 patent suggests using one delay (T_a) when using the out (i.e., rear) camera and a longer delay (T_b) when using the in (i.e., front) camera. EX1001, 9:56-10:6; FIG. 9. The ’757 patent refers to these delays as “standby” times. *Id.*



This purportedly “distinctive feature” (and the problem it was designed to solve), however, was not novel and was well-known before the ’757 patent’s earliest claimed priority date.

B. '757 Patent Prosecution History

U.S. Application no. 16/686,467 (“’467 application”), which issued as the ’757 patent, was filed on 11/18/2019, claiming priority through a series of continuation applications to Application no. PCT/JP2013/074728, filed on 9/12/2013. EX1001 (22), (63); EX1002, 118.²

C. Person of Ordinary Skill in the Art

A person of ordinary skill in the art (“POSITA”) at the time of the alleged invention of the ’757 patent would have had 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. EX1003, ¶ X. Additional graduate education could substitute for professional experience, and significant experience in the field could substitute for formal education. *Id.*

D. Claim Construction Under 37 C.F.R. § 42.104(b)(3)

Challenged Claims are interpreted using the same claim construction standard used to construe the claim in a civil action in federal district court. 37 C.F.R. § 42.100(b).

² Petitioners are not challenging in this IPR whether any claim of the ’757 patent is entitled to the 9/12/2013 priority date or any priority date before the 11/18/2019 filing in the USPTO, but reserve the right to do so in any other proceeding.

Petitioners do not contend that its proposed constructions are complete constructions of these limitations or the claims for any other purpose, including for issues that have been raised in the District Court Litigation (as defined in §XI).

Because the prior art asserted herein discloses an embodiment within the indisputable scope of the claims, the Board need not construe the outer bounds of the claims here. *Nidec Motor Corp. v. Zhongshan Broad Ocean Motor Co.*, 868 F.3d 1013, 1017 (Fed. Cir. 2017).

Claim terms not listed below should be construed according to their plain and ordinary meaning to a POSITA.

1. **“first camera arranged on a same side of the touch display” / “first camera being arranged on the same face side of a touch display”** (claims 1, 11)

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. For example, PO asserts that the Galaxy S23 Ultra infringes this limitation. EX1012, 64-66, 402-403. Petitioners adopt this apparent construction for the purposes of this Petition, but reserve the right to assert that these terms are indefinite and/or have a different meaning in the District Court Litigation.

2. “second camera arranged on an opposite side of the touch display” / “second camera being arranged on an opposite side of the touch display” (claims 1, 11)

Similar to the “first camera” terms, PO apparently construes these terms as including a second/rear camera that is “arranged on a face (rear face) [of the image recording device] opposite to the display unit” as discussed in the ’757 patent at 7:58-59; *see also* 2:58-59. EX1012, 81-83, 402-403. Petitioners adopt this apparent construction for the purposes of this Petition, but again reserve the right to assert that these terms are indefinite and/or have a different meaning in the District Court Litigation.

IV. PRIOR ART REFERENCES

A. Chinn

U.S. Patent Publication No. 2014/0247368 (“Chinn”) was filed on 3/4/2013, and published on 9/4/2014. Chinn is prior art under post-AIA 35 U.S.C. § 102(a)(2).

B. Takahashi

Published JP Application JP2001305642A (“Takahashi”) was filed on 4/25/2000, and published on 11/2/2001. Takahashi is prior art under post-AIA 35 U.S.C. §§ 102(a)(1), (a)(2).

C. Kim

U.S. Patent Publication No. 2010/0137026 (“Kim”) was filed on 4/9/2009, and published on 6/3/2010. Kim is prior art under post-AIA 35 U.S.C. §§ 102(a)(1), 102(a)(2).

D. Yamamoto

U.S. Patent Publication No. 2010/0026815 (“Yamamoto”) was filed on 7/24/2009, and published on 2/4/2010. Yamamoto is prior art under post-AIA 35 U.S.C. §§ 102(a)(1), (a)(2).

E. EX-V7

The EX-V7 camera was a product offered for sale and sold throughout the world by at least May 8, 2007 as indicated by the reviews at EX1010, 5-9 and 10-12. Its User’s Guide (EX1014, “EX-V7”) was publicly available no later than 10/10/2008 as indicated by EX1010, 1 (discussing encoding of URLs), 2 (showing URL for Folder 001 for EX-V7 with 10/10/2008 date), and 19-294 (EX-V7 User’s Guide, which is identical to EX1014); *see also* the listing of manuals at EX1010, 14; *see also* 2007 dates in EX1014 at 137, 199. A POSITA would have been motivated to look at manuals for such commercially-available cameras and would have known how to find EX-V7 on its manufacturer’s website. EX1003, ¶64 (citing references to camera manufacturer websites in EX1007, page 2 and to discussion of Casio camera at col. 2, lines 7-9). EX-V7 is therefore prior art under post-AIA 35 U.S.C. § 102(a)(1).

F. Thorn

U.S. Patent Publication No. 2009/0167881 (“Thorn”) was filed on 1/2/2008, and published on 7/2/2009. Thorn is prior art under post-AIA 35 U.S.C. §§ 102(a)(1), (a)(2).

V. LEGAL STANDARD FOR OBVIOUSNESS

A claim is unpatentable under 35 U.S.C. § 103 if the differences between the claimed subject matter and the prior art are such that the subject matter, as a whole, would have been obvious to a person having ordinary skill in the art to which said subject matter pertains. *KSR Int’l Co. v. Teleflex Inc.*, 550 U.S. 398, 406 (2007). The question of obviousness is resolved on the basis of underlying factual determinations, including (1) the scope and content of the prior art; (2) any differences between the claimed subject matter and the prior art; (3) the level of skill in the art; and (4) where in evidence, so-called secondary considerations. *Graham v. John Deere Co.*, 383 U.S. 1, 17–18 (1966).

Factor (3) is discussed above. Regarding factor (4), PO has not provided any evidence of any nexus between any alleged secondary consideration and the challenged claims. Regardless, the showing of invalidity in this Petition is strong and any alleged secondary considerations are insufficient to establish non-obviousness. Factors (1) and (2) are addressed below.

VI. GROUND 1: CHINN, TAKAHASHI AND EX-V7

A. Motivation to Combine Chinn with Takahashi and EX-V7

It 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. EX1003, ¶68.

Chinn and Takahashi both relate to image capture devices (imaging devices) with manual and voice activated photographic processes. EX1004, ¶¶4, 23, 30; EX1005, ¶17; EX1003, ¶69. EX-V7 also relates to an imaging device, and allows manual activation of a camera. EX1014, pp. 15-17. Chinn, Takahashi and EX-V7 thus have manual activation technology (e.g., Chinn’s touch display activation and Takahashi and EX-V7’s shutter-controlled activation), and/or voice activation technology (microphone and processing circuitry/software) already installed, making their devices particularly suitable for each other. EX1004, ¶¶16, 22, 23; EX1005, ¶18; EX1014, pp. 15-17; EX1003, ¶69. Moreover, 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. EX1003, ¶69.

A POSITA 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. EX1003, ¶70 (citing EX1007, 11:16-31). Indeed, 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” EX1005, ¶8. Takahashi states that this “is a problem.” *Id.*

To overcome this problem, Takahashi introduces a delay/standby from a recognition of a voice command to the start of the image capture. Takahashi discloses that, if a user’s voice command is recognized by the camera’s control circuit in voice shooting mode, “timer circuit 102” is activated. EX1005, ¶¶ 38-39. “[T]imer circuit 102 then begins measuring a prescribed set time or an adjusted set time, and once that amount of time has elapsed, sends the result to the main control circuit 126.” EX1005, ¶39. 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.” *Id.* “This makes it possible to be photographed accurately with the desired facial expression and while not in the middle of speaking.” EX1005, ¶41; EX1003, ¶¶70-74.

Likewise, 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. EX1003, ¶74. The 2-second delay is a time from a recognition of the manual activation instruction to the start of the image capture.

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.

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. EX1003, ¶75. Sarin’s teaching that a touch activation can cause the camera/smartphone to shake transiently and distort images provides additional motivation for this 2-second delay. EX1013, ¶; EX1003, ¶75.

Adding 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). *KSR*, 550 U.S. at 416; EX1003, ¶76.

A POSITA 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. EX1003, ¶77.

B. Claim 1³

1. [1pre]

To the extent the preamble is limiting, Chinn discloses it. EX1003, ¶¶78-80. Chinn discloses that different cameras (front/rear) are used to take photographs, and different methods (voice/touch) are used to initiate image capture. Chinn discloses a camera device 100 comprising “a device activation button 101, touch screen display 105, front camera 110, ..., back camera 125, ..., microphone 150.” EX1004, ¶16; FIG. 1.

³ Claim language has been reproduced in the attached Claims Appendix.

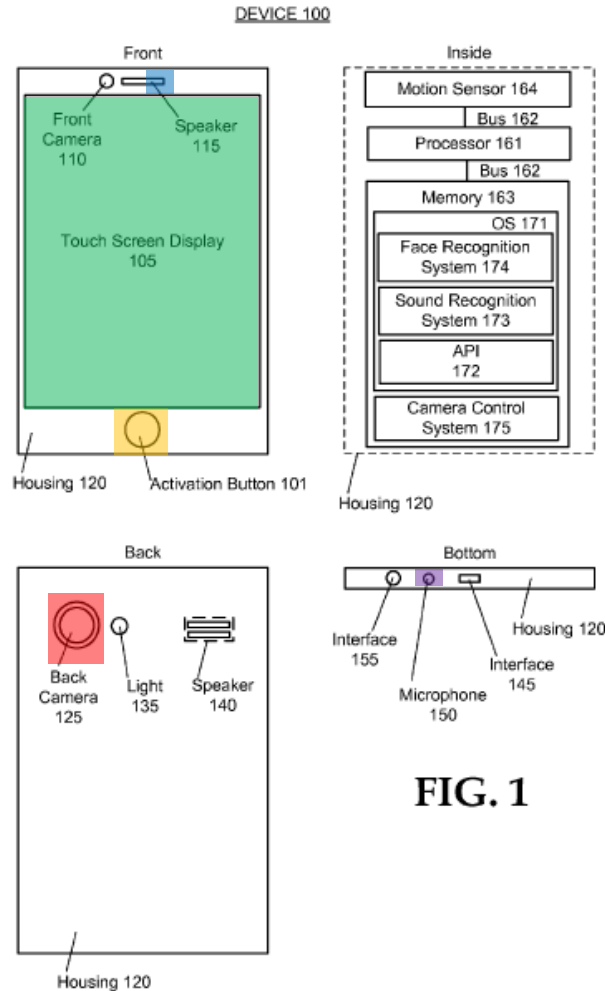


FIG. 1

EX1004, FIG. 1.

An “OS 171 includes API 172, [and] a sound recognition system 173.”

EX1004, ¶16. The camera control system 175 may provide “any of a variety of voice-interactive features, such as a voice-activated shutter, ... and/or a variety of other features, including both voice-interactive as well as other, non voice-interactive features.” EX1004, ¶15.

“Camera control system 175 may be configured to present UI 200” on the touch screen display 105 and “may be configured [to] receive commands from a

user via UI 200, and to execute received commands with the device 100.” EX1004,

¶22. Chinn discloses that “camera activation controls may include a listening initiation control 231, a timer initiation control 232, and a camera activation control 233.” EX1004, ¶22.

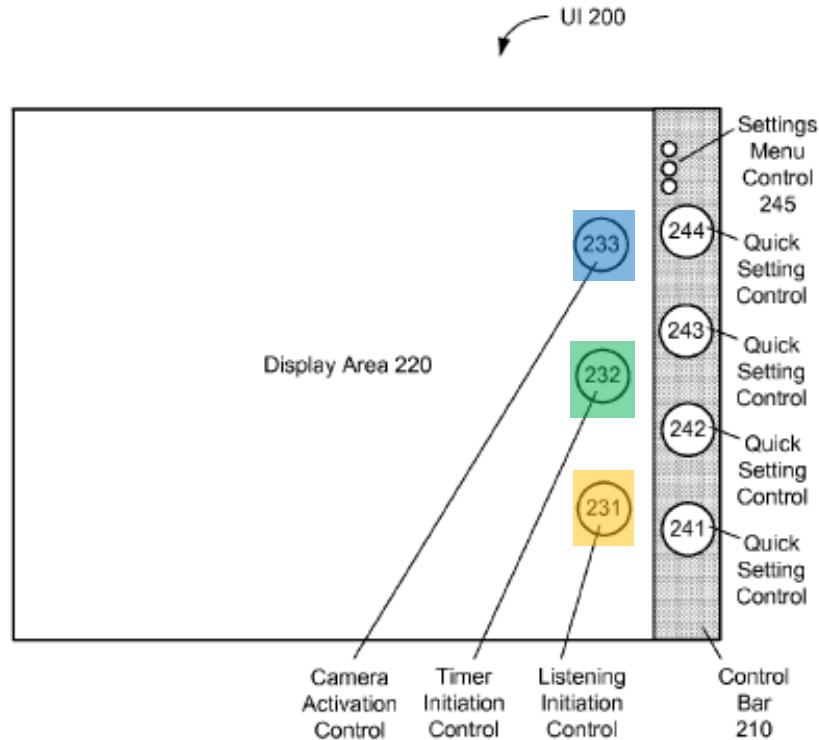


FIG. 2

EX1004, FIG. 2.

Different photographic processes disclosed by Chinn include at least:

- voice activated photographic processes using the front and/or rear cameras, EX1004, ¶23; and

- shutter/non-voice activated photographic processes using the front and/or rear cameras, EX1004, ¶¶30, where a camera activation control 233 is a touch screen input. EX1004, FIG. 2. EX1003, ¶¶81.

2. [1a]

Chinn discloses this limitation or renders it obvious in view of Takahashi.

EX1003, ¶¶82-84. Chinn discloses a camera device 100 comprising a “microphone 150” and “a sound recognition system 173.” EX1004, ¶¶16; FIG. 1.

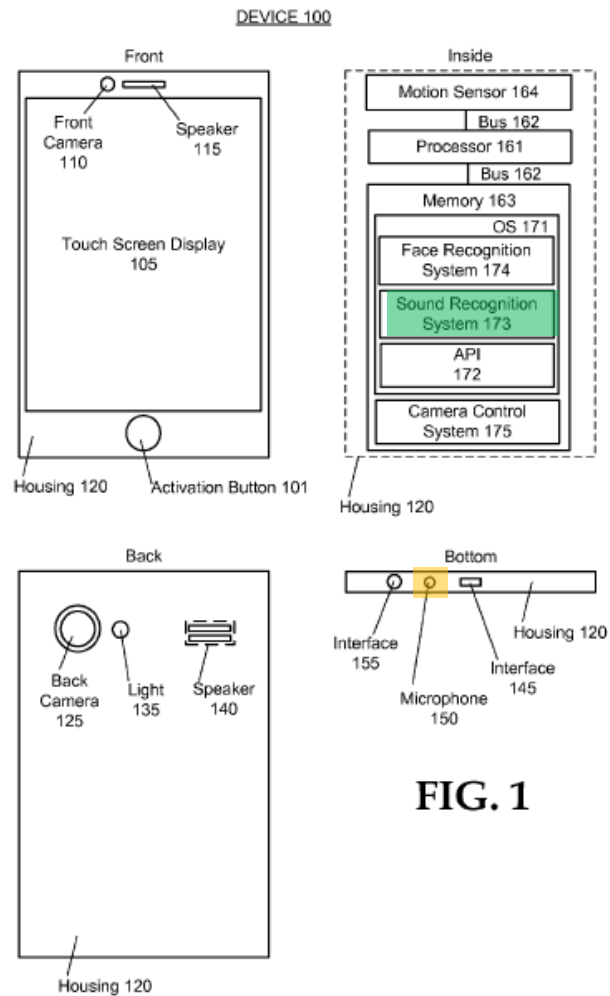


FIG. 1

EX1004, FIG. 1.

The microphone 150 is used to receive, and the sound recognition system 173 is configured to detect, a command voice:

The camera control system 175 may be configured to initiate listening by device 100 to sound data received via the microphone 150 in response to user activation of the listening initiation control 231, and the 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 ... in response to the predetermined camera activation sound pattern. ... 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 ... in response to the words “ready click”.

EX1004, ¶23.

...after user activation of the listening initiation control 231, camera control system 175 may respond to the predetermined camera activation sound pattern by activating the camera 125 as described above, and camera control system 175 may respond to any of a variety of other voice commands, *such as a “set timer” command...*

EX1004, ¶25. “For example, in response to a ‘set timer: 10 seconds’ command, camera control 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.

