UNITED STATES PATENT AND TRADEMARK OFFICE

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BEFORE THE PATENT TRIAL AND APPEAL BOARD

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RING LLC,
Petitioner,

v.

SKYBELL TECHNOLOGIES, INC.,
Patent Owner

_____

PETITION FOR *INTER PARTES* REVIEW

OF

U.S. PATENT NO. 9,179,109

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I. INTRODUCTION

U.S. Patent No. 9,179,109 ("the '109 Patent," RING-1001) is generally directed to a doorbell system comprising a remote computing device communicatively coupled to an electronic doorbell with a camera. To reduce power consumption, the doorbell enters a sleep mode in which the camera does not record. The claims challenged in this petition recite different ways of bringing the doorbell out of the sleep mode and into a camera recording mode—for example, via a wireless communication from a remote computing device, or in response to opening a doorbell control application or waking the remote computing device. At the time of the '109 Patent, however, doorbell systems that functioned in the same way to reduce power consumption were already well known in the art.

For example, Ring LLC's own patent applications by its founder, Jamie Siminoff, teach a doorbell system comprising a remote computing device communicatively coupled to a video doorbell, where the doorbell includes a hibernation mode in which its components—including the camera—are deactivated to save power. The doorbell is triggered to wake up and begin recording live video in response to several different activation triggers, including a signal from the remote computing device and opening an application on the remote computing device. Related patent literature also illustrates that it was already well known to selectively activate wireless cameras based upon interactions with a

remote computing device. Despite this, the claims of the '109 Patent were never rejected during prosecution, and a notice of allowance was issued only five months after filing.

The evidence in this petition demonstrates that claims 1, 7, 15, 20, and 21 of the '109 Patent are unpatentable under 35 U.S.C. § 103. Accordingly, Ring LLC ("Petitioner") respectfully requests that these claims be held unpatentable and cancelled.

II. MANDATORY NOTICES

A. Real Party-in-Interest

The real parties-in-interest are Ring LLC[1], Ring of Security Limited, Ring of Security B.V., Ring of Security Pty. Ltd., Ring of Security Asia Co., Ltd., Ring Protect Inc., Wireless Environment, LLC, Wireless Environment Asia, LLC, Wireless Environment Lighting Co., Ltd., Wireless Environment UK Ltd., Wireless Lighting Technologies, LLC, Amazon.com Services, Inc., and Amazon.com, Inc.

B. Related Matters

As of the filing date of this petition, the '109 Patent has been asserted in

[1] In April 2018, Ring Inc. converted to a limited liability company and changed its name to Ring LLC.

SkyBell Technologies, Inc. v. Ring Inc., 8:18-cv-00014 (C. D. Cal. 2018).

C. Lead and Back-up Counsel and Service Information

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Please address all correspondence to lead and back-up counsel. Petitioner consents to electronic service via email.

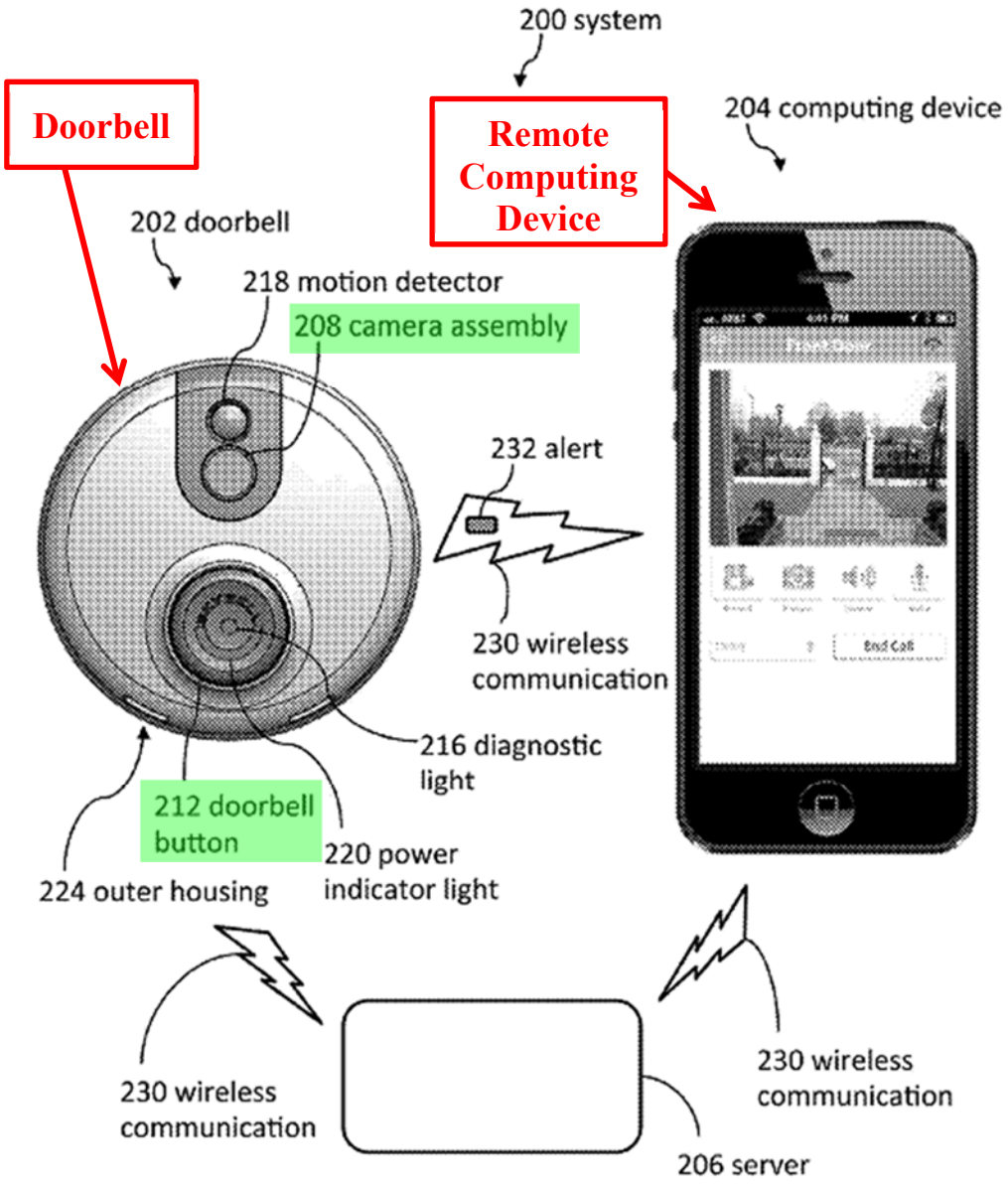
III. GROUNDS FOR STANDING

Petitioner certifies that the ’109 Patent is eligible for *inter partes* review and that Petitioner is not barred or estopped from requesting *inter partes* review challenging the patent claims on the grounds identified in this petition. Petitioner was served with a complaint asserting infringement of the ’109 Patent not more than one year before the filing of this Petition. Petitioner has not filed a civil action challenging the validity of any claim of the ’109 Patent.

IV. THE '109 PATENT

A. Overview of the '109 Patent

The '109 Patent is generally directed to a doorbell system. RING-1001, Abstract. As shown in Fig. 1, annotated below, the doorbell system includes an electronic doorbell with a camera, a motion detector that detects visitors, and a doorbell button. *Id*. at 6:13-16, 6:42-48. The '109 Patent explains that the doorbell system is in communication with remote computing devices such as "laptops, tablets, mobile devices, smartphones, cellular phones, and wireless devices." *Id.* at 5:67-6:3.



RING-1001, Fig. 1 (annotated); RING-1003, ¶ 35.

The '109 Patent states that the "doorbell 202 can record video and audio, which can then be sent to a remote computing device 204." RING-1001, 6:8-10. In some embodiments, the user "may select a button in a software application (e.g., an app), which causes a live or previously recorded video to display on the remote computing device." *Id*. at 12:4-7.

The ’109 Patent notes, though, that “[l]eaving the camera on all the time just in case the user wants to see a video can waste substantial power.” RING-1001, 12:10-11. “In order to reduce power consumption, the doorbell 202 may be able to enter a camera sleep mode 704,” during which the camera “is configured not to record.” *Id*. at 12:11-13, 12:52-54. The ’109 Patent further states that the “remote computing device 204 may send a signal 604 to the doorbell 202 that overrides the sleep mode . . . to cause the doorbell 202 to ‘wake up,’” where “[w]aking up the doorbell 202 can cause the doorbell 202 to enter a higher-power mode that may enable the camera to record.” *Id*. at 12:16-21, 12:59-62, 13:45-49. The’109 Patent refers to this higher-power mode as a “camera recording mode.” *Id*. at Fig. 5, 12:63-67.