To the extent PO argues that “command voice” is associated with a specific voice, Chinn in view of Takahashi renders it obvious. Takahashi discloses a registration process to obtain the speech pattern of a particular user. EX1003, ¶84. Takahashi discloses a “voice recognition pattern registration circuit 106 [which] is a storage circuit which stores voice recognition patterns input from the voice recognition input circuit 122 when the mode dial 20 has been switched to the position indicating voice audio registration mode.” EX1005, ¶22. The voice pattern registration circuit 106 has a storage element. EX1005, ¶22. According to Takahashi, “a second voice audio pattern for taking a photograph, e.g., a voice audio pattern of the photographer saying ‘take the picture’ or the like, are registered ahead of time in the storage element as instruction patterns in voice audio photography mode.” EX1005, ¶22.

3. [1b]

Chinn discloses this limitation. EX1003, ¶¶85-87. Chinn discloses a camera device 100 comprising a “touch screen display 105.” EX1004, ¶16; FIG. 1. The touch screen display 105 is arranged on a first (i.e., front) surface of the device 100:

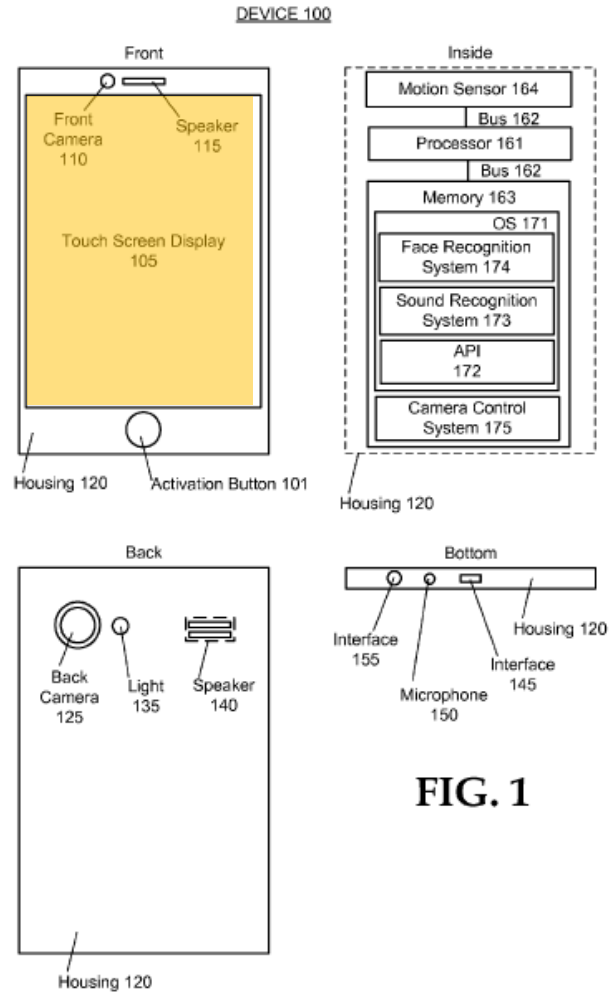


FIG. 1

EX1004, FIG. 1.

UI 200 is displayed on the touch screen display 105. EX1004, ¶22; FIG. 2.

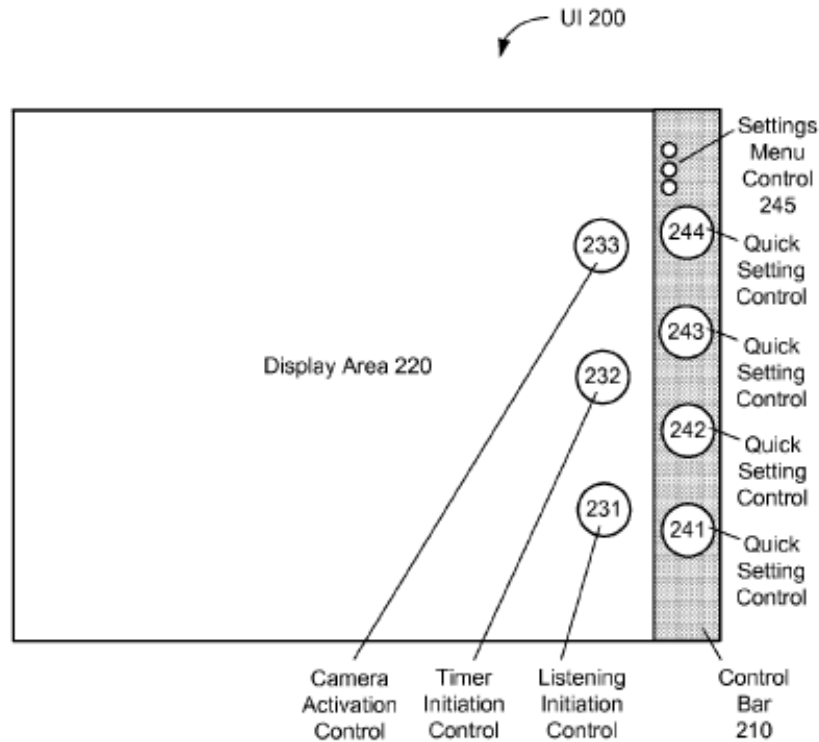


FIG. 2

EX1004, FIG. 2.

“UI 200 comprises a display area 220 that “may be configured to display an image from a camera.” *Id.* Moreover, “[c]amera control system 175 may be configured receive commands from a user via UI 200, and to execute received commands with the device 100.” *Id.* Those commands include touch commands associated with the touch-sensitive buttons 231-233 and 241-245 (FIG. 2).

4. [1c]

Chinn discloses or renders obvious this limitation. EX1003, ¶88. Chinn discloses a camera device 100 comprising a “front camera 110.” EX1004, ¶16;

FIG. 1. The front camera 110 is arranged on the same (i.e., front) side of the device 100 having the touch screen display 105:

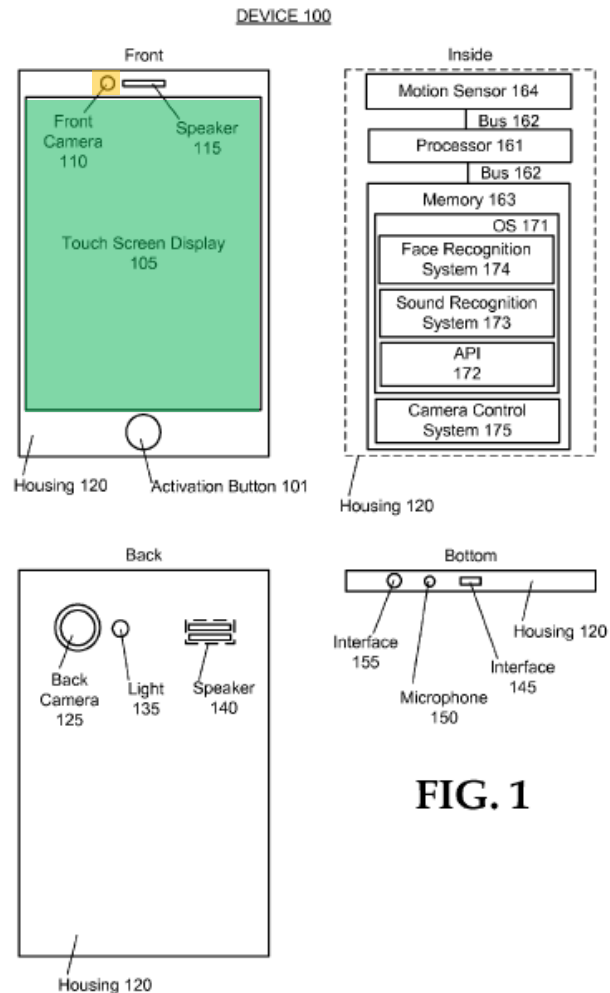


FIG. 1

EX1004, FIG. 1.

“The camera control system 175 may be configured to activate the camera,” including camera 110, “to take a photograph ... in response to the predetermined camera activation sound pattern.” EX1004, ¶23. A POSITA would have understood that using front camera (i.e., first camera) 110 to take a photo or video

means “acquir[ing] a first image signal” since cameras send image data via signals to a screen or a storage device. EX1003, ¶89.

5. [1d]

Chinn discloses or renders obvious this limitation. EX1003, ¶90. Chinn discloses a camera device 100 comprising a “back camera 125.” EX1004, ¶16; FIG. 1. The back camera 125 is arranged on an opposite side (i.e., back) of the device 100 side (i.e., front) that has the touch screen display 105:

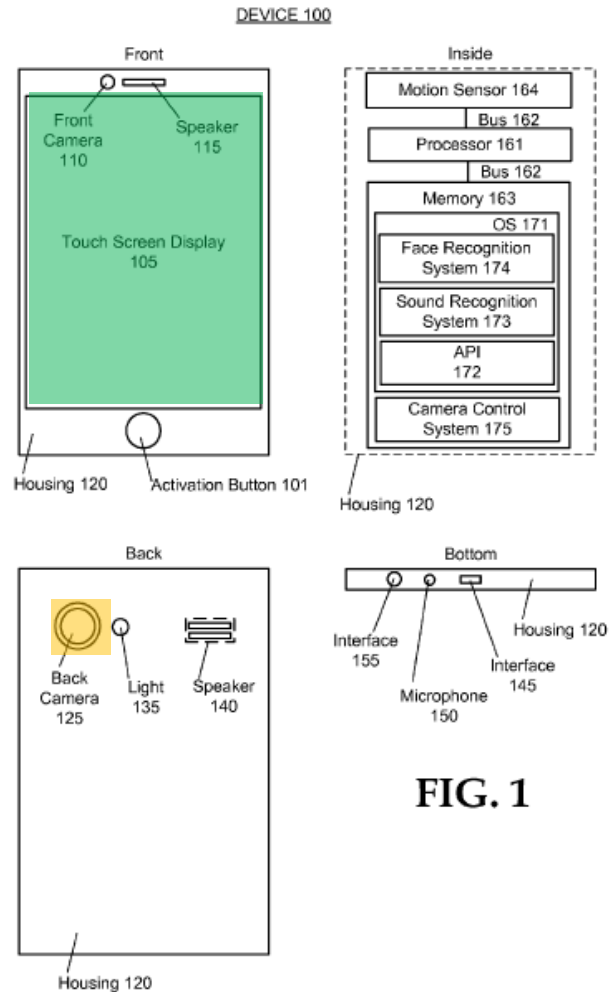


FIG. 1

EX1004, FIG. 1.

The control system 175 activates the camera 125 in response to user selection of a camera activation control 233 when the rear camera is selected depending on user-defined settings discussed further below. EX1004, ¶¶30, 32. A POSITA would have understood that the taking of a photograph or recording of a video by the back camera 125 (i.e., second camera) would “acquire a second image signal.” EX1003, ¶¶91-92.

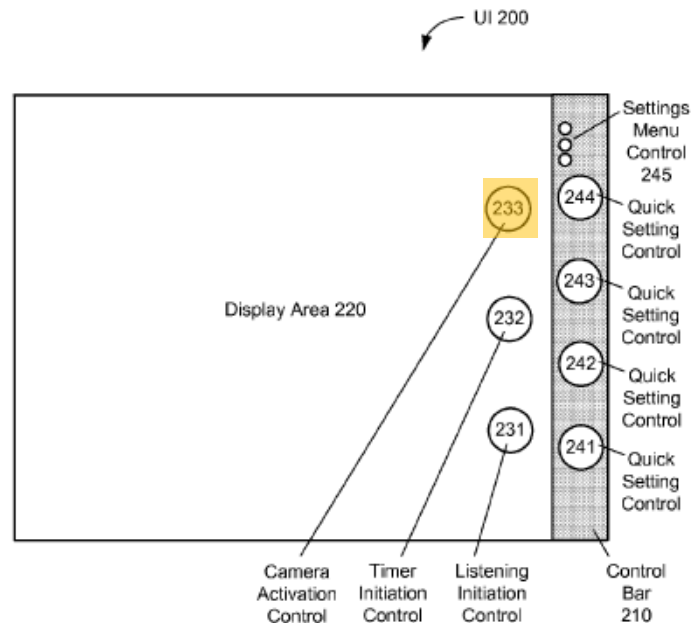


FIG. 2

6. [1e]

Chinn discloses or renders obvious this limitation. EX1003, ¶93. Chinn discloses that “[t]he 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 ... in response to the predetermined camera activation sound pattern.”

EX1004, ¶23. Chinn further discloses that camera control system 175 is configurable to activate the rear camera 125 in response to user selection of the camera activation control 233. EX1004, ¶30.

The portion of the camera control system 175 responsible for taking a photograph and/or recording a video is the claimed “recorder.” EX1003, ¶94. Chinn discloses that the “display area 220 may be configured to display an image from a camera, e.g., camera 125.” EX1004, ¶22. Chinn discloses that “[i]mage data from display area 220 may comprise, e.g., image data from a portion of memory 163, or a dedicated graphics memory, which may be used for display area 220.” EX1004, ¶66. Memory 163 or the graphics memory are the claimed storage. EX1003, ¶94. A POSITA would have understood that the display of a photograph in the display area 220 requires storing an image signal from the camera in the graphics memory, and that recording of a photograph would require storing image signals from the camera in use (i.e., either the claimed first image signal or second image signal) in storage (e.g., memory 163 or graphics memory). EX1003, ¶94.

7. [1f]

Chinn discloses, or when modified by Takahashi and EX-V7, renders obvious “a controller” adapted to perform limitations [1g]-[1j]. EX1003, ¶95. Chinn discloses a camera control system 175, which is a controller adapted to perform limitations [1g]-[1j]. EX1003, ¶95. To the extent that a “controller” is

construed as meaning a physical device such as a processor, Chinn discloses that the camera control system 175 may be an app installed on a smart phone (EX1004, ¶16), and a POSITA would have understood that such a smart phone must have a processor to execute such an “app” (i.e., software application). EX1003, ¶95.

8. [1g]

Chinn discloses or renders obvious this limitation. EX1003, ¶96. 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”. EX1004, ¶23.⁴ 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

⁴ ¶23 states that the camera control system 125 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, and ¶32 further explains how a user can select the front and/or rear cameras via the camera selection control 242 shown in Fig. 2. A POSITA would have understood from these disclosures that the camera selected via control 242 will respond to the voice command in some embodiments. EX1003, ¶96 n. 1.

claimed “recorder.” *See* limitation [1e]; EX1003, ¶96. A POSITA 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). EX1003, ¶96.

9. [1h]

Chinn discloses or renders obvious this limitation. EX1003, ¶97. Chinn discloses that the “camera control system 175 may be configured to present UI 200 on a display such as touch screen display 105, ... receive commands from a user via UI 200, and to execute received commands with the device 100.” EX1004, ¶22. A portion of the UI 200 is configured to display “a camera activation control 233.” *Id.*; FIG. 2.

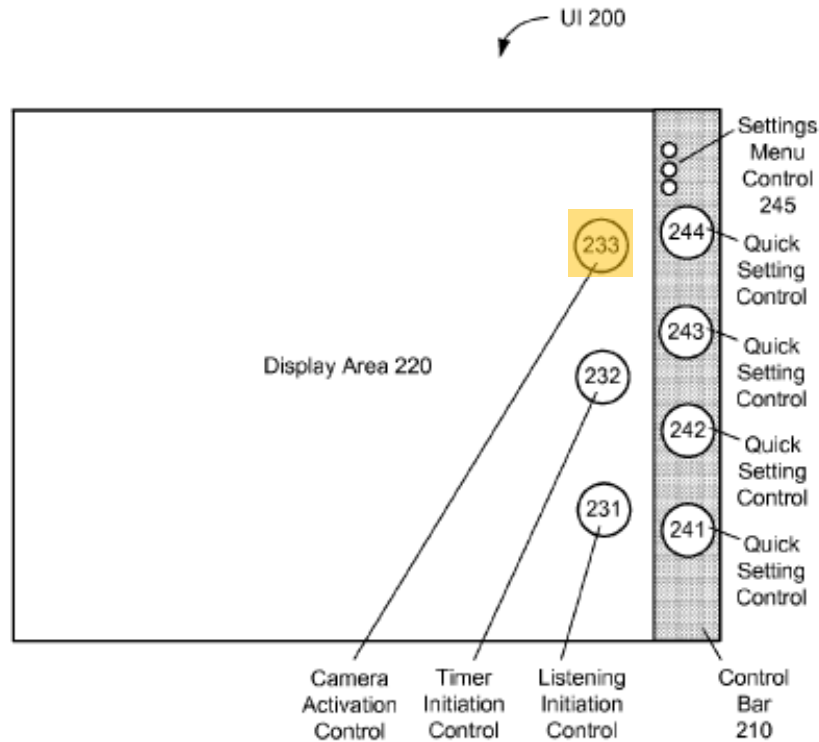


FIG. 2

“Camera activation control 233” is a “shutter control.” EX1004, ¶30.

“Camera control system 175 may be configured to immediately activate the rear camera 125 in response to user selection of the camera activation control 233.”

EX1004, ¶30. The activated rear/back camera 125 is the claimed “second camera.”

See limitation [1d]; EX1003, ¶98. The portion of the camera control system 175 responsible for taking a photograph and/or recording a video is the claimed

“recorder.” See limitation [1e]; EX1003, ¶98. A POSITA would have understood

that the taking of a photograph or recording of a video with the rear/back camera

125 (i.e., second camera) in response to the user selection of the camera activation

control 233 (i.e., the touch operation instruction giving the second instruction) would require storing an image signal (i.e., the claimed second image signal) in storage (e.g., memory 163 or graphics memory). EX1003, ¶98.

10. [1i]

The Chinn-Takahashi-EX-V7 combination renders obvious this limitation. EX1003, ¶99.

Enabled/Disabled First/Second Camera

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. *See* limitation [1g]; §VI.A; EX1003, ¶100. A POSITA would have understood that the need to activate the front camera 110 means that it was previously disabled. A POSITA would have also understood that because only the front camera 110 is activated, the back camera 125 (i.e., second camera) would remain disabled. EX1003, ¶100. To the extent not expressly disclosed in Chinn, a POSITA 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. Benefits of doing so include reducing power consumption and increasing battery life. EX1003, ¶100.

Likewise, 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. See limitation [1h]; EX1003, ¶101. A POSITA would have understood that the need to activate the back camera 125 means that it was previously disabled. A POSITA 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. EX1003, ¶101. Benefits of doing so include reducing power consumption and increasing battery life. *Id.*

First Standby Time > Second Standby Time

For the reasons discussed in §VI.A, a POSITA 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 (EX1004, ¶48; EX1014, 77). EX1003, ¶102.

Thus, the Chinn-Takahashi-EX-V7 combination renders obvious this limitation.

11. [1j]

The Chinn-Takahashi-EX-V7 combination renders this limitation obvious.

See §§VI.B.10, VI.A; EX1003, ¶103.

C. Claim 2

The Chinn-Takahashi-EX-V7 combination renders obvious the image recording device according to claim 1. See §VI.B. Chinn discloses this limitation. EX1003, ¶104. Chinn’s camera control system 175 (i.e., controller) is configured to respond to a voice command (e.g., “set timer: 10 seconds”) received by the microphone 150 and detected by the sound recognition system 173 “to activate the camera,” which may be the front camera 110 “to take a photograph ... in response to the predetermined camera activation sound pattern.” EX1004, ¶¶23, 27. Front camera 110 is the claimed “first camera.” See limitation [1c]; see also §VI.B.10; EX1003, ¶104.

D. Claim 3

The Chinn-Takahashi-EX-V7 combination renders obvious the image recording device according to claim 1. See §VI.B. Chinn alone or in view of Takahashi renders obvious that “the first standby time is settable or selectable by a user.” EX1003, ¶105. Chinn discloses that “camera control system 175 may be configured to receive, recognize, and respond to additional voice commands.” EX1004, ¶25. “For example, after user activation of the listening initiation control 231, camera control system 175 may respond to the predetermined camera

activation sound pattern by activating the camera 125 as described above, and camera control system 175 may respond to any of a variety of other voice commands, such as a “set timer” command.” *Id.* A POSITA would have understood that the timer being set by the user in the “listening” mode of the device 100, would correspond to the first standby time for the first camera (front camera 110) being used in the voice operated mode. EX1003, ¶105.

To the extent PO argues that Chinn does not explicitly disclose that the first standby time is settable or selectable by the user, Takahashi discloses that a timer circuit 102 “is a time measurement circuit which measures ... a prescribed shutter release standby time in voice audio photography mode.” EX1005, ¶20. According to Takahashi, “a prescribed amount of time is set ahead of time for *voice audio photography mode*, but this set amount of time *can be adjusted to be variably longer or shorter by operating the adjustment buttons 26 and 28.*” *Id.* Thus, Takahashi also discloses this limitation. EX1003, ¶106.

E. Claim 4

The Chinn-Takahashi-EX-V7 combination renders obvious the image recording device according to claim 1. See §VI.B. Chinn also discloses or renders obvious this limitation. EX1003, ¶107. Chinn discloses a UI 300 that has a first menu category that “provides controls for selecting actions by camera control

system 175 when a shutter control 233 is pressed.” EX1004, ¶36. One example control is a “selectable ‘start 3 sec ready countdown’ control 303.” *Id.*; FIG. 3.

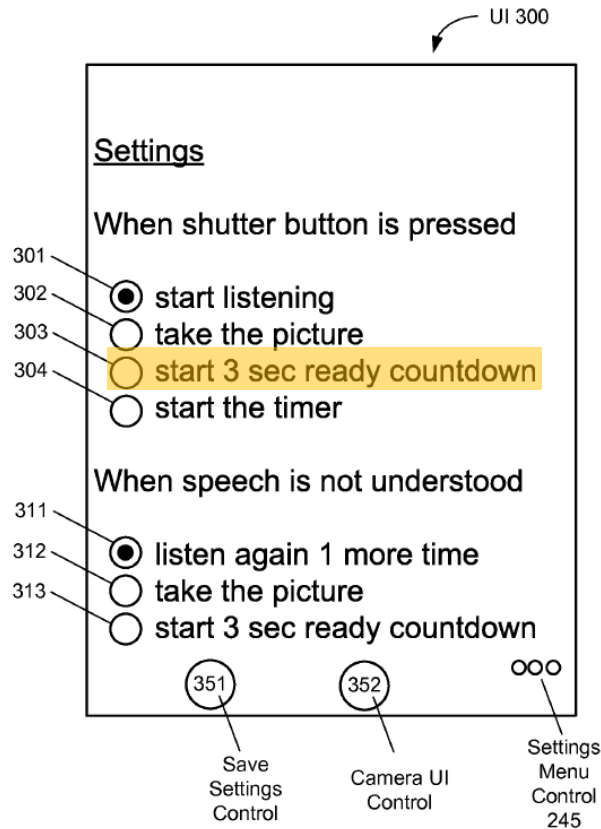


FIG. 3

EX1004, FIG. 3.

“When the ‘start 3 sec ready countdown’ control 303 is selected, the camera control system 175 may modify its response to user selection of shutter control 233, so that 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 233.” EX1004, ¶39.

A POSITA would have understood that the countdown being set/selectable by the user for “shutter control 233” would correspond to the second standby time for the second camera (back camera 125) being used in the manual touch operation.

EX1003, ¶108.

As another example, Chinn ¶40 discloses that the time associated with the “start the timer” setting 304 shown in Fig. 3 in response to a touch of the camera activation control 233 of Fig. 2 will result in a standby time that “may also be user configurable as described herein, e.g., in connection with controls 411-414” of Fig. 4 (the configurable times include an option for 2 seconds in some embodiments as discussed at ¶48) (*see also* EX1003, ¶109):

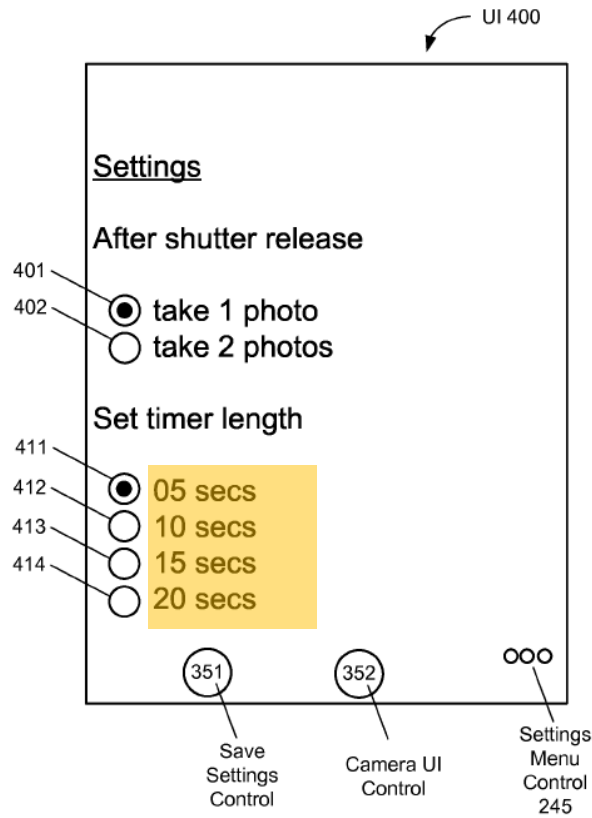


FIG. 4

F. Claim 5

The Chinn-Takahashi-EX-V7 combination renders obvious the image recording device according to claim 1, see § VI.B, and Chinn renders obvious this limitation. EX1003, ¶110. Chinn discloses that “in response to a ‘set timer: 10 seconds’ command, camera control system 175 may output an audible notification ... and ... may then proceed to output an audible countdown to camera activation.” EX1004, ¶27. Thus, one operation performed by the Chinn device 100 is an

audible countdown (i.e., elapsed state) of a timer before the first camera (front camera 110) takes an image. EX1003, ¶110.

Chinn discloses displaying status messages 702 on UI 200:

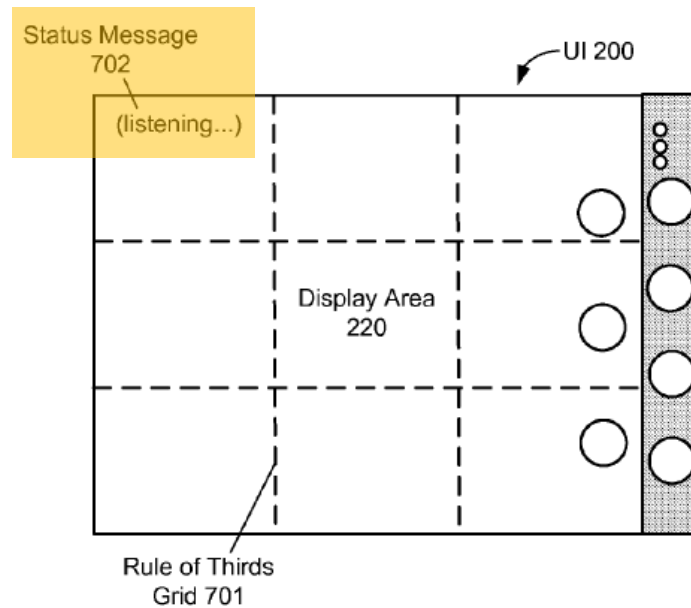


FIG. 7A

EX1004, FIG. 7A; EX1003, ¶111.

Chinn further discloses a status message 702 in UI 200. EX1004, ¶56. Chinn explicitly discloses that “status messages reflecting other operations which may be performed by camera control system 175 may also be displayed.” EX1004, ¶56. A POSITA would have understood that the audible countdown disclosed by Chinn is an operation performed by the camera control system 175. EX1003, ¶112.

A POSITA would have found it obvious to display the countdown on UI 200 (e.g., as a status message 702) so that the user is informed of this information even

in a noisy environment in which the audible countdown could not easily be heard.

It would have been obvious to a POSITA to try this modification as it was one of a few possible design options (e.g., display notification, audible notification, haptic notification) and was already known in the art. E.g., EX1013, ¶43; EX1003, ¶113.

A POSITA would have had a reasonable expectation of success in implementing a displayed countdown on UI 200 (e.g., as a status message 702) as UI 200 and camera control system 175 were already adapted to display messages related to any operation performed by the camera control system 175, which would have yielded predictable results. *Id.*

G. Claim 6

The Chinn-Takahashi-EX-V7 combination renders obvious the image recording device according to claim 1, see §VI.B, and Chinn renders obvious this limitation. EX1003, ¶114.

Chinn discloses that “in response to a ‘set timer: 10 seconds’ command, camera control system 175 may output an audible notification ... and ... may then proceed to output an audible countdown to camera activation.” EX1004, ¶27. Thus, one operation performed by Chinn’s device 100 is an audible countdown (i.e., elapsed state) of a timer before the second/back camera 175 takes an image.

Chinn discloses displaying status messages 702 on UI 200:

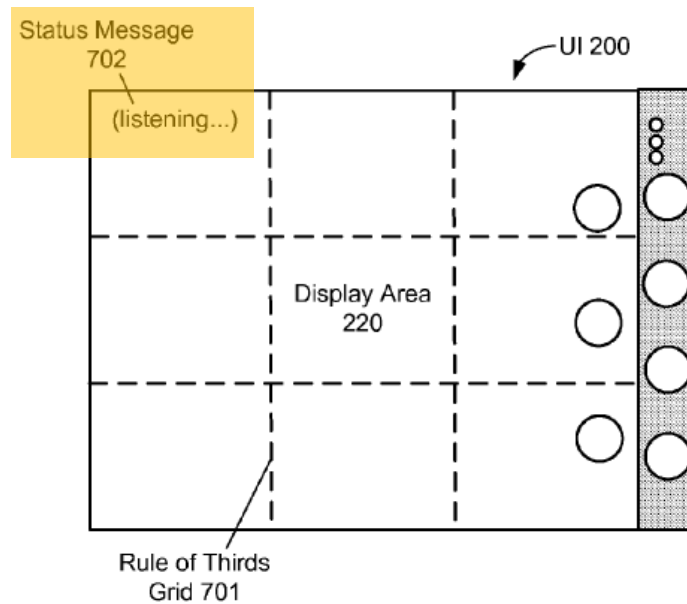


FIG. 7A

EX1004, FIG. 7A; EX1003, ¶115.

Chinn discloses that “status messages reflecting other operations which may be performed by camera control system 175 may also be displayed.” EX1004, ¶56. A POSITA would have understood that the audible countdown disclosed by Chinn is an operation performed by the camera control system 175. EX1003, ¶117. A POSITA would have found it obvious to display the countdown on UI 200. *See* §VI.F; EX1003, ¶118.

H. Claim 7

The Chinn-Takahashi-EX-V7 combination renders obvious the image recording device according to claim 1. *See* §VI.B. Moreover, Chinn discloses this limitation. EX1003, ¶119. Chinn discloses memory 163 or graphics memory as the

claimed storage. See §VI.B.6. The memory 163 and graphics memory are “inside” (i.e., internal) the device 100.

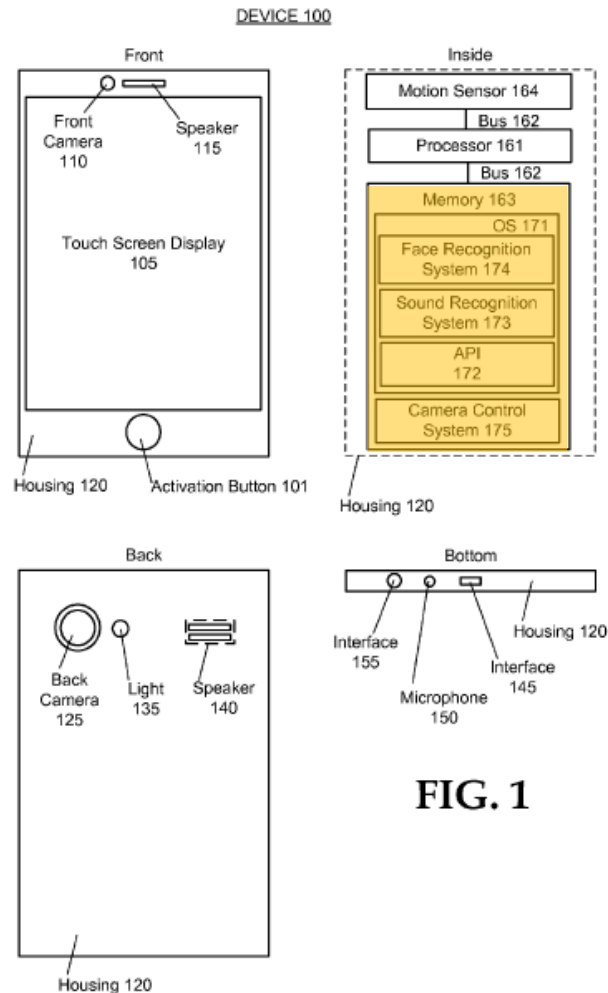


FIG. 1

I. Claim 8

The Chinn-Takahashi-EX-V7 combination renders obvious the image recording device according to claim 1. See §VI.B. The Chinn-Takahashi-EX-V7 combination renders obvious storage being an external storage connected to the image recording device (device 100). EX1003, ¶120. EX-V7 discloses the use of a removable memory card to store captured images.