The ’109 Patent describes a number of events that cause the doorbell to exit the camera sleep mode. For example, the remote computing device may cause the doorbell to wake by starting a wireless communication session with the doorbell. *Id*. at 13:65-14:1. The ’109 Patent also discloses waking the doorbell in response to “opening a doorbell control application 600 on the remote computing device 204” and “in response to waking the remote computing device 204 prior to opening a doorbell control application 600.” *Id*. at 12:67-13:5, 16:1-10.

As this Petition establishes, however, it was well known before the ’109 Patent for a video doorbell to wake up in response to different activation triggers—

including the ones recited in claims 1, 7, 15, 20, and 21.

B. Prosecution History

The '109 Patent issued on November 3, 2015 from U.S. Patent Application No. 14/726,517 filed May 30, 2015. The '109 Patent is purportedly a continuation-in-part of two applications, the earliest of which was filed January 5, 2015. The '109 Patent also claims priority to U.S. Provisional Application No. 62/158,750, filed May 8, 2015. Whether the '109 Patent is entitled to its earliest alleged priority date is irrelevant for the purpose of this petition, as the prior art that forms the basis of the challenges herein pre-dates the earliest alleged priority date.

During an extremely brief prosecution (roughly five months from filing to issuance), the Examiner issued a notice of allowance without ever issuing an office action or rejecting the claims. RING-1002, pp. 23-32. The notice of allowance followed a series of examiner interviews and various amendments by Patent Owner. *Id*. at pp. 329-337, 77-86, 33. The only indication of the specific references discussed during the interviews is found in an Examiner-Initiated Interview Summary issued with the Notice of Allowance, in which the Examiner only indicated that "Carter, Barley" were discussed. *Id*. at p. 33.

C. Claim Construction

In an *inter partes* review, claims "shall be construed using the same claim construction standard that would be used to construe the claim in a civil action

under 35 U.S.C. 282(b), including construing the claim in accordance with the ordinary and customary meaning of such claim as understood by one of ordinary skill in the art and the prosecution history pertaining to the patent." 37 C.F.R. § 42.100(b); *see also Phillips v. AWH Corp.*, 415 F.3d 1303 (Fed. Cir. 2005) (en banc). Further, the Board only construes the claims to the extent necessary to resolve the underlying controversy. *Toyota Motor Corp. v. Cellport Systems, Inc.*, IPR2015-00633, Paper No. 11, 16 (PTAB August 14, 2015) (citing *Vivid Techs., Inc. v. Am. Sci. & Eng'g, Inc.*, 200 F.3d 795, 803 (Fed. Cir. 1999)). Petitioner submits that for the purposes of this proceeding, the terms of the challenged claims should be given their plain and ordinary meaning, and no terms require specific construction.[2]

V. RELIEF REQUESTED AND THE REASONS FOR THE REQUESTED RELIEF

Petitioner asks that the Board review the accompanying prior art and analysis, institute a trial for *inter partes* review of claims 1, 7, 15, 20, and 21 of the '109 Patent, and cancel those claims as unpatentable.

[2] Petitioner does not concede that any term in the challenged claims meets the statutory requirements of 35 U.S.C. § 112, or that the challenged claims recite patentable subject matter under 35 U.S.C. § 101.

As explained below and in the declaration of Petitioner's expert, Dr. Vijay Madisetti, each element of claims 1, 7, 15, 20, and 21 is found in the prior art such that the claims would have been obvious to a person of ordinary skill in the art ("POSITA") before the earliest claimed priority date of the '109 Patent. *See* RING-1003, ¶ 28 (noting the level of ordinary skill in the art as a bachelor's degree in Electrical Engineering, Computer Engineering, or Computer Science, or equivalent training, as well as at least one year of technical experience in the relevant field).

VI. IDENTIFICATION OF CHALLENGES

This petition challenges the patentability of claims 1, 7, 15, 20, and 21 of the '109 Patent on the following grounds:

Challenge	Claims	Ground
Challenge #1	1	35 U.S.C. § 103 over U.S. Patent Publication No. 2015/0022620 to **Siminoff** ("Siminoff," RING-1005) in view of U.S. Patent Publication No. 2014/0267740 to **Almomani** ("Almomani," RING-1006)
Challenge #2	7	35 U.S.C. § 103 over **Siminoff** in view of U.S. Patent No. 7,809,966 to **Imao** ("Imao," RING-1007)
Challenge #3	20 and 21	35 U.S.C. § 103 over **Siminoff** in view of **Imao** and in view of U.S. Patent Publication No. 2013/0057695 to **Huisking** ("Huisking," RING-1008)
Challenge #4	15	35 U.S.C. § 103 over U.S. Patent Publication No. 2015/0022618 to **Siminoff '618** ("Siminoff '618," RING-1009) in view of **Huisking**

Prior Art Status

The '109 Patent is governed by post-AIA 35 U.S.C. §§ 102 and 103 based on its earliest alleged priority date of January 5, 2015.

Siminoff (RING-1005) was filed on September 29, 2014 and published January 22, 2015, and is thus prior art at least under 35 U.S.C. § 102(a)(2).

Almomani (RING-1006) was filed on February 19, 2014 and published September 18, 2014, and is thus prior art at least under 35 U.S.C. § 102(a)(1).

Imao (RING-1007) was filed December 22, 2006 and issued October 5, 2010, and is thus prior art at least under 35 U.S.C. § 102(a)(1).

Huisking (RING-1008) was filed on September 7, 2012 and published March 7, 2013, and is thus prior art at least under 35 U.S.C. § 102(a)(1).

Siminoff '618 (RING-1009) was filed on July 18, 2014 and published January 22, 2015, and is thus prior art at least under 35 U.S.C. § 102(a)(2).

A. The Challenges Presented in This Petition are Not Cumulative to Prosecution of the '109 Patent

The challenges presented in this petition are neither cumulative nor redundant to the prosecution of the '109 Patent. During the brief prosecution of the '109 Patent, Siminoff, Siminoff '618, and Huisking were listed among the 265 references in two Information Disclosure Statements submitted by Patent Owner. RING-1002, pp. 90-102, 114-127. These three references, however, were never

the basis for a rejection of the claims; nor is there evidence they were ever discussed in an Examiner interview.

Specifically, as discussed above, no Office Actions were issued during prosecution. Further, there is no evidence that Siminoff, Siminoff '618, or Huisking were ever considered during an examiner interview, as the only references listed in the interview summaries (Examiner's or Applicants') are "Carter" and "Barley." *See* RING-1002, p. 33. Accordingly, the file history contains no indication that the Examiner ever substantively evaluated Siminoff, Siminoff '618, or Huisking or attempted to apply them to the claims of the '109 Patent. *See Becton, Dickinson, & Co. v. B. Braun Melsungen AG*, IPR2017-01586, Paper 8 at 17-18 (PTAB Dec. 15, 2017).

Petitioner therefore respectfully requests that the Board institute the challenges based on these references so that the Office can fully consider their teachings in view of the claims of the '109 Patent.

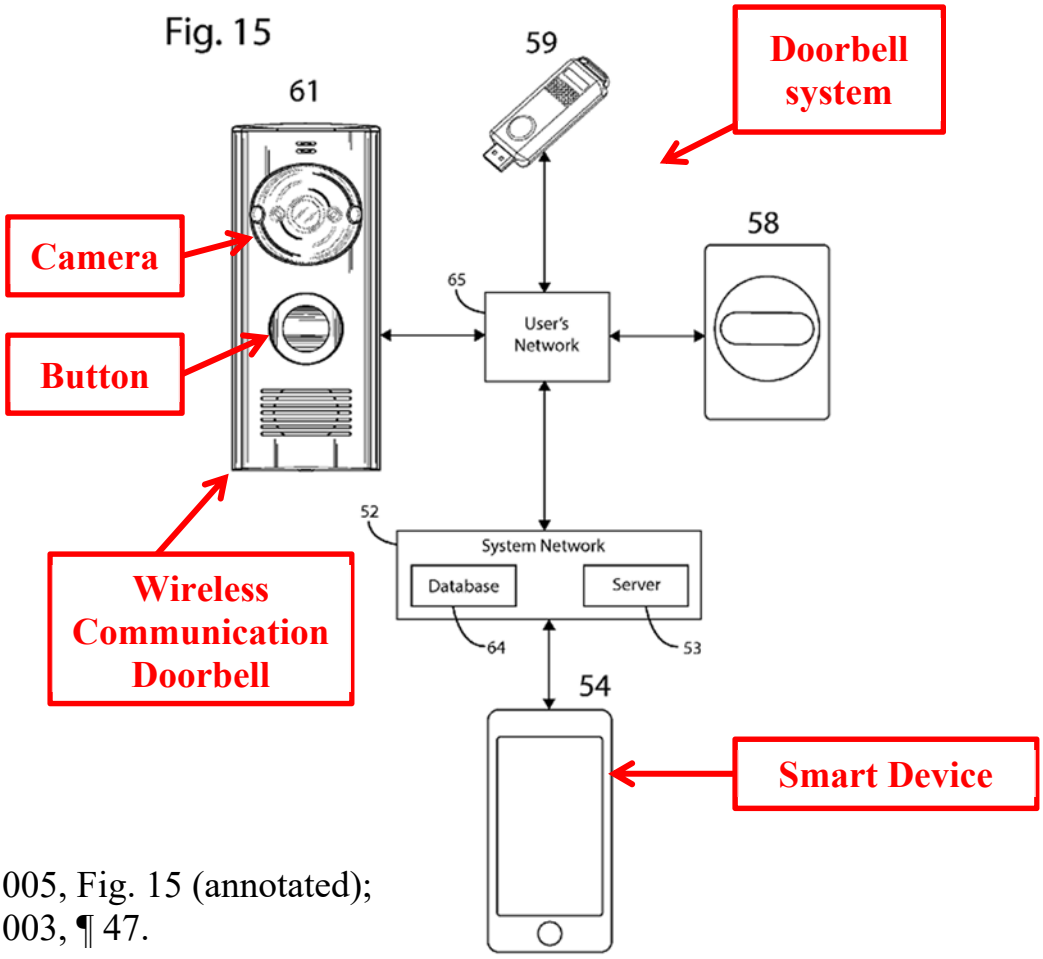
VII. IDENTIFICATION OF HOW THE CLAIMS ARE UNPATENTABLE

A. Challenge #1: Claim 1 is invalid under 35 U.S.C § 103 over Siminoff in view of Almomani

1. Summary of Siminoff

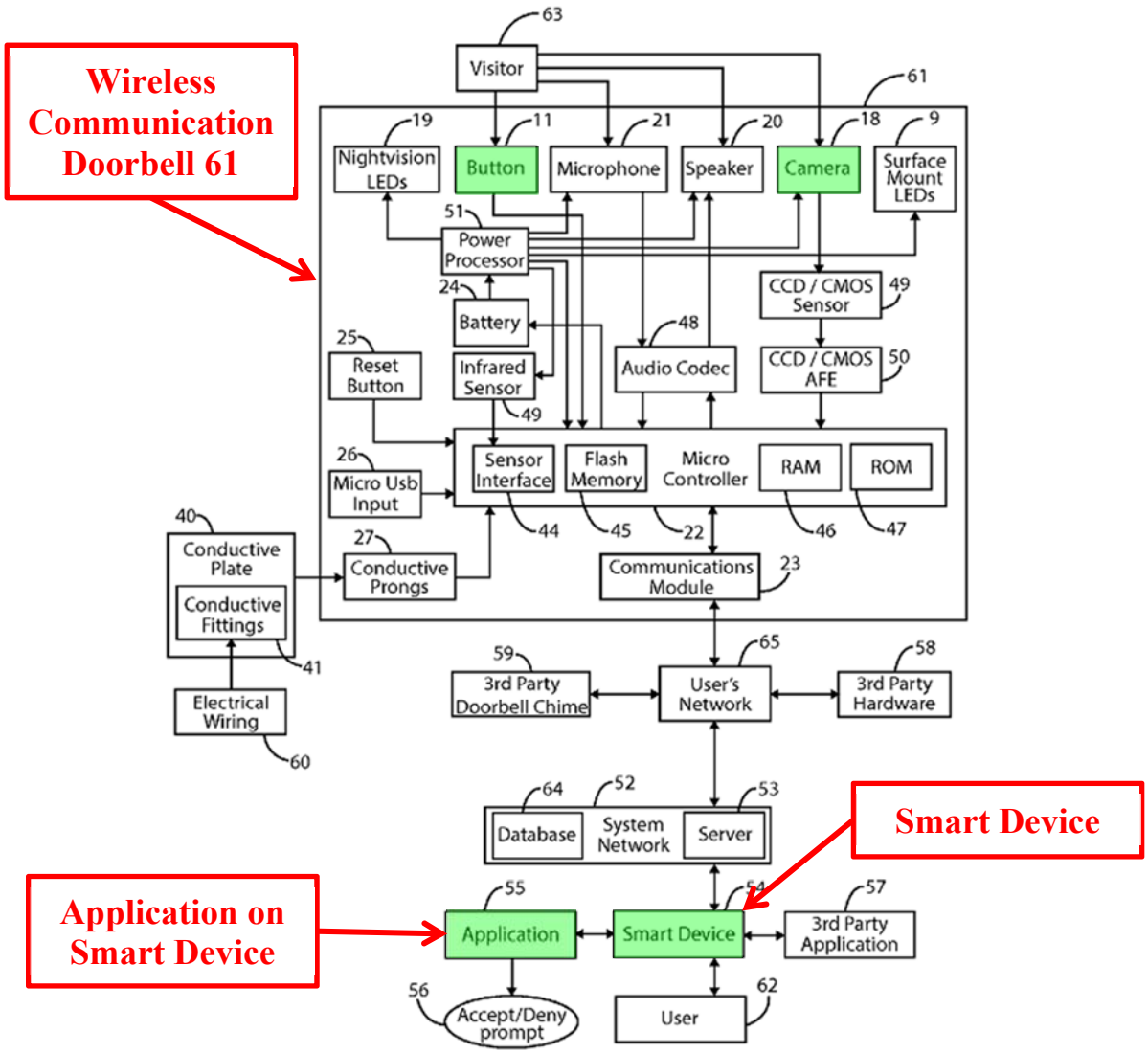
Like the '109 Patent, Siminoff is directed to a doorbell system. As shown in Fig. 15, annotated below, Siminoff's system includes a Smart Device, such as a

smartphone, and a Wireless Communication Doorbell with a camera and a doorbell button. RING-1005, ¶¶ [0074], [0078]-[0079], [0088]-[0091].



RING-1005, Fig. 15 (annotated);
RING-1003, ¶ 47.

Siminoff's Fig. 12, annotated below, shows the doorbell system, including the camera, in more detail and illustrates that the Smart Device is coupled to the doorbell by a wireless system network and a wireless user's network. RING-1005, ¶¶ [0074]-[0079], [0088]-[0089]. The Smart Device includes an application that "provide[s] an interface for User 62 to communicate and interact with Wireless Communication Doorbell 61" across these networks. *Id.* ¶ [0080].



RING-1005, Fig. 12 (annotated); RING-1003, ¶ x.

Siminoff explains that the doorbell's camera is configured "to record live video or still images of Visitor 63," which are "sent to Smart Device 54." RING-1005, ¶¶ [0046], [0066]. The application on the Smart Device displays the "videos and still images recorded by Camera 18." *Id*. ¶ [0080].

Notably, Siminoff solves the same problem as the '109 Patent—unnecessary power usage in a video doorbell—in the same way—by powering down the

components of the doorbell when not in use. RING-1003, ¶ 50. Specifically, Siminoff teaches that "all hardware components within Wireless Communication Doorbell 61 may live in a state of hibernation" until activated. RING-1005, ¶ [0090]. Siminoff calls this state of hibernation "a low power consumption mode." *Id*. ¶ [0087], Abstract. Siminoff explains that the purpose of this low power consumption mode is to ensure that "components that draw power from Battery 24, such as … Camera 18 do not waste battery power when not in use." *Id*. ¶ [0090]. Specifically, Siminoff teaches that the camera is inactive and without power until activated by an activation trigger. *Id*. ¶ [0076] ("[A]fter Button 11 is pressed, Power Processor 51 may ***provide the power to activate Camera 18*** and Night Vision LEDs 19." (emphasis added)).