■ **Loading a Memory Card into the Camera**

When a memory card is loaded, the camera stores images you shoot on the card.

NOTE

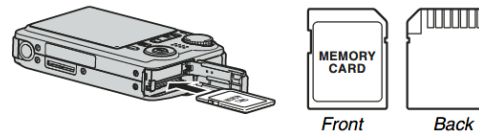
- Though the camera has built-in memory, using a memory card provides additional capacity you can use to store more images, high-quality and large-size images, and longer movies.
- The camera will store images in its built-in memory if there is no memory card loaded. If you prefer to use built-in memory, skip this procedure and go to “Shooting a Snapshot” on page 15.
- For information about memory card capacity, see page 269.

1. Open the battery cover.



While pressing lightly on the cover, slide it in the direction indicated by the arrow to open.

2. Load a memory card into the camera.



With the front of the memory card facing upwards (toward the monitor screen side of the camera), slide it into the slot and press until it clicks securely into place.

3. Close the battery cover.



EX1014, p. 13. It would have been obvious to a POSITA to incorporate this feature into the Chinn-Takahashi-EX-V7 device to provide the user with additional storage, and a POSITA would have had a reasonable expectation of success in implementing this feature as it involved only routine skill. EX1003, ¶118.

J. Claim 10

1. [10pre]

See §VI.B.1.

2. [10a]

The Chinn-Takahashi-EX-V7 combination renders obvious this limitation. EX1003, ¶122. Chinn discloses that the “camera control system 175 may be configured to activate ... camera 110 and/or camera 125, to take a photograph ... in response to the predetermined camera activation sound pattern” such as “ready click.” EX1004, ¶23.

Chinn does not explicitly disclose being configured to store a “command voice.” Takahashi, however, does as it discloses a registration process to obtain the speech pattern of a particular user. EX1003, ¶123. Takahashi discloses a “voice recognition pattern registration circuit 106 [which] is a storage circuit which stores voice recognition patterns input from the voice recognition input circuit 122 when the mode dial 20 has been switched to the position indicating voice audio registration mode.” EX1005, ¶22. The voice pattern registration circuit 106 has a storage element. EX1005, ¶22. According to Takahashi, “a second voice audio pattern for taking a photograph, e.g., a voice audio pattern of the photographer saying ‘take the picture’ or the like, are registered ahead of time in the storage element as instruction patterns in voice audio photography mode.” EX1005, ¶22.

3. [10b]

The Chinn-Takahashi-EX-V7 combination renders obvious that “the recorder is configured to perform control such that a command voice to be recorded in the command voice storage [Takahashi’s voice pattern registration circuit 106] is received from the audio input interface [Chinn’s microphone 150, sound recognition system 173; Takahashi’s microphone 16 and voice input circuit 122] and stored in the voice recognition pattern recognition circuit 106 as part of a command voice registration process [Takahashi’s “voice audio registration mode”].” See §VI.J.2; §VI.J.4; EX1003, ¶124.

4. [10c]

The Chinn-Takahashi-EX-V7 combination renders obvious this limitation. EX1003, ¶125. Chinn discloses that “[t]he camera control system 175 may be configured to activate the camera ... to take a photograph ... in response to the predetermined camera activation sound pattern” such as e.g., “set timer: 10 seconds” or “ready click.” EX1004, ¶¶23, 27.

Chinn does not explicitly disclose being configured to compare a received command voice input to the audio input interface to a command voice stored in the command voice storage. Takahashi, however, does by disclosing that the “voice audio recognition circuit 124 is a pattern detection circuit for detecting whether or not the voice audio signals from the voice audio input circuit 122 include the prescribed voice audio patterns in voice audio photography mode.” EX1005, ¶30. According to Takahashi, “voice audio recognition circuit 124 is a voice audio cross-referencing circuit which sequentially cross-references the voice audio patterns input under the control of the main control circuit 126 with the first and second voice audio patterns registered ahead of time in the voice audio pattern registration circuit 106.” EX1005, ¶30. The second voice pattern is used to take the image and corresponds to the command voice instruction. EX1003, ¶¶126-127.

When the photographer utters the second voice pattern, the “voice audio is sent from the microphone 16 to the voice audio recognition circuit 124 via the

voice audio input circuit 122” and is “cross-referenced with the second voice audio pattern registered ahead of time in the voice audio pattern registration circuit 106.”

EX1005, ¶38. When the voice is recognized (i.e., the input voice matches the stored second voice pattern), the main control circuit 126 begins the photographic process. EX1005, ¶39; EX1003, ¶¶128.

Moreover, the Chinn-Takahashi-EX-V7 combination renders obvious that, in the first photographing process, the recorder “determines that the command voice does not instruct the photographing when the command voice input to the audio input interface is not identical to the command voice stored in the command voice storage.” EX1003, ¶129. Chinn discloses several options when it is determined that a sound pattern other than the predetermined camera activation sound pattern is received, including performing a “listen again one more time” operation without recording the image or video. EX1004, ¶¶41, 42 and Fig. 3.

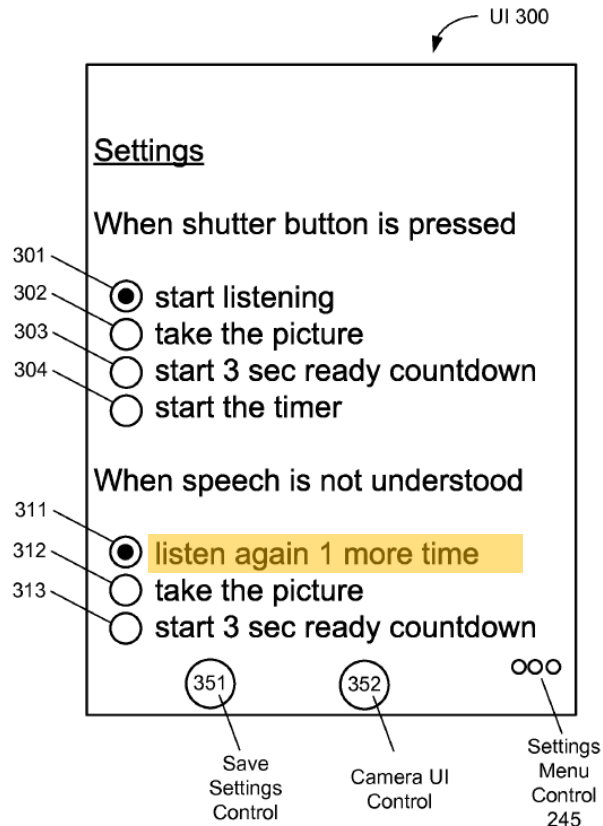


FIG. 3

Takahashi discloses that when the photographer utters the second voice pattern, the “voice audio is sent from the microphone 16 to the voice audio recognition circuit 124 via the voice audio input circuit 122” and is “cross-referenced with the second voice audio pattern registered ahead of time in the voice audio pattern registration circuit 106.” EX1005, ¶38. When the voice is not recognized (i.e., the input voice does not match the stored second voice pattern), the main control circuit 126 does not take a photograph, but instead returns to the

step for listening for the photographer's voice and second voice pattern. EX1005,
¶39; EX1003, ¶130.

K. Claim 11

1. [11pre]

See §VI.B.1.

2. [11a]

See §§VI.B.4, VI.B.5.

3. [11b]

See §§VI.B.2, VI.B.4.

4. [11c]

See §§VI.B.2, VI.B.8.

5. [11d]

See §VI.B.10.

6. [11e]

See §§VI.B.6, VI.B.10.

7. [11f]

See §§VI.B.3, VI.B.5.

8. [11g]

See §§VI.B.3, VI.B.9.

9. [11h]

See §§VI.B.9, VI.B.10.

10. [11i]

The Chinn-Takahashi-EX-V7 combination renders obvious this limitation. See §§ VI.B.6, VI.B.9, VI.B.10); EX1003, ¶140. Chinn discloses a “selectable ‘start 3 sec ready countdown’ control 303” when the shutter control 233 is pressed. EX1004, ¶36.

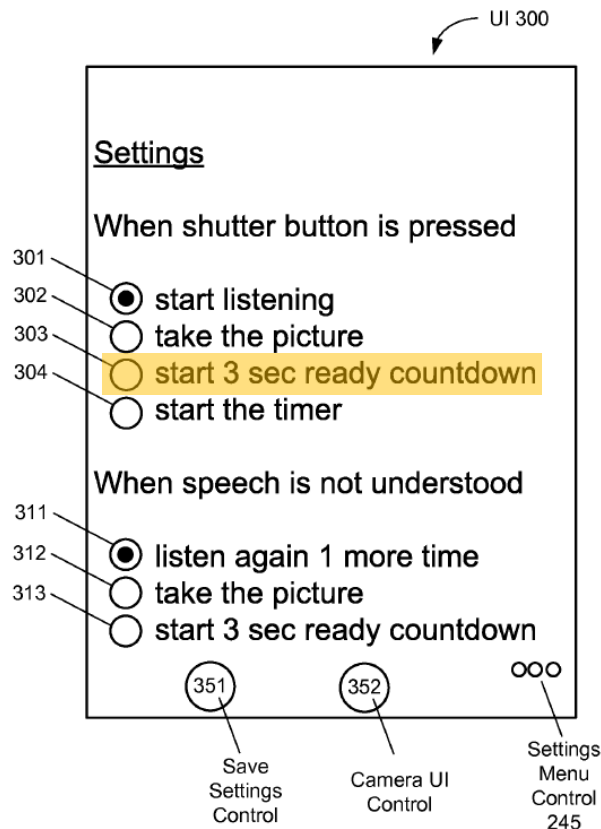


FIG. 3

EX1004, FIG. 3.

“When the ‘start 3 sec ready countdown’ control 303 is selected, ... 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 233.” EX1004, ¶39. The rear camera 12 is used to take the picture in some embodiments. EX1004, ¶44. The selected countdown is the second predetermined time. EX1003, ¶141.

11. [11j]

See §VI.B.10.

12. [11k]

See §VI.B.11.

VII. GROUND 2: CHINN, TAKAHASHI, EX-V7 AND KIM

A. Motivation to Combine Chinn-Takahashi-EX-V7 With Kim

It would have been obvious to a POSITA to combine the Chinn-Takahashi-EX-V7 device with Kim and a POSITA would have been motivated and capable of doing so. EX1003, ¶144. All four references relate to mobile devices with image taking capabilities. EX1004, Abstract, ¶¶15, 23; EX1005, Abstract, ¶10; EX1008, ¶¶91, 94, 95; EX1014, pp. 15-17; EX1003, ¶144. All four references involve and require image storage to maintain obtained images and satisfy their end users. EX1004, ¶66; EX1005, ¶31; EX1008, ¶¶44, 80, 81; EX1014, pp. 13-14. A POSITA therefore would have been motivated to look at Kim to improve the Chinn-Takahashi-EX-V7 device, and vice versa. EX1003, ¶144.

The Chinn-Takahashi-EX-V7 device does not appear to have online/Internet storage. EX1004, ¶16, FIG. 1; EX1005, ¶31, FIG. 2; EX1014, pp. 13-14; EX1003, ¶145. A POSITA would have understood that the Chinn-Takahashi-EX-V7 device

would benefit from the use of additional storage such as e.g., externally connected storage and/or cloud storage. EX1003, ¶145. Kim discloses this type of storage.

Kim discloses a mobile terminal 100 that includes “a memory 160 ... [and] a controller 180.” EX1008, ¶44; FIG. 1. Kim also discloses that the “memory unit 160 is generally used to store various types of data to support the processing, control, and storage requirements of the mobile terminal 100.” EX1008, ¶80.

Examples include “still pictures, moving pictures, and the like.” EX1008, ¶80. Kim further discloses that its “mobile terminal 100 is able to operate in association with a web storage for performing a storage function of the memory 160 on Internet.” EX1008, ¶81.

Benefits of modifying the Chinn-Takahashi-EX-V7 device with Kim’s additional external storage options, including cloud storage, include freeing up the memory on the device itself and using a larger external storage to store more images. EX1003, ¶146.

A POSITA would have been motivated to implement the additional storage options from Kim into the Chinn-Takahashi-EX-V7 device as doing so would simply involve applying a known technique (i.e., cloud based storage) as taught by Kim) to a known device ready for improvement (Chinn-Takahashi-EX-V7’s device with only internal memory or memory cards) to yield predictable results (reduced

storage on the device and additional external storage). *KSR*, 550 U.S. at 416; EX1003, ¶147.

A POSITA would have had a reasonable expectation of success in modifying the Chinn-Takahashi-EX-V7 device with Kim’s additional storage as the technology to do so was already in existence and successfully implemented in similar devices (e.g., Kim’s device) and involved only ordinary skill. EX1003, ¶148.

B. Claim 9

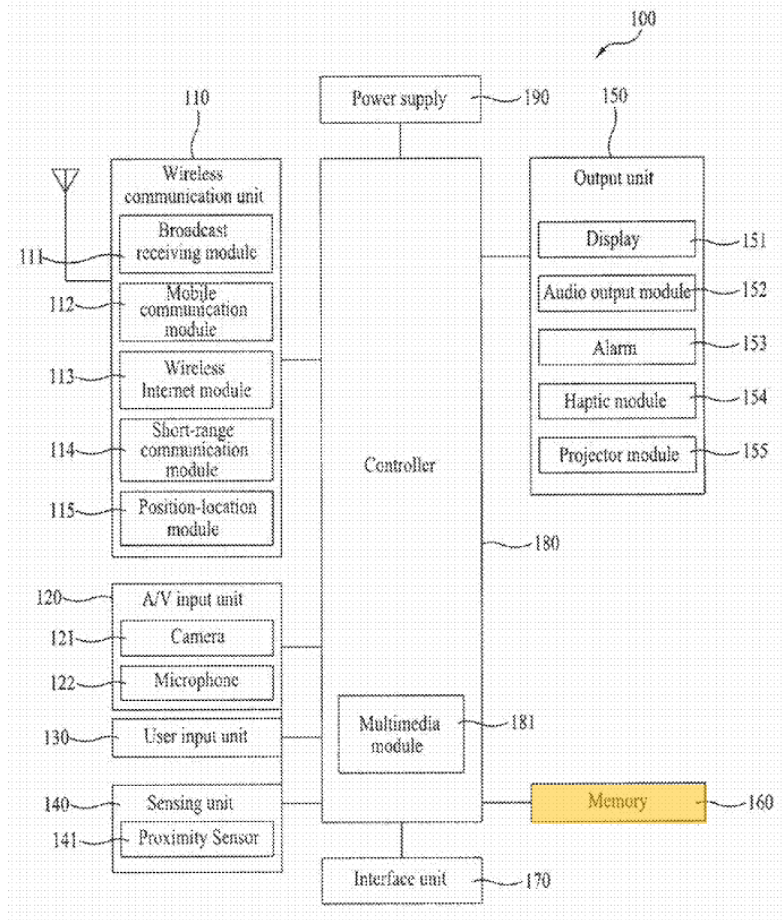
1. [9pre]

See §VI.B.1.

2. [9a]

The Chinn-Takahashi-EX-V7 combination does not explicitly disclose this limitation, but Kim does. EX1003, ¶150. Kim discloses a mobile terminal 100 that includes “a memory 160 ... [and] a controller 180.” EX1008, ¶44; FIG. 1. Kim also discloses that the “memory unit 160 is generally used to store various types of data to support the processing, control, and storage requirements of the mobile terminal 100.” EX1008, ¶80. Examples include “still pictures, moving pictures, and the like.” EX1008, ¶80.

FIG. 1



EX1008, FIG. 1.

Kim further discloses that its “mobile terminal 100 is able to operate in association with a web storage for performing a storage function of the memory 160 on Internet.” EX1008, ¶81. Kim further discloses that its wireless communication unit 110 includes a “wireless Internet module 113 [that] supports Internet access for the mobile terminal 100.” EX1008, ¶¶45, 51; EX1003, ¶152.