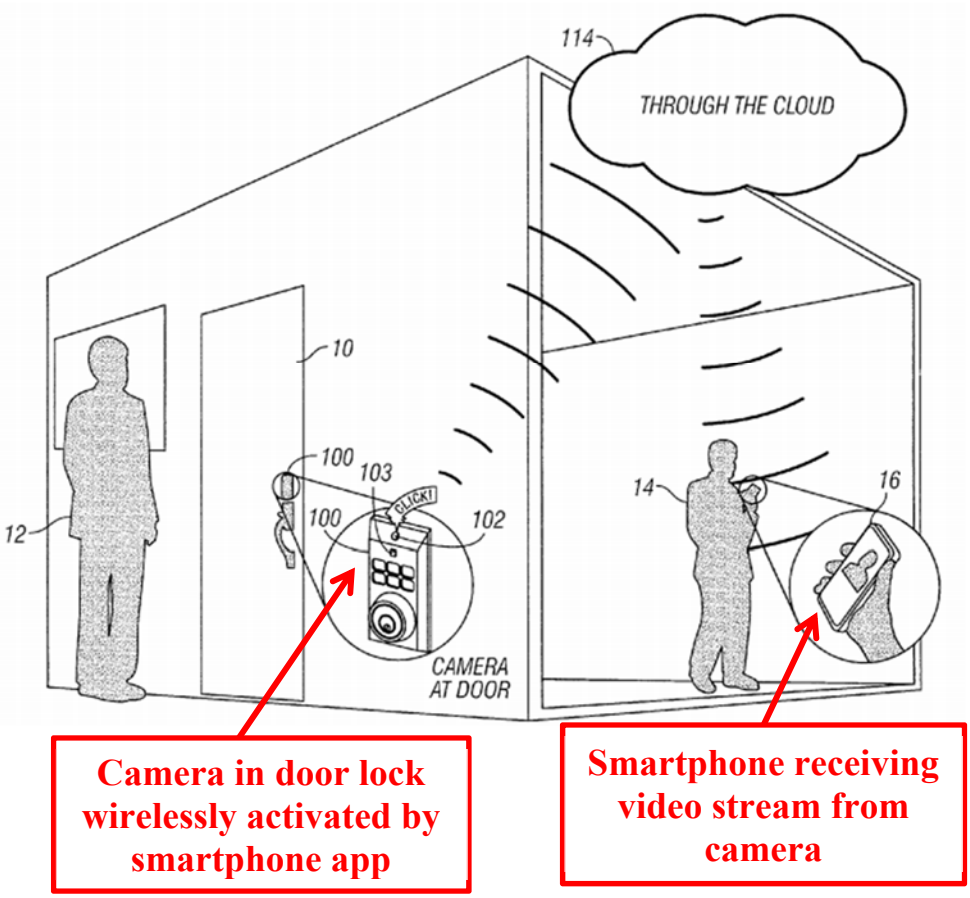
Siminoff teaches that several different activation triggers can switch the Wireless Communication Doorbell "from low-power mode to active mode." *Id*. Abstract, ¶¶ [0046], [0076], [0086], [0090]. These triggers may cause the doorbell system to wake up, begin recording video, and transmit the recorded video to the smart device. For example, "Wireless Communication Doorbell 61 may be triggered to wake through Infrared Sensor 42," where "Infrared Sensor 42 may trigger Camera 18 to record live video or still images of Visitor 63 when Visitor 63 crosses the path of the Infrared Sensor 42." *Id*. ¶ [0046]. As another example, Siminoff recites in the context of its claim 1 that an activation trigger may be "a

signal from the user at the remote communication device." *Id*. at claim 1. To the extent Siminoff does not explicitly teach that this "signal"-based activation trigger also causes the camera to begin recording (as with the other activation triggers), or to the extent that Siminoff does not explicitly teach that the smart device receives video captured by the camera once the doorbell is awake, these were well-known concepts prior to the '109 Patent, as illustrated by Almomani below. RING-1003, ¶ 53.

2. Summary of Almomani

Almomani "relates to an electronic lock with an integral camera that allows remote monitoring." RING-1006, ¶ [0005]. Like Siminoff's doorbell, Almomani's electronic lock "allows the user to remotely see who is at the door," for example by "stream[ing] video taken by the camera to remote electronic devices." *Id*. ¶¶ [0005], [0020]. In particular, Almomani teaches that "the camera could be selectively activated remotely by a user." *Id*. ¶ [0021]. Almomani further explains that the user can use a "dedicated app on a mobile device" that is in wireless communication with the electronic lock "to activate a remote monitoring mode." *Id*. ¶ [0021]. "In this mode, the electronic lock could be configured to continuously stream video, regardless of whether the motion sensor 103 is activated or not." *Id*. "This provides the user with peace of mind to remotely see the area surrounding the electronic lock." *Id*. Fig. 4 of Almomani illustrates its

electronic lock wirelessly activated by the smartphone app and streaming video to a user's smartphone:



RING-1006, Fig. 4 (annotated); RING-1003, ¶ 54.

3. Reasons to Combine Siminoff and Almomani

For the reasons set forth below, a person of ordinary skill in the art ("POSITA") would have found it obvious, beneficial, and predictable to implement Almomani's method of remotely activating a door-based camera in the context of Siminoff's video doorbell system. *See* RING-1003, ¶¶ 55-64.

As an initial matter, a POSITA when considering the teachings of Siminoff would have also considered the teachings of Almomani, as they are both directed to door-based, home monitoring systems controllable with applications on mobile devices and both have the same goal of allowing a user to remotely see who is near an entrance at any given time. *See* RING-1005, ¶ [0079] (allowing users to "see who is within view of Wireless Communication Doorbell 61 at any given time"); RING-1006, ¶ [0005] (teaching that its "electronic lock allows the user to remotely see who is at the door"); RING-1003, ¶ 56. A POSITA looking to implement and improve upon Siminoff's system would naturally refer to literature describing similar devices with the same purpose in the same field, and would thus naturally look to Almomani. RING-1003, ¶ 56.

With respect to implementing and improving Siminoff, Siminoff teaches that its Wireless Communication Doorbell may be switched from the low-power hibernation mode to an active mode with "a signal from the user at the remote communication device." RING-1005, claim 1. Siminoff lacks express details as to whether this activation signal also causes the camera to begin recording. Almomani, however, illustrates that it was known for a user of an application on a mobile device to selectively activate a door-based camera and receive streaming video. RING-1006, ¶ [0021]. For the reasons below, a POSITA would have been motivated to apply Almomani's known camera activation technique to Siminoff's

Wireless Communication Doorbell to yield the beneficial and predictable result of Siminoff's "signal"-based activation trigger not only causing the doorbell to wake up, but also causing the camera to activate and begin recording live video that is transmitted to the smart device. RING-1003, ¶ 57.

First, a POSITA would have been motivated to pursue such a combination because it would have furthered Siminoff's goal of allowing users to "see who is within view of Wireless Communication Doorbell 61 at any given time." RING-1005, ¶ [0079]; RING-1003, ¶ 58. Specifically, Almomani teaches that its "camera may be activated independent of detection by the motion sensor" so that a user can access a video stream of the front door area at any time. RING-1006, ¶ [0008]. Almomani notes that this on-demand camera activation feature "provides convenience when at home and peace of mind when away from home." RING-1006, ¶ [0005]. A POSITA would have sought to modify Siminoff's Wireless Communication Doorbell to gain the same advantage—for example, by allowing the camera in Doorbell to be selectively activated by the application on the Smart Device regardless of whether the doorbell's infrared sensor detected motion. RING-1003, ¶ 58. Doing so would allow a user to view streaming video of the area around the Wireless Communication Doorbell "at any given time"—explicitly advancing one of Siminoff's stated goals. RING-1005, ¶ [0079]; RING-1003, ¶ 58; *see also KSR Int'l Co. v. Teleflex Inc.*, 550 U.S. 398, 417 (2007) (explaining that

"if a technique has been used to improve one device, and a person of ordinary skill in the art would recognize that it would improve similar devices in the same way, using the technique is obvious….").

Second, as discussed above, another stated goal of Siminoff's disclosure is reduced power consumption of video doorbells. *See* RING-1005, ¶ [0090] (teaching that in hibernation mode "components that draw power from Battery 24 … do not waste battery power when not in use."). In that regard, modifying Siminoff to include Almomani's remote camera activation technique would allow the doorbell to remain in the hibernation mode and save power when not in use, but still provide a user with the option to selectively request a video stream of the area around the doorbell. RING-1003, ¶ 59. A hybrid doorbell solution that provides both a low power mode and on-demand streaming would consume less power than, for example, doorbell systems that remained fully-powered at all times in order to provide the same streaming service. *Id*.

A POSITA would find this modification to Siminoff predictable and likely to result in success because Siminoff already teaches (i) that its Wireless Communication Doorbell may be activated by a wireless communication signal from a remote communication device, and (ii) that the other activation triggers in Siminoff—pressing the doorbell button and detecting motion—similarly result in the camera turning on and recording live video, which is sent to the Smart Device.

RING-1005, ¶¶ [0066], [0086]; RING-1003, ¶ 60. Even ignoring this express disclosure in Siminoff itself, a POSITA would have had an expectation of success because, before the '109 Patent, home security companies had already implemented and commercialized video doorbell systems in which a user could selectively access a live video feed from a doorbell camera with a remote device. RING-1003, ¶ 61 (citing RING-1010).

Any hypothetical modifications to Siminoff's system needed to implement Almomani's features would be within the skill of a POSITA because Siminoff's Wireless Communication Doorbell utilizes "off the shelf" internal components and standardized transmission protocols such as "Wi-Fi" or "Bluetooth," and the Smart Device is "any electronic device capable of receiving and transmitting data via the internet." RING-1005, ¶¶ [0064], [0077], [0079]; RING-1003, ¶ 62. For example, to the extent Siminoff does not provide implementation details about the Wireless Communication Doorbell receiving activation signals while in hibernation mode, methods of listening for incoming communications in a sleep state were well-described in related patent literature, as Dr. Madisetti explains in his declaration. *See* RING-1003, ¶ 63 (citing RING-1011).

Accordingly, a POSITA would have found it obvious to apply Almomani's known technique of remotely activating a camera using a mobile device to Siminoff's doorbell system to yield the predictable and beneficial result of a user

selectively activating the camera in the Wireless Communication Doorbell with the Smart Device and receiving streaming video for display. RING-1003, ¶ 64.

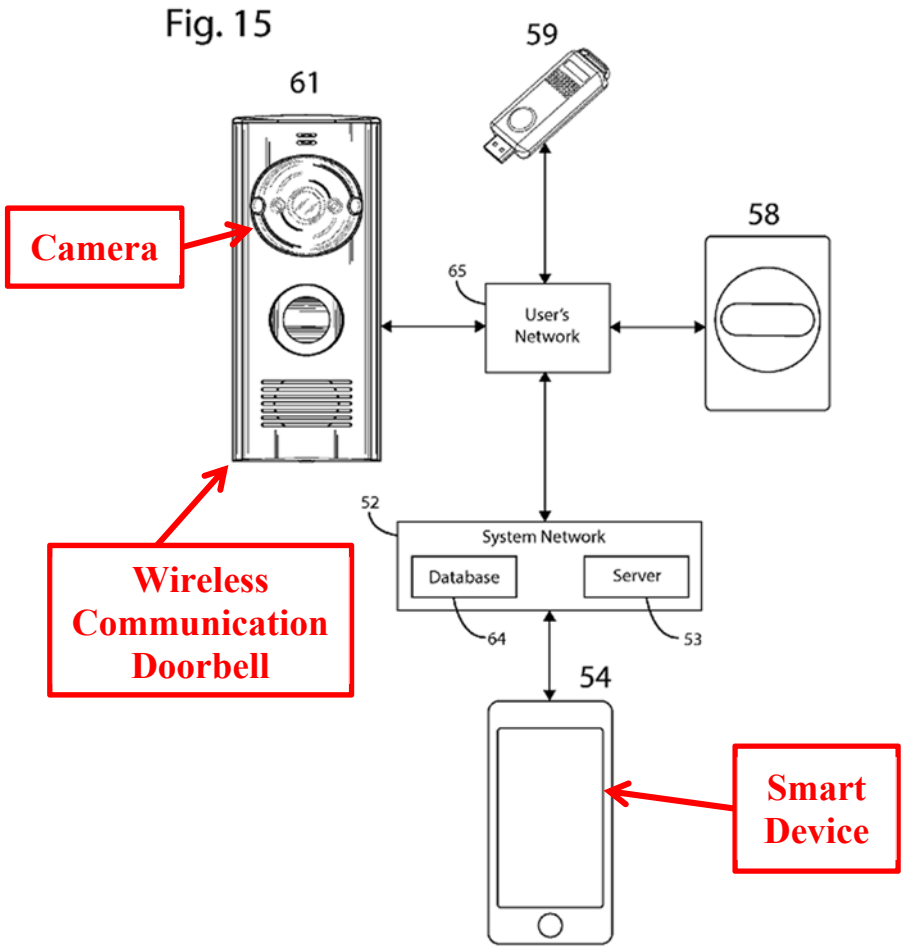
4. Detailed Analysis

The following describes how Siminoff in view of Almomani renders obvious each and every element of claim 1 of the '109 Patent. A corresponding claim chart is contained in Dr. Madisetti's declaration. *See* RING-1003, pp. 36-64.

Claim 1

[1.0] ***"A method of using a doorbell system, wherein the doorbell system comprises a remote computing device and a doorbell having a camera, the method comprising:"***

Siminoff discloses this limitation because it teaches a method of using a doorbell system that includes a Smart Device, such as a smartphone, and a Wireless Communication Doorbell with a camera, as shown in Fig. 15 (annotated below). RING-1005, ¶ [0088]; *see* RING-1003, pp. 36-40.



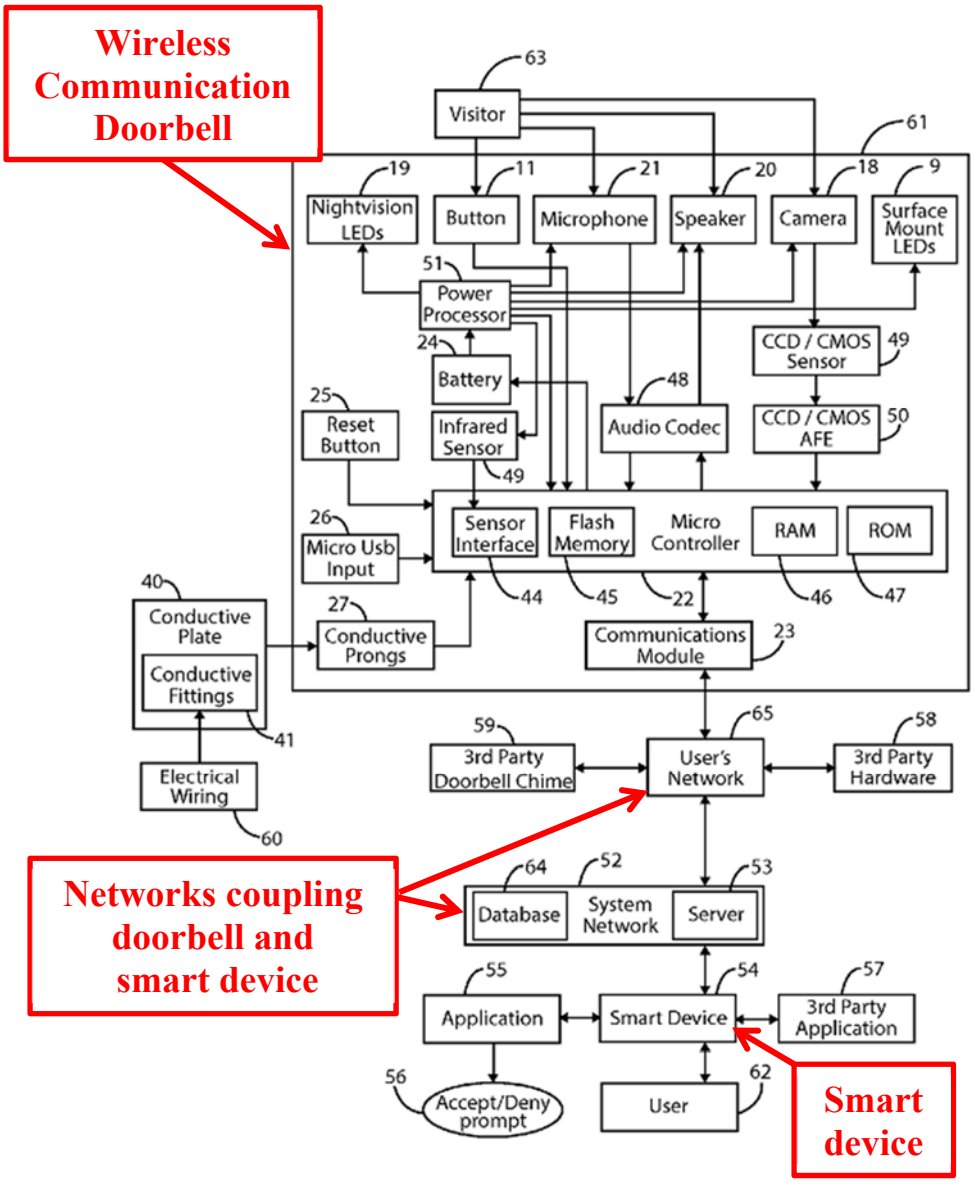
RING-1005, Fig. 15 (annotated); RING-1003, p. 37

Siminoff explains that the Smart Device "may be any electronic device capable of receiving and transmitting data via the internet, capable of transmitting and receiving audio and video communications," including "smartphones." RING-1005, ¶ [0079].