Kim's wireless communication unit 110 with the wireless Internet module 113 are the claimed "communication unit." EX1003, ¶153. Kim further discloses that the wireless communication unit 110 includes a "mobile communication module 112 transmits/receives wireless signals to/from one or more network entities, such as base station, external terminal, server, and the like." EX1008, ¶¶45, 50. Thus, Kim discloses that its wireless communication unit 110 communicates with a server. EX1003, ¶153. Moreover, because Kim discloses "web storage" (i.e., "a storage function of the memory 160 on Internet"), a POSITA would have understood that Kim's "web storage" would have used the wireless Internet module 113 to communicate with, and perform storage of data including video and photos from the memory 160 on, a server device connected to the Internet. EX1003, ¶153.

3. [9b]

While Chinn discloses or renders obvious the storage of claim 1, §VI.B.6, it does not explicitly disclose this limitation. However, Kim does. Kim discloses that its "mobile terminal 100 is able to operate in association with a web storage for performing a storage function of the memory 160 on Internet." EX1008, ¶81. A POSITA would have found it obvious from the teachings of Kim and Chinn or Chinn-Takahashi-EX-V7 to "record the first image signal input from the first camera or the second image signal from the second camera in the server device

through the communication unit”; i.e., to record photos stored in the memory 160, as part of the “web storage” function. EX1003, ¶154.

VIII. GROUND 3: KIM, YAMAMOTO AND THORN

A. Motivation to Combine Kim With Yamamoto and Thorn

It 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. EX1003, ¶155. For starters, all three references relate to imaging devices. EX1008, ¶54; EX1009, ¶31; EX1011, ¶¶36-37; EX1003, ¶155.

Kim and Yamamoto both relate to imaging devices with manual and voice activated commands for commanding a camera to capture an image. EX1008, ¶¶54, 56, 64, 66, 160-165; EX1009, ¶¶31, 82-83. Both 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. EX1003, ¶156. A POSITA therefore would have been motivated to look at Yamamoto to improve Kim, and vice versa. EX1003, ¶X. Similarly, 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. EX1003, ¶156.

Further, all three references are concerned with ensuring that their respective users obtain the images they desire. EX1008, ¶¶60, 120, 160-166; EX1009, ¶¶5, 6,

8, 251, 382; EX1011, ¶¶3-8; EX1003, ¶157. A POSITA 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. EX1003, ¶157. Yamamoto discloses such a delay, among other voice activated processes. EX1009, ¶249; EX1003, ¶157. 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. EX1008, ¶¶56, 160-164; EX1003, ¶157.

A POSITA 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. EX1003, ¶158. 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. EX1008, ¶¶54, 94, 150; EX1009, ¶¶211, 220, 281; EX1003, ¶158.

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; EX1003, ¶159. 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. EX1003, ¶159. A POSITA 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). *KSR*, 550 U.S. at 416; EX1003, ¶159.

A POSITA 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). EX1003, ¶160.

The 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. EX1003, ¶161. A POSITA 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). *KSR*, 550 U.S. at 416; EX1003, ¶161.

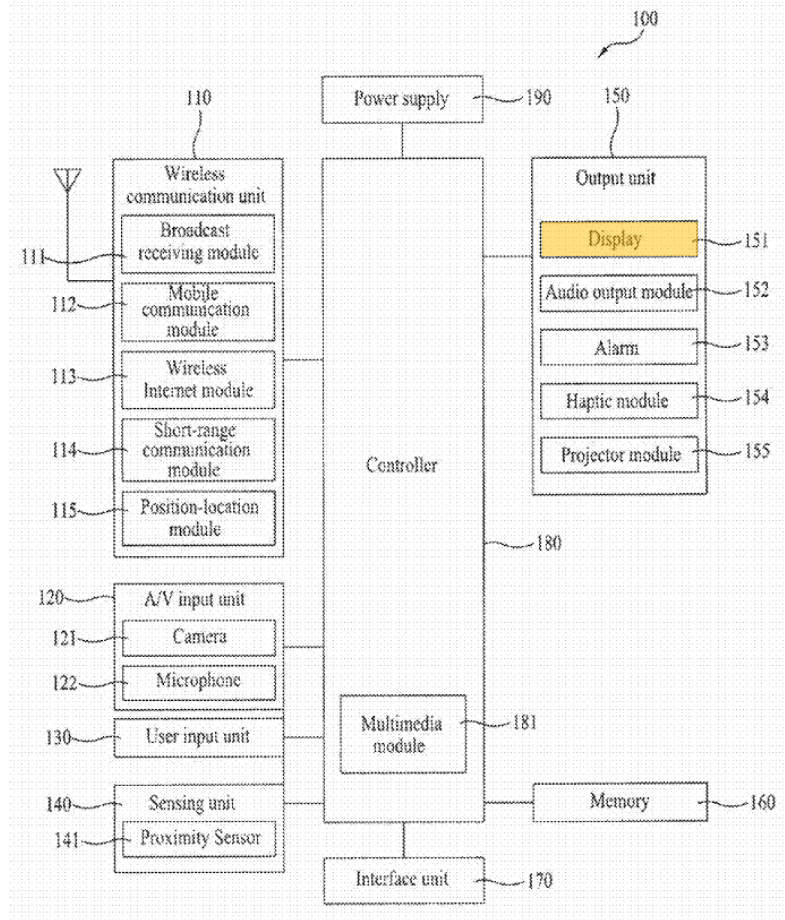
A POSITA would have had a reasonable expectation of success in modifying Kim-Yamamoto with Thorn as Kim-Yamamoto had the technology to do so (e.g., manual activation of a back camera image and associated control functionality). EX1003, ¶162.

B. Claim 1

1. [1pre]

To the extent the preamble is limiting, Kim discloses it and/or Kim in view of Yamamoto renders it obvious. EX1003, ¶163. Kim discloses a mobile terminal 100 with a display 151. EX1008, FIG. 1:

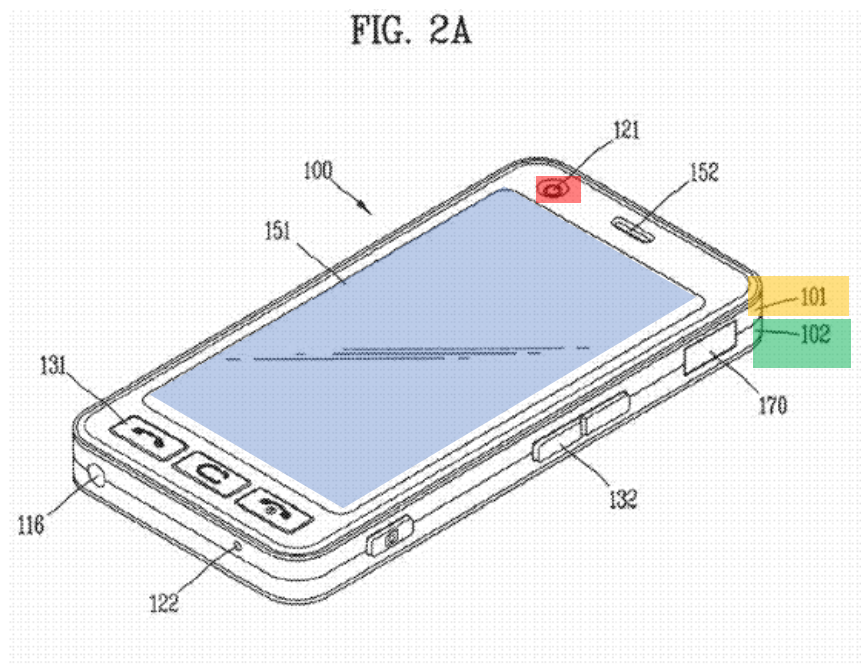
FIG. 1



The display 151 may be a “touchscreen” where the “display 151 and a sensor for detecting a touch action (hereinafter called ‘touch sensor’)” allows the display 151 to be “an input device as well as an output device.” EX1008, ¶64. “If a touch input is made to the touch sensor, signal(s) corresponding to the touch is transferred to a touch controller. The touch controller processes the signal(s) and then transfers the processed signal(s) to the controller 180.” EX1008, ¶66. Kim also discloses that microphone 122 receives an external audio signal while the

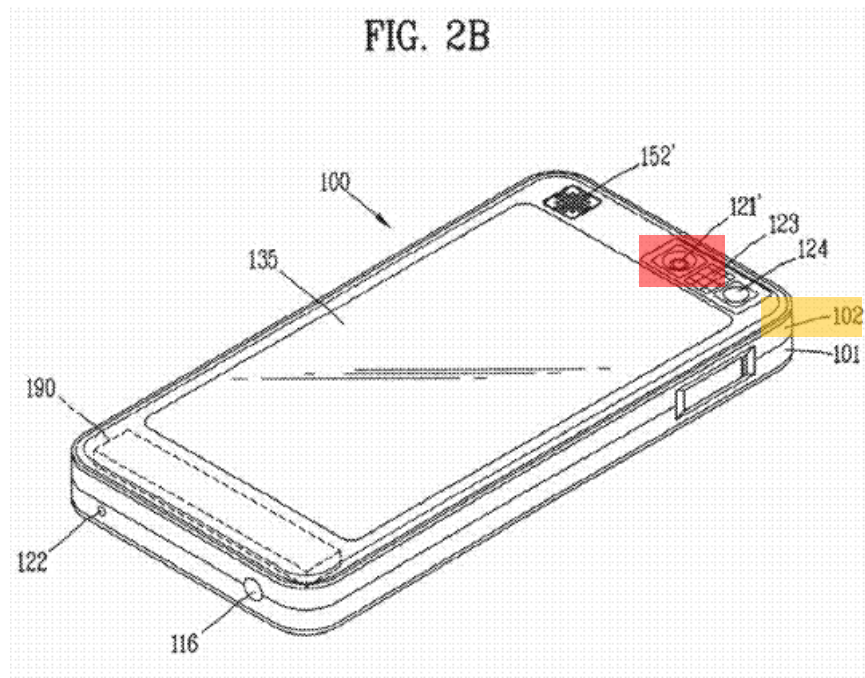
mobile terminal 100 is in a particular mode, including “voice recognition,” EX1008, ¶56, and various voice activated operations such as e.g., an image display “area setting control.” EX1008, ¶¶160-165; EX1003, ¶164.

The Kim mobile terminal 100 includes a housing that “can be divided into a front case 101 and a rear case 102.” EX1008, ¶90; FIGS. 2A, 2B. A touch display 151 and first camera 121 are in the front case 101. EX1008, ¶91.



EX1008, FIG. 2A.

A camera 121' is in the rear case 102. EX1008, ¶94.



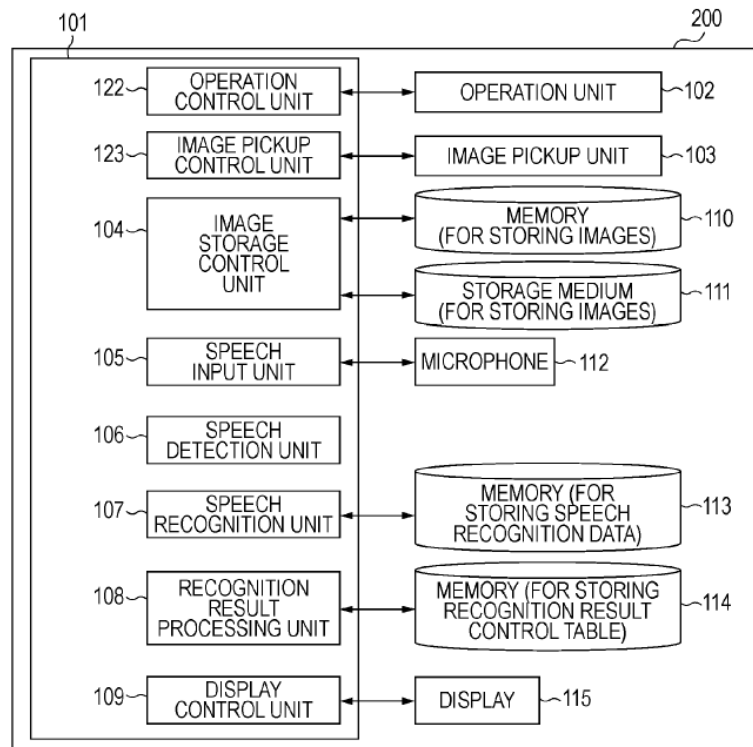
EX1008, FIG. 2B.

“The camera 121’ has a photographing direction that is substantially opposite to that of the front camera 121.” EX1008, ¶94. The “front camera 121 has a low resolution sufficient to capture and transmit a picture of use’s face for a video call, while the rear camera 121’ has a higher resolution for capturing a general subject for photography.” EX1008, ¶95. The front camera 121 can also be used in a photographing mode. EX1008, ¶54; EX1003, ¶¶165-167.

Kim discloses different photographic processes involving front and rear cameras activated using the touch display area 151, voice and other commands, including video and image capture at different resolutions. EX1008, ¶¶54, 95; EX1003, ¶168.

Yamamoto discloses a “digital camera 200.” EX1009, ¶¶32-33; FIG. 1.

FIG. 1



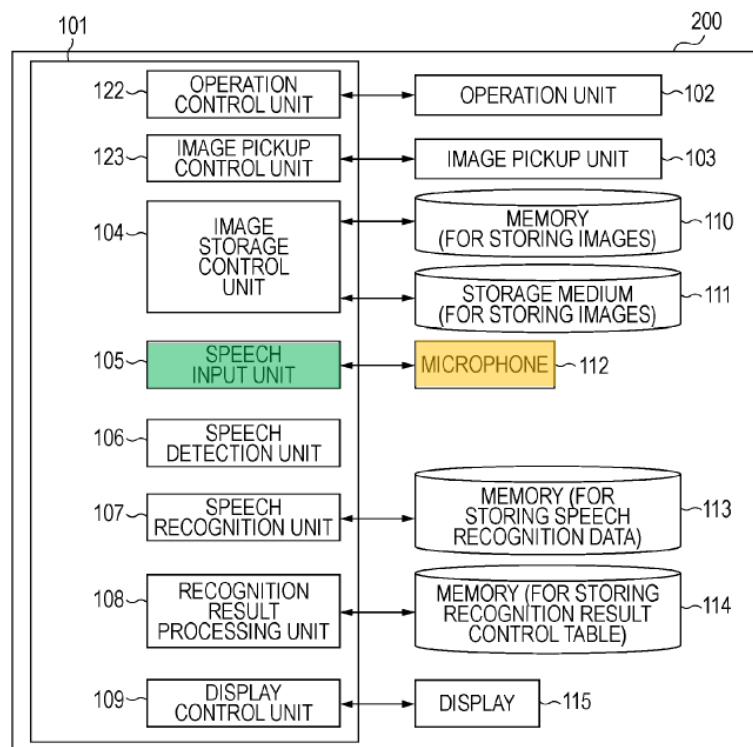
EX1009, FIG. 1.

Yamamoto discloses photographic processes: a manually activated process using a “shutter button 201,” EX1009 ¶82 (“shutter button 201 is a shutter button used to issue a command for capturing an image”), and one or more voice activated processes enabled via “speech shutter on-off switch 202.” EX1009 ¶83 (“speech shutter on-off switch 202 is a switch that performs switching as to whether a function for executing an image capturing operation in accordance with a speech command is used.”). EX1003, ¶¶169-170.

2. [1a]

Kim alone or in view of Yamamoto renders this limitation obvious. EX1003, ¶171. Kim discloses “a microphone 122 for receiving an input of a speech signal for an area setting control.” EX1008, ¶160. Kim discloses “voice recognition,” EX1008, ¶56, and implementing various voice commands, EX1008, ¶160-164, but does not explicitly disclose receiving a command voice to be used to activate a camera, but Yamamoto does. Yamamoto discloses a “digital camera 200” that includes “a microphone 112,” EX1009, ¶33, and a “speech input unit 105 ... for converting a sound input via the microphone 112 into a digital audio signal and outputting the digital audio signal.” EX1009, ¶41; FIG. 1.

FIG. 1



Yamamoto discloses receiving several types of voice commands from a user to initiate respective processes for the device 200 as shown in the “voice recognition result control table”:

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 Flash	DEACTIVATE STROBE LIGHT

EX1009, FIG. 10.

According to Yamamoto, “‘Shoot’, ‘Go’, ‘Cheese’, ‘Say Cheese’, and ‘Five Four Three’ are speech commands for starting an image capturing operation.”