[1.1] ***"coupling communicatively the doorbell and the remote computing device"***

As illustrated in Fig. 12 (annotated below), Siminoff teaches communicatively coupling the Wireless Communication Doorbell 61 and the Smart Device 54 via a "wireless telecommunications network" (System Network

52) and a wireless User's Network 65. RING-1005, ¶¶ [0088], [0077]. The Wireless Communication Doorbell "sends outbound data to System Network 52, … [and] System Network 52 routes the data through Server 53 to Smart Device 54." *Id.* ¶ [0077]; *see also id.* ¶ [0078]; RING-1003, pp. 40-43.



RING-1005, Fig. 12 (annotated); RING-1003, p. 41

[1.2] ***"detecting, by the doorbell system, an indication of a presence of a visitor"***

Siminoff discloses this limitation because it teaches that the Wireless Communication Doorbell detects the presence of a visitor with a doorbell button push or with an infrared sensor. RING-1005, ¶ [0066]; *see* RING-1003, pp. 43-44. For example, "the transmission of data to and from Wireless Communication Device to a Smart Device … may be initiated when the Visitor 63 presses Button 11 of Wireless Communication Doorbell 61." RING-1005, ¶ [0086]; *see also id*. ¶ [0045], Fig. 14. As another example, an "[i]nfrared Sensor 42 may trigger Camera 18 to record live video or still images of Visitor 63 when Visitor 63 crosses the path of the Infrared Sensor 42." *Id*. ¶ [0046].

[1.3] ***"entering, by the doorbell, a camera sleep mode wherein the camera is configured to not record"***

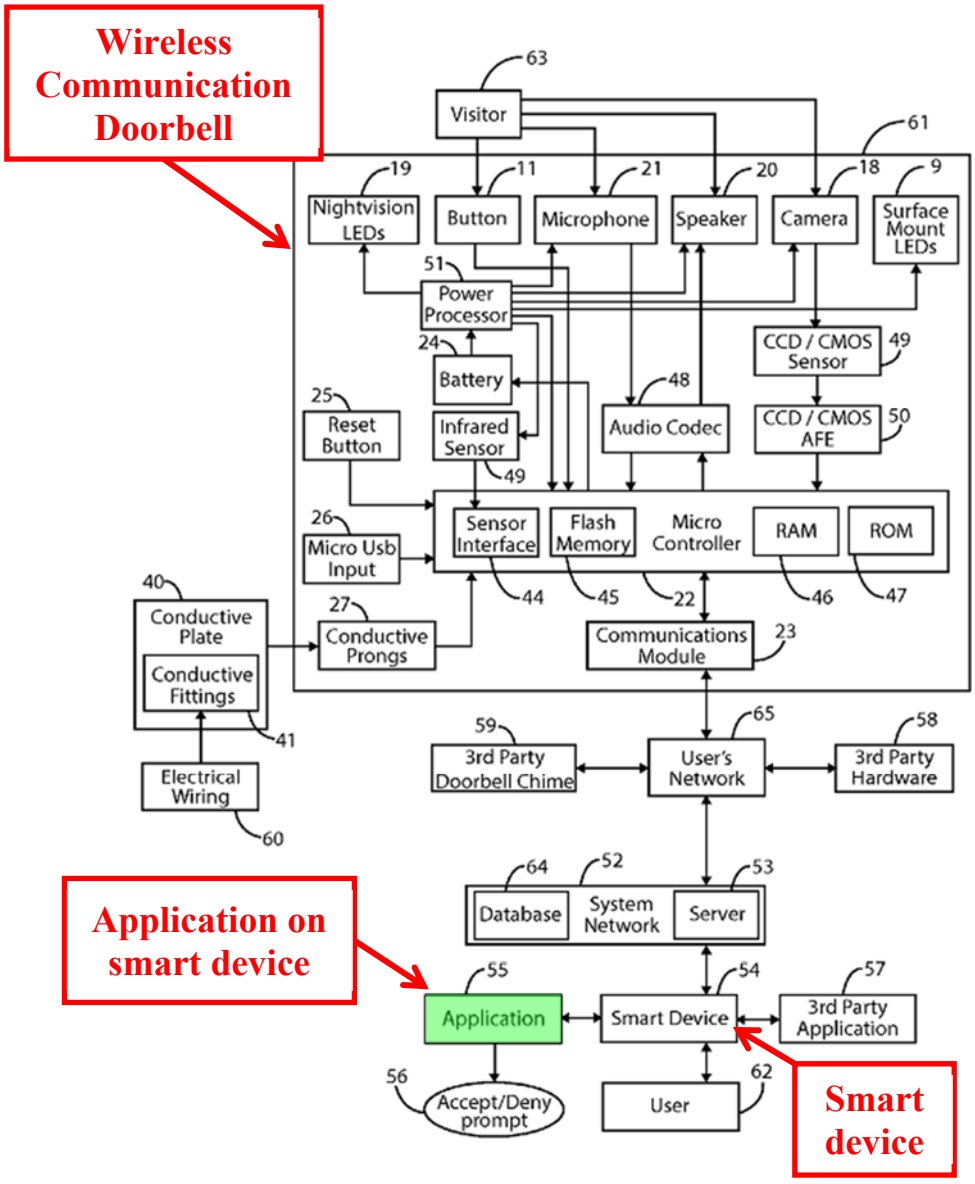
Siminoff discloses this limitation because the Wireless Communication Doorbell enters a "hibernation" mode during which the camera is inactive and does not record images or video. RING-1005, ¶ [0090]. Siminoff explains that "all hardware components within Wireless Communication Doorbell 61 may live in a state of hibernation" until activated. *Id*. ¶ [0090]; *see also id*., Abstract, ¶¶ [0086]-[0087]. Siminoff also calls this state of hibernation "a low power consumption mode." *Id*. ¶ [0087], Abstract. The hibernation mode is advantageous because, in this mode, "all components that draw power from Battery 24, such as … Camera 18 do not waste battery power when not in use." *Id*. ¶ [0090].

Siminoff teaches that, during the low power consumption mode, the camera is inactive and without power until activated by an activation trigger. *See* RING-1005, ¶¶ [0076] ("In reference to FIG. 12, after Button 11 is pressed, Power Processor 51 may *provide the power to activate Camera 18* and Night Vision LEDs 19." (emphasis added)), [0046], [0063], [0066], Abstract. Accordingly, when Siminoff's Wireless Communication Doorbell is in hibernation mode/low-power mode, the camera is in a sleep mode and configured not to record, because, in order for it to record an image, it must first be provided power and activated, for example, in response to an activation trigger. RING-1003, p. 46.

Thus, the Wireless Communication Doorbell entering a hibernation/low-power mode where the camera is without power and does not record images, as taught by Siminoff, discloses "entering, by the doorbell, a camera sleep mode wherein the camera is configured to not record." *See* RING-1003, pp. 44-46.

[1.4] ***"opening a doorbell control application on the remote computing device"***

Siminoff discloses this limitation because it teaches that an "Application 55 may be installed on Smart Device 54 and provide an interface for User 62 to communicate and interact with Wireless Communication Doorbell 61." RING-1005, ¶ [0080]. The Application is illustrated in Siminoff's Fig. 12 (annotated below).



RING-1005, Fig. 12 (annotated); RING-1003, p. 48

The Application allows the user to, among other things, "view still images or video taken by Wireless Communication Doorbell 61," "focus or zoom Camera 18," and communicate with a visitor. RING-1005, ¶¶ [0076], [0080]. A POSITA would have understood that the Application is opened on the smart device to allow the user to view images or video and to control the doorbell. RING-1003, pp. 48-

50 (citing RING-1012).

Thus, opening and interacting with the application on the smart device to communicate with and control the Wireless Communication Doorbell, as taught by Siminoff, discloses "opening a doorbell control application on the remote computing device." *See* RING-1003, pp. 46-50.