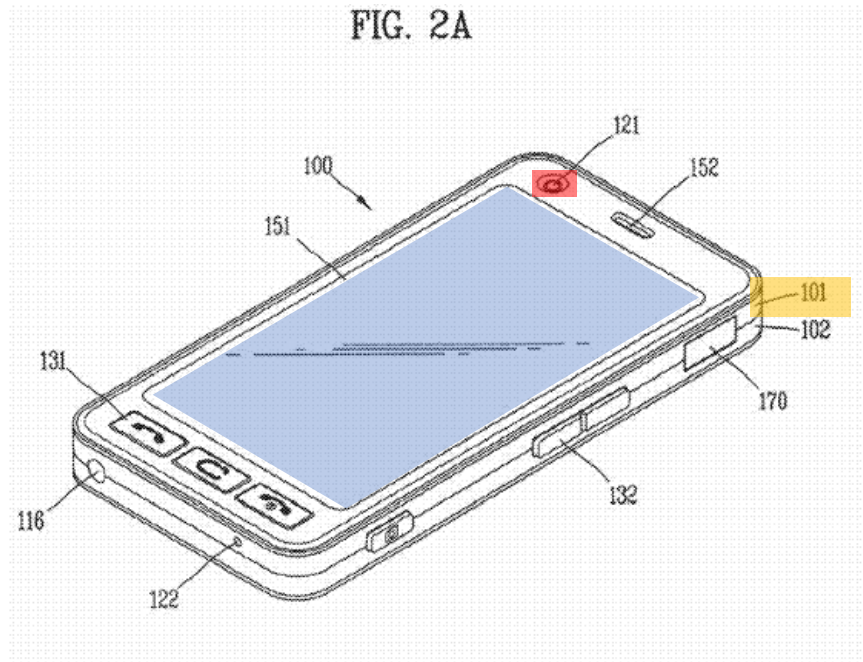
EX1009, ¶205. To the extent PO argues that “command voice” is associated with a voice of a user, Yamamoto also discloses distinguishing between sounds and voices in its processing. EX1009, ¶209 (“laugh, a sound caused when a train passes, or the like”).

Moreover, Yamamoto also discloses “a memory (for storing speech recognition data) 113,” EX1009, ¶33, which is used “to execute speech recognition.” EX1009, ¶67. A “speech recognition unit 107” includes “an acoustic analysis unit and a search unit, and recognizes a command (what is called a speech command) included in a period for which a user utters.” EX1009, ¶47. A “command is a combination of sounds that can be recognized by the speech recognition unit 107. An example of the command is ‘Shoot’.” EX1009, ¶48.

A POSITA would have understood that performing an acoustic analysis of input voice data to stored voice data (speech recognition data) would include detecting the user’s voice issuing the command. EX1003, ¶175. This process is used to determine a “speech recognition result” and if one of Yamamoto’s voice processes illustrated in FIG. 10 needs to be performed. EX1009, ¶¶55, 467-476; EX1003, ¶175.

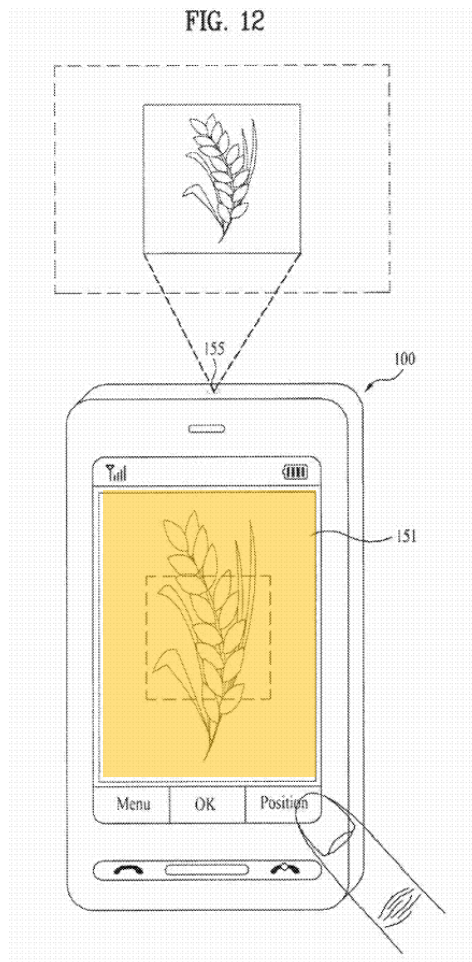
3. [1b]

Kim discloses this limitation. EX1003, ¶176. Kim discloses that a touch display 151 and a first camera 121 are located in the front case 101. EX1008, ¶91



EX1008, FIG. 2A.

Kim discloses that “the display 151 may additionally or alternatively display images.” EX1008, ¶60. The images displayed on display 151 include images (photos and videos) from a camera. *E.g.*, EX1008, ¶¶54, 60.



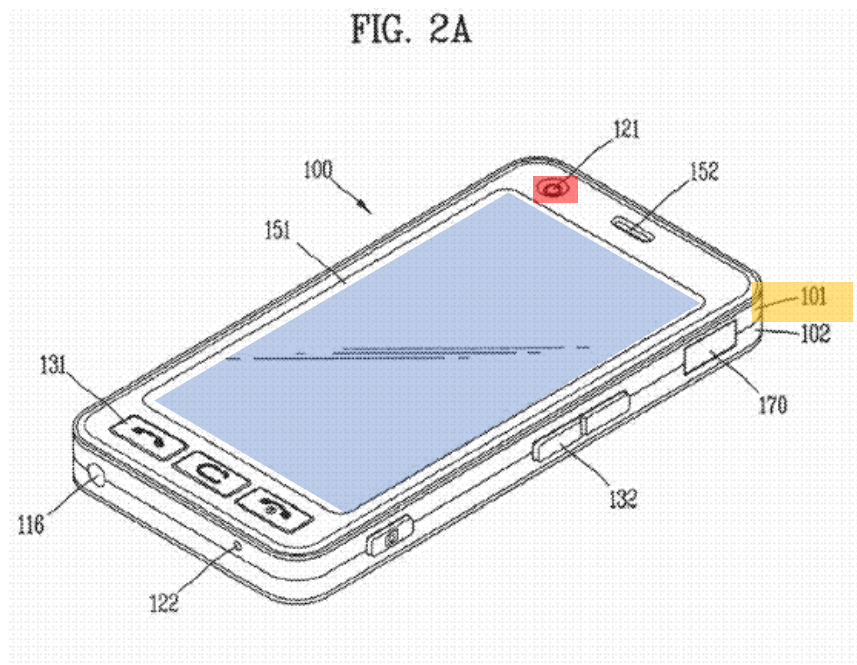
EX1008, FIG. 12.

Kim discloses that the display 151 can be a touchscreen with a touch sensor so that the display can be used for both input and output. EX1008, ¶64. Kim discloses that “[i]f a touch input is made to the touch sensor, signal(s) corresponding to the touch is transferred to a touch controller. The touch controller processes the signal(s) and then transfers the processed signal(s) to the controller 180.” EX1008, ¶66. Kim discloses “touch” operations (touch operation

instructions) performed by a user using “soft keys,” long touches and drag operations. EX1008, ¶¶104, 117-120; EX1003, ¶¶177-178.

4. [1c]

Kim discloses or renders obvious this limitation. EX1003, ¶179. Kim discloses a touch display on a first side/surface of its device 100. *See* §VIII.B.3. Kim also discloses that the mobile terminal 100 includes a housing that “can be divided into a front case 101 and a rear case 102.” EX1008, ¶90; FIGS. 2A, 2B. A touch display 151 and a first camera 121 are located in the front case 101. EX1008, ¶91.



EX1008, FIG. 2A.

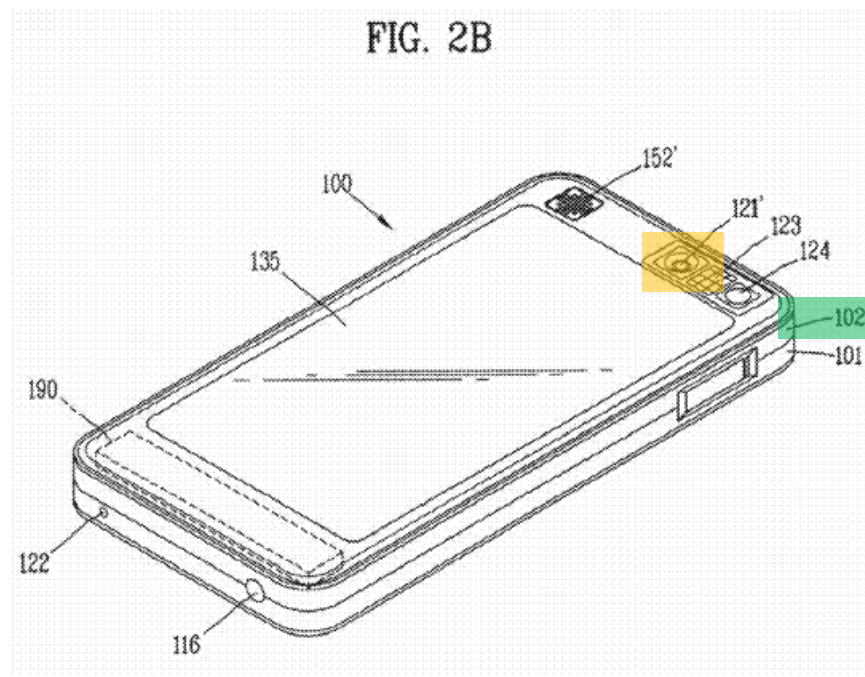
Kim discloses that camera 121 captures and processes “image frames of still pictures or video, which are obtained by an image sensor in a video call mode or a

photographing mode. The processed image frames can be displayed on the display 151.” EX1008, ¶54. As one example, Kim discloses that the “front camera 121 has a low resolution sufficient to capture and transmit a picture of use’s face for a video call.” EX1008, ¶95

A POSITA would have understood that when the front camera 121 is activated and used to photograph an object (e.g., user) to obtain “image frames,” a first image signal would also have been acquired. EX1003, ¶¶180-181.

5. [1d]

Kim discloses or renders obvious this limitation. EX1003, ¶182. Kim discloses a touch display 151 on a first side/surface of its mobile terminal 100. *See* §VIII.B.3. Kim also discloses that a camera 121’ is provided in the rear case 102. EX1008, ¶94.



EX1008, FIG. 2B.

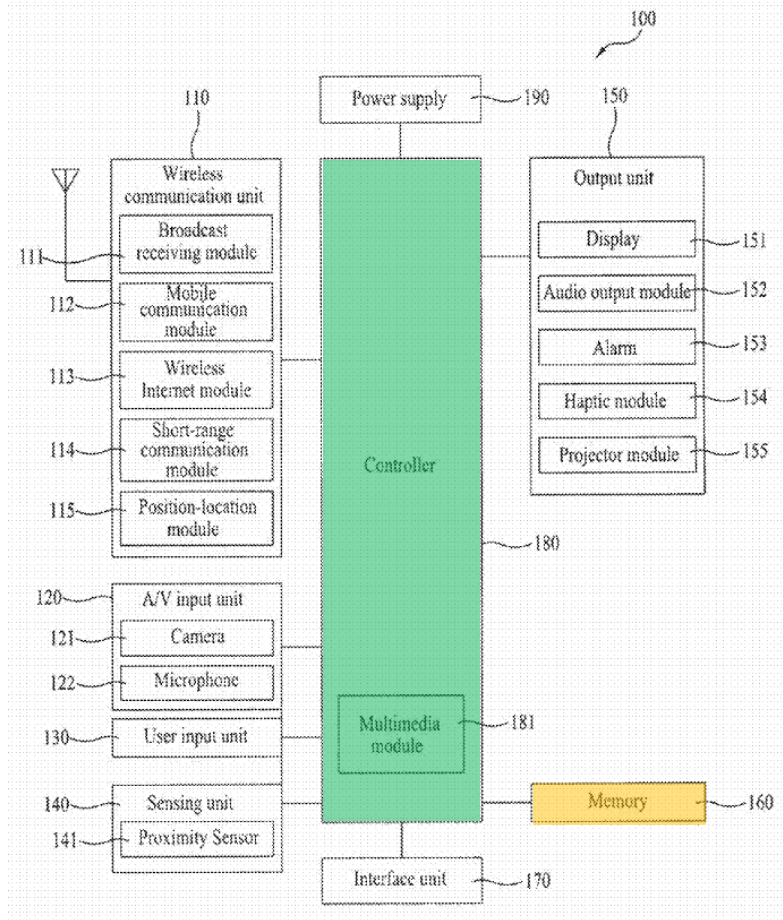
“The camera 121’ has a photographing direction that is substantially opposite to that of the front camera 121.” EX1008, ¶94. Kim discloses that the “rear camera 121’ has a higher resolution [with respect to front camera 121] for capturing a general subject for photography.” EX1008, ¶95.

A POSITA would have understood that the taking of a photograph by the back camera 121’ (i.e., second camera) would “acquire a second image signal.” EX1003, ¶¶183-184.

6. [1e]

Kim discloses this limitation or renders it obvious in view of Yamamoto. EX1003, ¶185. Kim discloses a mobile terminal 100 that includes “a memory 160 ... [and] a controller 180.” EX1008, ¶44; FIG. 1.

FIG. 1



EX1008, FIG. 1.

Kim discloses that the “memory unit 160 is generally used to store various types of data ... include[ing] ... “still pictures, moving pictures, and the like.”

EX1008, ¶80. The storage disclosed by Kim includes “any type or combination of suitable volatile and non-volatile memory or storage devices including hard disk, random access memory (RAM) ... flash memory, magnetic or optical disk, multimedia card micro type memory, card-type memory, such as SD memory, XD

memory, and the like, or other similar memory or data storage device.” EX1008, ¶81.

Yamamoto also discloses “a memory (for storing images) 110, and a storage medium (for storing images) 111.” EX1009, ¶32.

A POSITA would have understood that storing “still pictures, moving pictures, and the like,” EX1008, ¶80, and/or images, EX1009, ¶32, would require storing an image signal (i.e., either the claimed first image signal or second image signal) in the storage (e.g., memory unit 160’s volatile and non-volatile memory or storage devices). EX1003, ¶¶186-188.

7. [1f]

Kim discloses this limitation or renders it obvious when modified by Yamamoto and Thorn. EX1003, ¶189. Kim discloses that its “controller 180 typically controls the overall operations of the mobile terminal 100” including “the control and processing associated with voice calls, data communications, video calls, and the like.” EX1008, ¶85. The Kim controller 180, when modified by the teachings of Yamamoto and/or Thorn, is a controller adapted to perform limitations [1g]-[1j]. EX1003, ¶189.

8. [1g]

Kim alone or in view of Yamamoto renders this limitation obvious. EX1003, ¶190. Kim discloses that microphone 122 receives an external audio signal while

the mobile terminal 100 is in a particular mode, including “voice recognition,” EX1008, ¶56, and various voice activated operations such as e.g., an image display “area setting control.” EX1008, ¶¶160-165. Kim also discloses a front camera 121 (the claimed first camera) configured to acquire a first image signal. See §VIII.B.4. Kim further discloses its recorder being configured to record at least one of the first image signal or the second image signal on a storage. See §VIII.B.6; EX1003, ¶190.

While Kim discloses various voice activated commands, EX1008, ¶¶160-165, and using the front camera to image the user (e.g., video call), Kim does not explicitly disclose receiving a command voice for activating the front camera 121 such as would be performed for a selfie. A POSITA, however, would have understood the selection of the front camera to image the user, as taught by Kim, and activating the front camera in response to a voice command as it was well-known process at the time as disclosed by Chinn. Chinn ¶23 expressly states that the camera control system 125 can be configured such that either or both of front camera 110 and/or rear camera 125 take a photograph or record a video in response to a voice command, and ¶32 further explains how a user can select the front and/or rear cameras via the camera selection control 242 shown in Fig. 2. A POSITA would have understood from these disclosures that the camera selected

FIG. 10

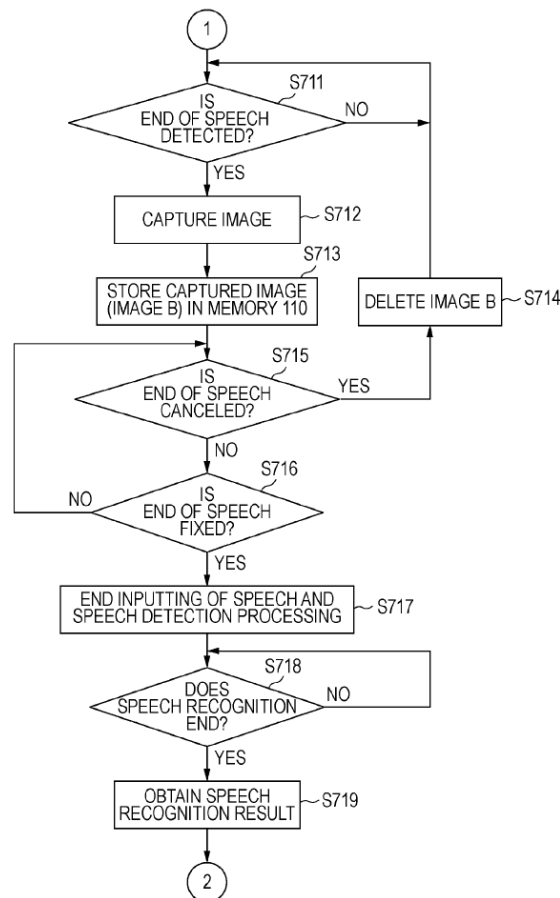
COMMAND	PROCESSING
Shoot	HOLD IMAGE CAPTURED AT TIME OF START OF UTTERANCE
Go	HOLD IMAGE CAPTURED AT TIME OF START OF UTTERANCE
Cheese	HOLD IMAGE CAPTURED AT TIME OF END OF UTTERANCE
Say Cheese	HOLD IMAGE CAPTURED AT TIME AT WHICH CERTAIN PERIOD OF TIME HAS PASSED FROM TIME OF END OF UTTERANCE
Five Four 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 Flash	DEACTIVATE STROBE LIGHT

According to Yamamoto, “‘Shoot’, ‘Go’, ‘Cheese’, ‘Say Cheese’, and ‘Five Four Three’ are speech commands for starting an image capturing operation.”

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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.” EX1009, ¶249. Yamamoto discloses that “the image storage control unit 104 stores second image data of an image captured ... in the memory (for storing images) 110.” EX1009, ¶248.

FIG. 7



EX1009, FIG. 7.

A POSITA would have understood that the taking of an image with the front facing camera (i.e., first camera) in response to the e.g., “Say Cheese” voice

command (i.e., the command voice giving a first instruction) and storing the image (e.g., in Kim's memory unit 160's volatile and non-volatile memory or storage devices) would require storing an image signal (i.e., the claimed first image signal) in the storage. EX1003, ¶¶192-194.

9. [1h]

Kim discloses or renders obvious this limitation. EX1003, ¶195. Kim discloses or renders obvious a back camera 121' (the claimed second camera) configured to acquire a second image signal. See §VIII.B.5. Kim further discloses or renders obvious its recorder being configured to record at least one of the first image signal or the second image signal on a storage. See §VIII.B.6; EX1003, ¶195.

Regarding touch operation instructions, Kim discloses that “[i]f a touch input is made to the touch sensor, signal(s) corresponding to the touch is transferred to a touch controller. The touch controller processes the signal(s) and then transfers the processed signal(s) to the controller 180.” EX1008, ¶66. Kim discloses “touch” operations (touch operation instructions) performed by a user using “soft keys,” long touches and drag operations. EX1008, ¶104, 117-120; EX1003, ¶196.

Kim discloses activating the back camera 121' for a photographing process that does not use the image of the user. EX1008, ¶95. Kim does not appear to

explicitly disclose activating the back camera 121' when the touch display receives a touch operation instruction giving a second instruction to start a recording of an image signal. EX1003, ¶197. A POSITA, however, would have understood the need to activate Kim's back camera in response to a touch activation, particularly when the user is not the subject of the image, as it was already known in the art as disclosed e.g., by Yamamoto. According to Yamamoto, "In FIGS. 2A and 2B, the digital camera 200 includes a shutter button 201." EX1004 ¶80." "The shutter button 201 is a shutter button used to issue a command for capturing an image." EX1009, ¶82. Yamamoto teaches activation of a camera to capture an image using a touch input mechanism. EX1003, ¶197.

A POSITA would have found it obvious to activate Kim's back camera 121' when the touch display receives a touch operation instruction giving a second instruction to start a recording of an image signal as this type of camera activation was well-known in the art at the time and Kim had the technology to do so. EX1003, ¶198. The use of the touch display to activate the back camera 121' would have been obvious to try as it was one of a very limited number of options to activate a camera (e.g., shutter, touch display, audio input). EX1003, ¶198.

Moreover, a POSITA would have understood that the taking of an image with the back facing camera 121' (i.e., second camera) and storing the image (e.g., Kim's memory unit 160's volatile and non-volatile memory or storage devices)

would require storing an image signal (i.e., the claimed second image signal) in storage. EX1003, ¶199.

10. [1i]

The Kim-Yamamoto-Thorn combination renders obvious this limitation. EX1003, ¶200.

Enabled/Disabled First/Second Camera

The Kim-Yamamoto-Thorn combination discloses activating the front camera (i.e., first camera) when the e.g., “Say Cheese” voice command is received. *See* limitation [1g]. A POSITA would have understood that the need to activate the front camera means that it was previously inactive/disabled. EX1003, ¶201. A POSITA would have also understood that because only the front camera is activated, the back camera (i.e., second camera) would remain disabled. *Id.* Benefits of doing so would be to reduce power consumption and increase battery life. EX1003, ¶201.

Likewise, 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. *See* limitation [1h]; EX1003, ¶202. A POSITA would have understood that the need to activate the back camera means that it was previously disabled. A POSITA would have also understood that because only the back camera is activated, the front camera (i.e., first camera) remains disabled. *Id.*

Benefits of doing so would be to reduce power consumption and increase battery life. *Id.*

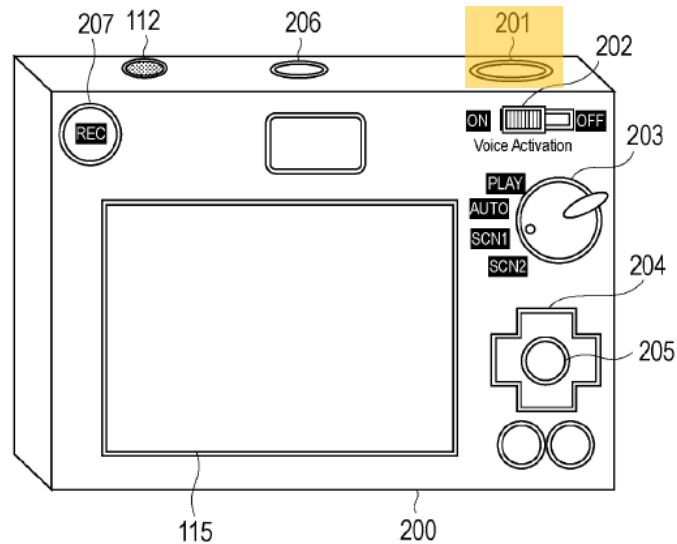
First Standby Time > Second Standby Time

The 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. *See* §VIII.B.5; EX1003, ¶203.

According to 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.” EX1009, ¶249. As such, Yamamoto discloses a 0.5 second delay before taking a voice activated image, which corresponds to the “first standby time.” EX1003, ¶204.

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). EX1003, ¶205. Likewise, 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. EX1009, ¶82; EX1003, ¶205. To the extent that this limitation is satisfied by a 0 second standby time, Kim and Yamamoto disclose or render it obvious. EX1003, ¶205.

FIG. 2B



EX1009, FIG. 2B.

If this limitation requires a second standby time greater than 0, but less than Yamamoto's 0.5 second first standby time, Thorn discloses it. EX1003, ¶206.

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. EX1011, ¶¶ 46, 60. These values are predetermined values based on blink history calculated prior to the touch command for the back facing camera 121' (second camera). 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.” EX1011, ¶ 60; EX1003, ¶207. 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. EX1011, ¶58-60 and FIG. 5, steps 36, 38, 44:

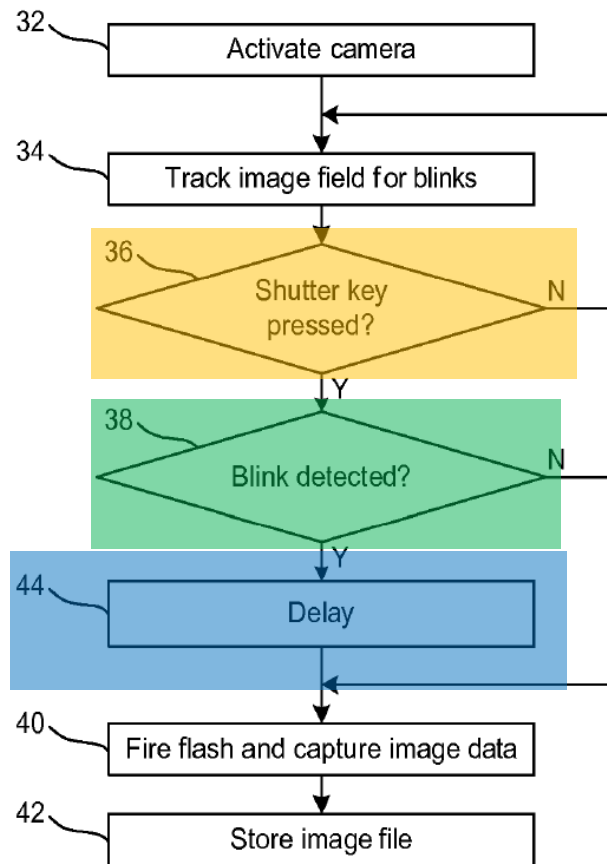


FIG. 5

Thus, 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. EX1003, ¶208. 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. Thus, Thorn discloses this limitation. EX1003, ¶208.

11. [1j]

The Kim-Yamamoto-Thorn combination renders this limitation obvious for reasons set forth for limitation [1i]; *See* §§VIII.B.8, VIII.B.10; EX1003, ¶210.

C. Claim 2

The Kim-Yamamoto-Thorn combination renders obvious the image recording device according to claim 1. *See* §VIII.B. The Kim-Yamamoto-Thorn combination also render obvious this limitation. EX1003, ¶211. Yamamoto discloses that 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,” EX1009, ¶249; *see* §§VIII.B.4, VIII.B.10; EX1003, ¶211.

D. Claim 3

The Kim-Yamamoto-Thorn combination renders obvious the image recording device according to claim 1. *See* §VIII.B. Moreover, Yamamoto discloses that the delay/standby time can be set by the user e.g., by uttering “Shoot”, “Say Cheese,” “Five Four Three.” EX1009, ¶¶346, 350; FIG. 10. Each

command has a different standby time: “Shoot” – 0; “Say Cheese” – 0.5 seconds; “Five Four Three” – “certain period of time corresponding to a time period for which ‘Two One Zero’ is uttered.” *Id.* Thus, the first standby time is settable by the user based on the voice command used to activate the selfie process. EX1003, ¶212.

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

904 1002

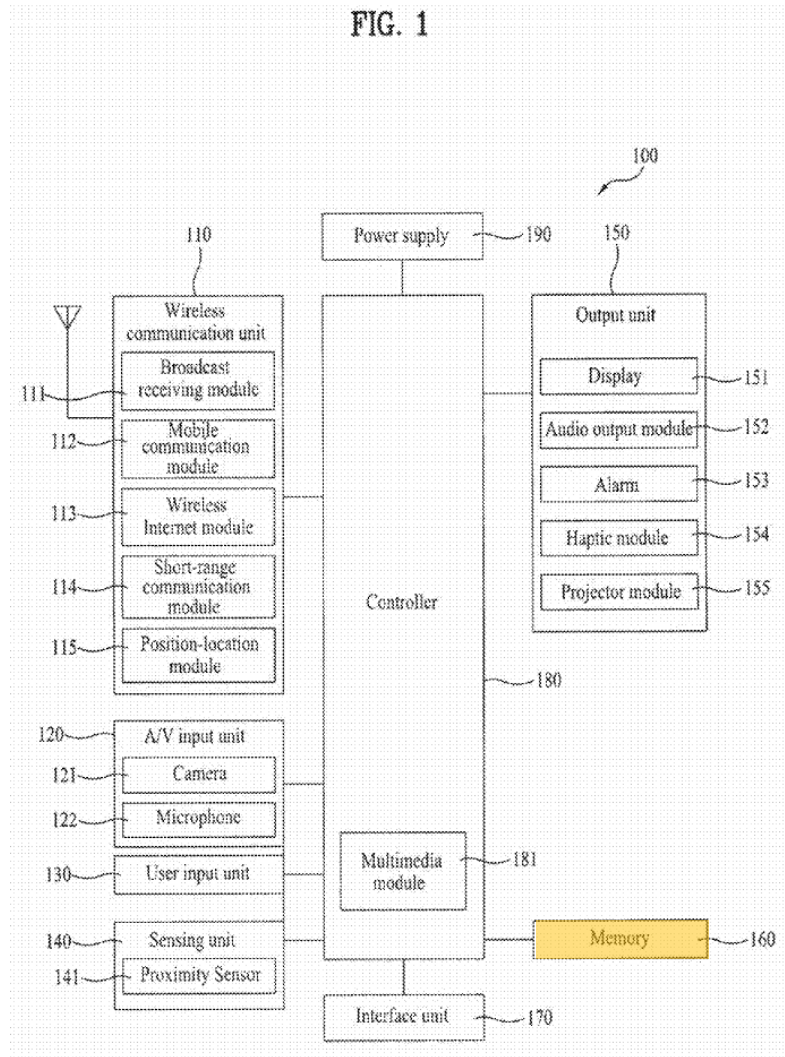
EX1009, FIG. 10.

E. Claim 7

The Kim-Yamamoto-Thorn combination renders obvious the image recording device according to claim 1. *See* §VIII.B. Kim also discloses this

limitation because its mobile terminal 100 includes “a memory 160.” EX1008, ¶44;

FIG. 1; EX1003, ¶212.



EX1008, FIG. 1.

The Kim storage includes “any type or combination of suitable volatile and non-volatile memory or storage devices including ... random access memory (RAM), static random access memory (SRAM), electrically erasable programmable read-only memory (EEPROM), erasable programmable read-only

memory (EPROM), programmable read-only memory (PROM), read-only memory (ROM)....” EX1008, ¶81. These storage devices are internal to the terminal 100. EX1003, ¶¶213-214.

F. Claim 8

The Kim-Yamamoto-Thorn combination renders obvious the image recording device according to claim 1. See §VIII.B. Kim alone or in view of Yamamoto also renders obvious that this limitation. Kim’s memory 160 may include “optical disk, multimedia card micro type memory, card-type memory, such as SD memory, XD memory, and the like” and that “[t]he mobile terminal 100 is able to operate in association with a web storage for performing a storage function of the memory 160 on Internet.” EX1008, ¶81. The storage used by the memory 160 may be provided external to the digital device satisfying this claim limitation. EX1003, ¶215.

Yamamoto also discloses the use of “nonvolatile memory [that] may also be an external storage medium that can be connected to an information processing apparatus via an interface such as a local area network (LAN) adapter, or a universal serial bus (USB) adapter.” EX1009, ¶75. A POSITA would have understood that this externally connected storage could be used to store first or second image signals. EX1003, ¶216.

G. Claim 9

1. [9pre]

See §VIII.B.1.

2. [9a]

Kim discloses or renders obvious this limitation. See §VII.B.2; EX1003, ¶¶218-219.

3. [9b]

Kim discloses this limitation. See §VIII.G.2; §VII.B.3; EX1003, ¶220. Kim further discloses, or renders obvious in view of Yamamoto, its recorder storing first and second image signals in an external storage. See §VIII.F.

H. Claim 10

1. [10pre]

See §VIII.B.

2. [10a]

The Kim-Yamamoto-Thorn combination renders obvious this limitation. EX1003, ¶222. Yamamoto discloses “a memory (for storing speech recognition data) 113.” EX1009, ¶33. According to Yamamoto, the “memory (for storing speech recognition data) 113 stores data to execute speech recognition.” EX1009, ¶67. A “speech recognition unit 107” includes “an acoustic analysis unit and a search unit, and recognizes a command (what is called a speech command) included in a period for which a user utters.” EX1009, ¶47. A “command is a

A POSITA would have understood that performing an acoustic analysis of input voice data to stored voice data (speech recognition data) would include detecting the user's voice issuing the command. EX1003, ¶223. This process is used to determine a "speech recognition result" and if one of Yamamoto's voice processes illustrated in FIG. 10 needs to be performed. EX1009, ¶¶55, 467-476; EX1003, ¶223.

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 Flash	DEACTIVATE STROBE LIGHT

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3. [10b]

The Kim-Yamamoto-Thorn combination renders obvious this limitation. EX1003, ¶224. Yamamoto discloses storing a command voice for instructing photographing (speech recognition data) in a command voice storage (memory 113). *See* §VIII.H.2; EX1003, ¶224.