[1.5] ***"overriding, by the remote computing device via a wireless communication, a power setting of the doorbell to force the doorbell to exit the camera sleep mode and enter a camera recording mode"***

Siminoff in view of Almomani renders obvious this limitation. First, Siminoff teaches that several different activation triggers—including a signal from a remote device, a visitor pushing the doorbell button, and an infrared sensor detecting motion—can bring the Wireless Communication Doorbell out of the low power/hibernation mode. RING-1005, claim 1, ¶¶ [0045], [0046], [0066], [0076]. In particular, Siminoff recites in the context of its claim 1, as filed, that "a signal from the user at the remote communication device" is one of the activation triggers that switches the Wireless Communication Doorbell from "low-power mode to active mode":

> 1. A device for communicating, mounted externally near a user's door, comprising:
>
> a housing including a camera, a microphone, a speaker, a button, a battery, a sensor, non-volatile memory, a processor, and a wireless communications module,

> wherein the non-volatile memory stores code operable by the processor for:
>
> ***switching the processor from low-power mode to active mode in response to an activation trigger***;
>
> …
>
> ***wherein the activation trigger comprises*** one or more of a button signal, a sensor signal, and ***a signal from the user at the remote communication device***."

Id., claim 1 (emphasis added).

Second, with respect to the "remote communication device" from which the activation signal recited in claim 1 originates, Siminoff teaches that its doorbell system includes a "Smart Device" that wirelessly controls the Wireless Communication Doorbell, as discussed above. RING-1005, ¶¶ [0077], [0079], [0088], Fig. 12. Accordingly, Siminoff teaches overriding the Wireless Communications Doorbell's low power/hibernation mode with a wireless activation signal from the Smart Device. RING-1003, p. 55.

Third, Siminoff teaches that at least some of the activation triggers that wake the Wireless Communication Doorbell also cause the doorbell to begin providing power to the camera and cause the camera to record video and/or images that are sent to the Smart Device (*i.e.*, exit the camera sleep mode and enter a camera recording mode):

> In one aspect, ***upon depressing Button 11 or another trigger*** may cause ***Camera 18 of Wireless Communication Doorbell 61 to record a static or continuous video image, which is sent to User 62*** along with notification at Smart Device 54.

Id. ¶ [0086] (emphasis added).

> ***[A]fter Button 11 is pressed, Power Processor 51 may provide the power to activate Camera 18*** and Night Vision LEDs 19. ***Camera 18 records any visuals of Visitor 63*** and processes the visuals using CCD/CMOS Sensor 49.

Id. ¶ [0076] (emphasis added).

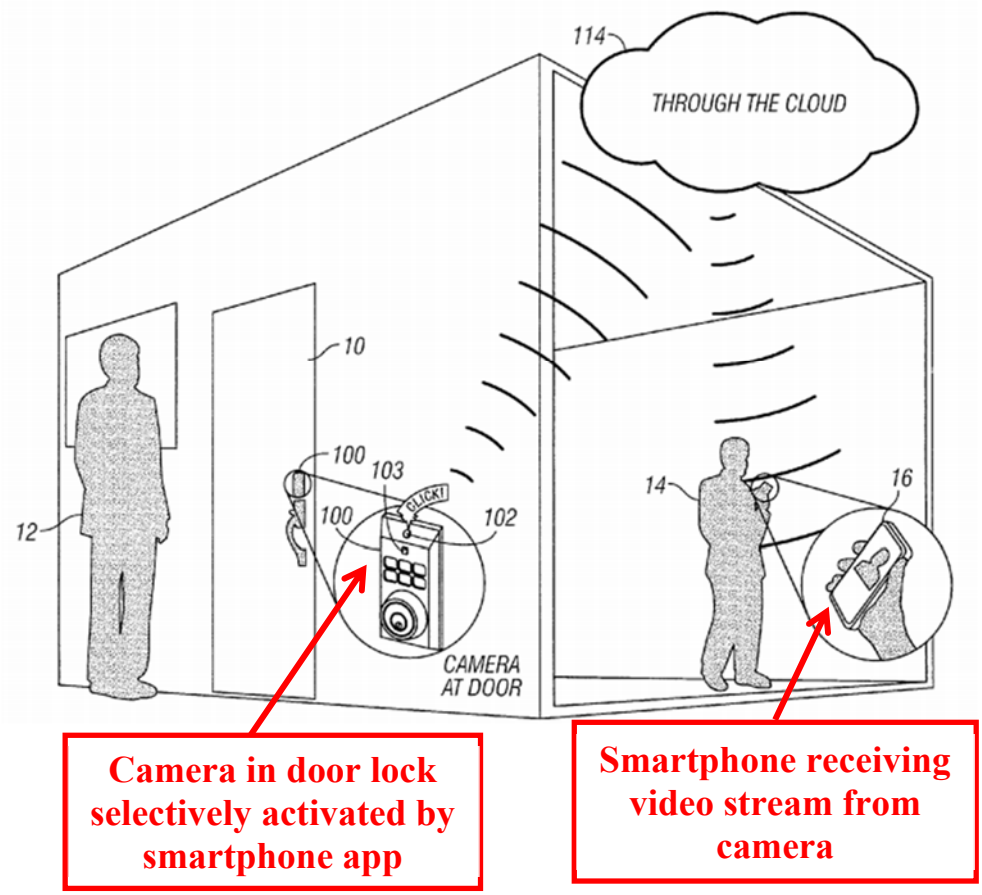
> Still referencing FIG. 1, ***Wireless Communication Doorbell 61 may be triggered to wake through Infrared Sensor 42***, installed within Housing 5. ***Infrared Sensor 42 may trigger Camera 18 to record live video or still images of Visitor 63 when Visitor 63 crosses the path of the Infrared Sensor 42***.

Id. ¶ [0046] (emphasis added); *id*. ¶ [0066].

Fourth, to the extent Siminoff does not explicitly teach that the signal-based activation trigger recited in claim 1 activates the doorbell and *also* causes the camera to begin recording (as with the other activation triggers), it was well known before the '109 Patent to remotely activate a door-based camera using a remote device in order to stream video from the camera. RING-1003, p. 56.

For example, Almomani teaches "an electronic lock with an integral camera that allows remote monitoring." RING-1006, ¶ [0005]. Like Siminoff's doorbell,

Almomani's electronic lock "allows the user to remotely see who is at the door," for example, by "stream[ing] video taken by the camera to remote electronic devices" such as a "mobile phone." *Id*. ¶ [0020]. Also like Siminoff's doorbell, Almomani's electronic lock is in wireless communication with the remote electronic device as illustrated in Fig. 4, annotated below. *Id*. Almomani teaches that "the camera could be *selectively activated* remotely by a user" to capture video for streaming. *Id*. ¶ [0021] (emphasis added). For example, the user can use a "dedicated app on a mobile device" "to activate a remote monitoring mode." *Id*. "In this mode, the electronic lock could be configured to continuously stream video." *Id*. "This provides the user with peace of mind to remotely see the area surrounding the electronic lock." *Id*.



RING-1006, Fig. 4 (annotated); RING-1003, p. 58

As discussed above in Section VII(A)(3), a POSITA would have found it predictable and obvious to combine Almomani's method of using a mobile device and a wireless communication to selectively activate a remote camera with Siminoff's doorbell system so that a user of the smart device could remotely wake up the Wireless Communication Doorbell and activate the camera such that it begins recording video. RING-1003, p. 58.

Thus, the Wireless Communication Doorbell that is configurable to exit a low power mode in response to a wireless activation trigger signal from a user of a

remote communication device, as taught by Siminoff, in view of the wireless camera that is activated and begins streaming video in response to a wireless communication from a mobile phone, as taught by Almomani, renders obvious "overriding, by the remote computing device via a wireless communication, a power setting of the doorbell to force the doorbell to exit the camera sleep mode and enter a camera recording mode." *See* RING-1003, pp. 50-59.

[1.6] ***"wherein the camera recording mode consumes more power than the camera sleep mode"***

Siminoff discloses this limitation because it teaches that when the components of the Wireless Communication Doorbell are in a "state of hibernation" and inactive, the doorbell is in a "low power consumption mode" (*i.e.*, a mode that consumes less power) as compared to the doorbell's "active mode." RING-1005, ¶¶ [0090], [0087], Abstract. In the hibernation mode "all components that draw power from Battery 24 … ***do not waste battery power when not in use***." RING-1005, ¶ [0090] (emphasis added). In contrast, when the doorbell exits the hibernation mode, "it may activate all components," which may include "***provid[ing] the power to activate Camera 18*** …." *Id.* ¶¶ [0090], [0076] (emphasis added); *see also id*. ¶¶ [0046], [0066], [0086]-[0087], Abstract; RING-1003, p. 61.