While Yamamoto does not classify the storage of the speech recognition data as being performed during a “command voice registration process,” a POSITA would have understood that Yamamoto’s process is the same as or equivalent to the claimed “command voice registration process.” EX1003, ¶225. Indeed, Yamamoto’s storing of the speech recognition data is performed during a separate process that is not used during image capture. EX1003, ¶225. Moreover, such registration processes were well-known at the time. *See* §VI.J.3); EX1003, ¶225.

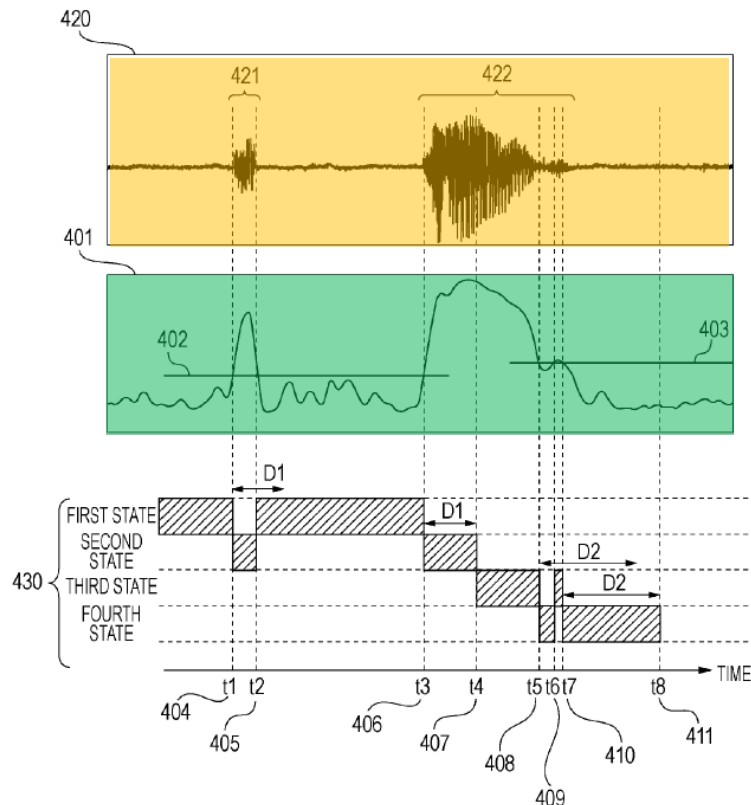
4. [10c]

The Kim-Yamamoto-Thorn combination renders obvious this limitation. EX1003, ¶226. Yamamoto discloses that the “speech recognition unit 107 includes ... an acoustic analysis unit and a search unit, and recognizes a command (what is called a speech command) included in a period for which a user utters.” EX1009, ¶47. According to Yamamoto, “a command is a combination of sounds that can be

recognized by the speech recognition unit 107.” EX1009, ¶48 (“Shoot” voice command).

Yamamoto discloses performing an “acoustic analysis” between currently a received voice pattern and data (e.g., speech recognition data) and models stored in the memory 113. EX1009, ¶¶50-54; EX1003, ¶227. As one example, portions of the received audio signal 420 are compared to previously stored portions of a command (e.g., shoot) audio pattern 401 (referred to as being “obtained ... an existing method”):

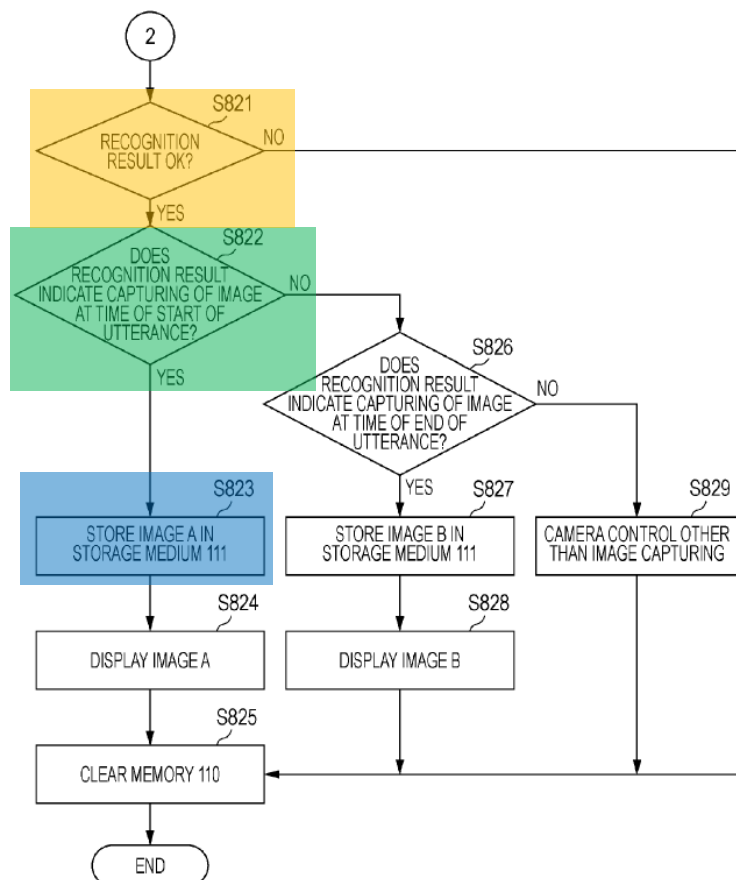
FIG. 4



EX1009, FIG. 4; *see also* ¶¶115-120.

As shown in Yamamoto FIG. 8, once a recognition result is obtained, a “recognition result processing unit 108 determines whether to receive or discard a command corresponding to a recognition score in the obtained recognition result.” EX1009, ¶262 (S821). “If an obtained recognition score is greater than or equal to a predetermined threshold and a corresponding command is received (YES in step S821),” control of the digital camera 200 is determined by “control corresponding to the command included in the recognition result.” EX1009, ¶264 (S822). A capture image is stored at S823. EX1009, ¶265.

FIG. 8



EX1009, FIG. 8; EX1003, ¶228.

Moreover, the Kim-Yamamoto-Thorn combination renders obvious that, in the first photographing process, the recorder “determines that the command voice does not instruct the photographing when the command voice input to the audio input interface is not identical to the command voice stored in the command voice storage.” EX1003, ¶229. Yamamoto discloses that if the recognition result is not Okay (i.e., a NO at S821), the result is discarded and the memory (for storing images) 110 is cleared.” EX1009, ¶¶373; 354 (“if utterance which is not intended to trigger capturing of an image is recognized in processing in step S821 of FIG. 8, the recognition result is discarded and the erroneously captured image is deleted.”).

IX. GROUND 4: KIM, YAMAMOTO, THORN AND CHINN

A. Motivation to Combine Kim-Yamamoto-Thorn and Chinn

It would have been obvious to a POSITA to combine the Kim-Yamamoto-Thorn device with Chinn and a POSITA would have been motivated and capable of doing so. EX1003, ¶X. All four references relate to imaging devices. EX1004, ¶¶15-16; EX1008, ¶54; EX1009, ¶31; EX1011, ¶¶36-37; EX1003, ¶230. The Kim-Yamamoto-Thorn device allow manual- and voice-activated commands. EX1008, ¶¶56, 64, 66, 160-165; EX1009, ¶¶82-83; EX1004, ¶¶22, 23, 30; EX1003, ¶230. The Kim-Yamamoto-Thorn device and Chinn have manual activation technology, *see* §§VI.B.3, VI.B.9, VIII.B.3, VIII.B.9, and voice activation technology, *see*

§§VI.B.2, VI.B.8, VIII.B.2, VIII.B.8, already installed, making their devices particularly suitable for each other. EX1003, ¶230. A POSITA therefore would have been motivated to look at Chinn to improve the Kim-Yamamoto-Thorn device, and vice versa. *Id.*

The Kim-Yamamoto-Thorn device and Chinn allow images to be taken with a rear facing camera. *see* §§VI.B.3, VIII.B.3; EX1003, ¶231. Moreover, all four references are concerned with ensuring that their respective users obtain the images they desire. EX1004, ¶¶29, 57, 61; EX1008, ¶¶60, 120, 160-166; EX1009, ¶¶5, 6, 8, 251, 382; EX1011, ¶¶3-5; EX1003, ¶231. A POSITA would have understood that one way to improve Kim-Yamamoto-Thorn's images taken with its rear facing camera 121' would be to implement a selectable delay between the manual activation of the device and the taking of the image, which would allow the photographer to stabilize the camera, among other things, before the image is taken. EX1003, ¶231. Chinn discloses such a delay. EX1004, ¶30; EX1003, ¶231. The implementation of a selectable delayed image capture (i.e., selectable standby time), would have merely amounted to another touch command/operation on the Kim-Yamamoto-Thorn device, which was already implementing touch commands for its photographic processes. EX1008, ¶¶93, 104, 113; EX1003, ¶231.

The Kim-Yamamoto-Thorn device and the Chinn device are two camera systems with front and back cameras. *see* §§VI.B.4, VI.B.5, VIII.B.4, VIII.B.5;

EX1003, ¶232. The Kim-Yamamoto-Thorn device and the Chinn device activate the rear camera via a touch display operation. See §§VI.B.3, VI.B.8, VIII.B.3, VIII.B.8; EX1003, ¶232. A POSITA would have been able to implement Chinn's selectable delayed touch display activated image process to delay image taking with the Kim-Yamamoto-Thorn rear camera as doing so would simply involve applying a known technique (i.e., selectable delay/timer between the touch operation and image taking as taught by Chinn) to a known device ready for improvement (Kim-Yamamoto-Thorn's rear camera of a two camera device) to yield predictable results (a properly taken image with the rear camera). *KSR*, 550 U.S. at 416; EX1003, ¶232.

A POSITA would have had a reasonable expectation of success in modifying the Kim-Yamamoto-Thorn device as the device had the technology to do so (e.g., touch display activation, selection of the rear camera, delay timer). EX1003, ¶233.

B. Claim 4

The Kim-Yamamoto-Thorn combination renders obvious the image recording device according to claim 1. See §VIII.B. The Kim-Yamamoto-Thorn combination renders obvious a second standby time, §VIII.B.10, but does not explicitly disclose that the second standby time is settable or selectable by a user.

Chinn, however, does. See §VI.E. As such, the Kim-Yamamoto-Thorn-Chinn combination renders claim 4 obvious. EX1003, ¶235.

C. Claim 5

The Kim-Yamamoto-Thorn combination renders obvious the image recording device according to claim 1. See §VIII.B. The Kim-Yamamoto-Thorn combination renders obvious a first standby time, §VIII.B.10, but does not explicitly disclose the remainder of this limitation. Chinn, however, does. See §VI.F. As such, the Kim-Yamamoto-Thorn-Chinn combination renders claim 5 obvious. EX1003, ¶235.

D. Claim 6

The Kim-Yamamoto-Thorn combination renders obvious the image recording device according to claim 1. See §VIII.B. The Kim-Yamamoto-Thorn combination renders obvious a first standby time, §VIII.B.10, but does not explicitly disclose the remainder of this limitation. Chinn, however, does. See §VI.G. As such, the Kim-Yamamoto-Thorn-Chinn combination renders claim 4 obvious. EX1003, ¶236.

E. Claim 11

1. [11pre]

See §VIII.B.1.

2. [11a]

See §§VIII.B.4, VIII.B.5.

3. [11b]

See §§VIII.B.2, VIII.B.4.

4. [11c]

See §§VIII.B.2, VIII.B.8.

5. [11d]

See §VIII.B.10.

6. [11e]

See §§VIII.B.6, VIII.B.10.

7. [11f]

See §§VIII.B.3, VIII.B.5.

8. [11g]

See §§VIII.B.3, VIII.B.9.

9. [11h]

See §§VIII.B.9, VIII.B.10.

10. [11i]

See §§VIII.B.6, VIII.B.9, VIII.B.10; EX1003, ¶X. Chinn discloses a “selectable ‘start 3 sec ready countdown’ control 303” when the shutter control 233 is pressed. EX1004, ¶36.

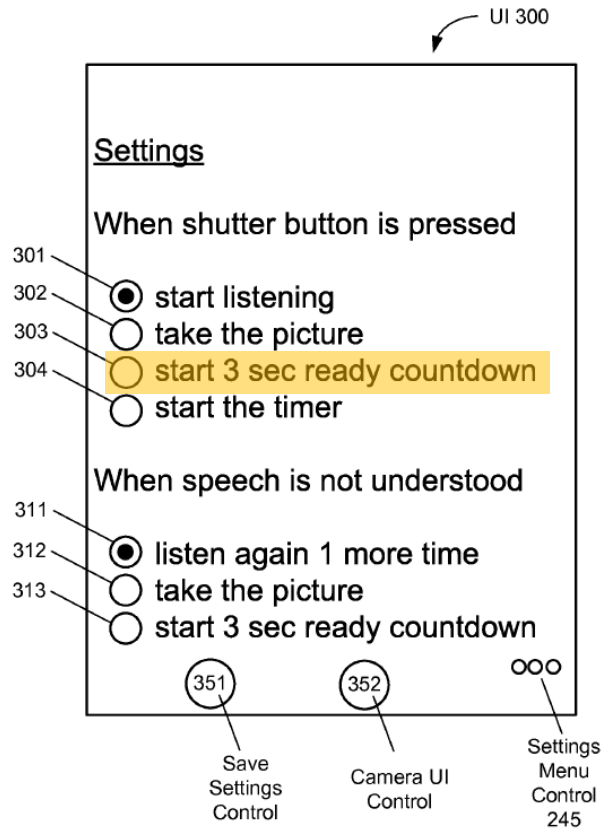


FIG. 3

EX1004, FIG. 3; EX1003, ¶247.

“When the ‘start 3 sec ready countdown’ control 303 is selected, ... 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 233.” EX1004, ¶39. The selected countdown is the second predetermined time. EX1003, ¶247.

11. [11j]

See §VIII.B.10.

12. [11k]

See §VIII.B.11.

X. DISCRETIONARY DENIAL IS NOT WARRANTED

A. 35 U.S.C. § 314(a) Analysis

Discretionary denial is not warranted because this Petition satisfies the “compelling merits” standard set forth in the June 21, 2022, *Interim Procedure for Discretionary Denials in AIA Post-Grant Proceedings with Parallel District Court Litigation* at 4.

B. 35 U.S.C. § 325(b) Analysis

Applying the two-part framework discussed in *Advanced Bionics, LLC v. Med-El Elektromedizinische Gerate GMBH*, IPR2019-01469, Pap. 6, *8-9, the Board should not discretionarily deny institution. None of the art cited herein was considered during the prosecution of the ’757 patent and none of the challenges are substantially the same as those previously considered.

Moreover, if the challenges herein are found to be based on prior art identical or cumulative to prior art considered during prosecution, the examiner made a clear material error in allowing the challenged claims over the prior art in this Petition because this Petition clearly demonstrates the unpatentability of the challenged claims.

XI. COMPLIANCE WITH FORMAL REQUIREMENTS

A. Mandatory Notices Under 37 C.F.R. §§ 42.8(b)(1)-(4)

1. Real Party-In-Interest

Samsung Electronics Co. Ltd. and Samsung Electronics America, Inc. are the Petitioners and real parties-in-interest.

2. Related Matters

The '757 patent is subject to the following action: *Maxell, LTD. v. Samsung Electronics Co. Ltd. and Samsung Electronics America, Inc.*, 5:23-cv-00092-RWS (ED TX 2023) (“District Court Litigation”).

3. Lead and Backup Counsel

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4. Service Information

Service information for lead and backup counsel is provided in the designation of lead and backup counsel above.

B. Standing

Petitioner certifies that the '757 patent is available for IPR and that Petitioner is not barred or estopped from requesting IPR on the grounds identified in this Petition.

XII. CONCLUSION

All Challenged Claims of the '757 patent are unpatentable for the reasons discussed herein.

Date: April 19, 2024

Respectfully submitted,

/s/ James Heintz

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CERTIFICATE OF WORD COUNT

Pursuant to 37 C.F.R. § 42.24(d), Petitioner certifies that this petition includes 13,641 words, as measured by Microsoft Word, exclusive of the table of contents, mandatory notices under § 42.8, certificates of service, word count, claim listing, and exhibits.

Date: April 19, 2024

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CERTIFICATE OF SERVICE

The undersigned certifies pursuant to 37 C.F.R. §§ 42.6(e) and 42.105 that on April 19, 2024, a true and correct copy of the Petition for *Inter Partes* Review of U.S. Patent No. 11,223,757 challenging claims 1-11 was served by emailing a copy of same (by agreement) to the following attorneys for the Patent Owner:

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