Thus, Siminoff's teaching that the active mode, in which the camera is recording, consumes more power than the hibernation/low-power consumption mode, in which the camera is inactive, discloses "wherein the camera recording

mode consumes more power than the camera sleep mode." *See* RING-1003, pp. 59-61.

[1.7] ***"receiving a first video, by the remote computing device, from the doorbell at least partially in response to remotely overriding the power setting of the doorbell."***

Siminoff in view of Almomani renders obvious this limitation. First, Siminoff teaches that its Smart Device receives video captured by the camera of the Wireless Communication Doorbell in response to activation triggers bringing the doorbell out of the hibernation mode:

> In one aspect, upon ***depressing Button 11 or another trigger may cause Camera 18 of Wireless Communication Doorbell 61 to record a static or continuous video image, which is sent to User 62 along with notification at Smart Device 54***.

RING-1005, ¶ [0086] (emphasis added).

> ***Camera 18 may record still or moving video, (e.g. anyone who activates Wireless Communication Doorbell*** 61 by pressing Button 8, or triggering Infrared Sensor 42). ***Camera 18 may send the recorded video or images to Microcontroller 22, to be sent to Smart Device 54*** and Database 64 via Communications Module 23.

Id. ¶ [0066] (emphasis added); *see also id*. ¶¶ [0046], [0076].

Second, to the extent Siminoff does not explicitly teach that the Smart Device receives video captured by the camera of the Wireless Communication

Doorbell in response to the signal-based activation trigger recited in claim 1, this concept was well known before the '109 Patent. RING-1003, p. 62.

For example, as explained above, Almomani teaches that its "camera could be selectively activated remotely by a user" with a "dedicated app on a mobile device." RING-1006, ¶ [0021]. "In this mode, the electronic lock could be configured to continuously stream video" to the mobile device. *Id*.

As discussed above in Section VII(A)(3), a POSITA would have found it predictable and obvious to combine Almomani's method of streaming video with Siminoff's doorbell system so that the Smart Device receives video from the Wireless Communication Doorbell when the Smart Device wakes the doorbell up with the wireless activation signal. *See* RING-1003, p. 64.

Thus, receiving a video at the Smart Device in response to waking up the Wireless Communication Doorbell from hibernation mode with an activation trigger, where one activation trigger is a signal from a remote device, as taught by Siminoff, in view of Almomani's teaching of receiving a video at a mobile device from a door-based camera after remotely activating it with a mobile device, renders obvious "receiving a first video, by the remote computing device, from the doorbell at least partially in response to remotely overriding the power setting of the doorbell." *See* RING-1003, pp. 61-64.

B. Challenge #2: Claim 7 is invalid under 35 U.S.C. § 103 over

Siminoff in view of Imao

1. Summary of Imao

Imao describes a system with a network camera that "distributes photographed still image data or photographed moving image data." RING-1007, 15:31-39. Imao teaches that its network camera is controlled "according to an instruction sent by a client apparatus via a network." RING-1007, 15:39-43. For example, Imao's system allows a user to "display photographed images, operate the camera, or perform system settings" with a "mobile phone." RING-1007, 15:49-53.

Similar to Siminoff's doorbell, Imao's camera has a "low power consumption state," and when "no application communication is performed, the network camera 1401 powers off each hardware device in the camera system unit 1403." RING-1007, 16:62-65. Imao explains that the camera wakes up from this low power state when it receives a TCP communication session. *Id*. at 17:4-28; *see also id*. at 16:62-17:15. Specifically, Imao's camera waits for "a TCP packet requesting a start of a TCP connection" from a client apparatus for an application such as video streaming. *Id*. at 17:4-12, 17:54-18:3. When the communication session request is received, the camera system "powers on devices necessary for performing the application communication." *Id*.

2. Reasons to Combine Siminoff and Imao

For the reasons set forth below, a POSITA would have found it obvious, beneficial, and predictable to implement Imao's method of waking a camera upon receiving a communication session in the context of Siminoff's video doorbell system in order to increase the responsiveness of the doorbell. *See* RING-1003, ¶¶ 69-76.

As an initial matter, a POSITA when considering the teachings of Siminoff would have also considered the teachings of Imao, as they are both directed to allowing a user to remotely view images and video from a network camera on a client device. *See* RING-1005, ¶ [0079] (allowing users to "see who is within view of Wireless Communication Doorbell 61 at any given time"); RING-1007, 15:44-48 (teaching that its "network camera 1401 . . . can transfer still image data and moving image data that are photographed so far to a client apparatus"); RING-1003, ¶ 70. A POSITA looking to implement and improve upon Siminoff's system would naturally refer to literature describing similar devices with the same purpose in the same field, and would thus naturally look to Imao. RING-1003, ¶ 70.

With respect to implementing and improving Siminoff, Siminoff teaches that its Wireless Communication Doorbell may be switched from the low-power hibernation mode to an active mode with "a signal from the user at the remote communication device," and teaches that when the doorbell is activated, the

camera may "record a static or continuous video image, which is sent to User 62 along with notification at Smart Device 54." RING-1005, claim 1, ¶ [0086]; *see also id*. ¶¶ [0046], [0066], [0076]. Siminoff is silent as to the specific *type* of "signal" from the remote device that activates the doorbell. As evidenced by Imao, it was well known that one type of signal from a remote device that could bring a networked camera out of a low power mode is a communication session. *See* RING-1007, 17:4-28; *see also id*. at 16:62-17:15. For the reasons below, a POSITA would have been motivated to apply Imao's known camera activation technique to Siminoff's Wireless Communication Doorbell to yield the predictable result of Siminoff's activation signal being a packet that requests a start of a communication session, such that the Wireless Communication Doorbell records a video when it receives the activation signal. RING-1003, ¶ 71.

First, a POSITA would have been motivated to pursue such a combination because it would have furthered Siminoff's goal of allowing users to "see who is within view of Wireless Communication Doorbell 61 at any given time." RING-1005, ¶ [0079]; RING-1003, ¶ 72. Specifically, a POSITA would have been motivated to implement Imao's method of activating a camera upon receiving a request for a communication session because Imao teaches that doing so shortens the "time required to restore the network camera 1401 from the low power consumption state." RING-1007, 18:18-30; *see also id*. at 18:28-30 ("[T]he camera

system unit 1403 can start an application connection immediately after being activated."); RING-1003, ¶ 72. Adding Imao's method of immediate camera activation upon receiving a communication session to Sminoff's Wireless Communication Doorbell would have improved it in the same way—*i.e.,* by improving the responsiveness of the doorbell when video is requested by a user. RING-1003, ¶ 72; *see also KSR*, 550 U.S. at 417. For example, if Siminoff's doorbell is modified to wake up when a communication session is first established, it would be ready to immediately respond to commands from the Smart Device. RING-1003, ¶ 72. In other words, the proposed modification would reduce lag when a user requests video because the doorbell would begin waking before the request is provided. *Id*. In that regard, artisans in the home security field knew that instant access to streaming surveillance video provided an out-of-town home owner "with peace of mind." Ring-1006, ¶ [0005]; RING-1003, ¶ 72.

Second, as discussed above, another stated goal of Siminoff's disclosure is reduced power consumption of video doorbells. *See* RING-1005, ¶ [0090] (teaching that in hibernation mode "components that draw power from Battery 24 … do not waste battery power when not in use."). In that regard, modifying Siminoff to include Imao's remote camera activation technique would allow the doorbell to stay in the hibernation mode and to save power when not in use, but, at the same time, be responsive to the user commands by coming out of hibernation

in anticipation of a user sending commands. RING-1003, ¶ 73. A hybrid doorbell solution that provides both a low power mode and short response times would consume less power than, for example, doorbell systems that remained fully-powered at all times in order to provide short response times. *Id*.

A POSITA would find this modification to Siminoff predictable and likely to result in success because Siminoff's Wireless Communication Doorbell utilizes "off the shelf" internal components and standardized transmission protocols, and the Smart Device is "any electronic device capable of receiving and transmitting data via the internet." RING-1005, ¶¶ [0064], [0077], [0079]; RING-1003, ¶ 74. Imao's method similarly utilizes a generic "mobile phone" and "standard TCP/IP protocol communication" in order to wake and activate its network camera. RING-1007, 15:50-55, 18:15-17. Substituting and modifying standardized and interchangeable components within a system such as Siminoff's would have been well within the skill of a POSITA in 2014. *See* RING-1003, ¶ 75 (citing RING-1011, which describes similar network cameras that receive activation signals while in a sleep state).

Accordingly, a POSITA would have found it obvious to apply Imao's known technique of remotely activating a camera system upon receiving a wireless communication session to Siminoff's Wireless Communication Doorbell because the combination amounts to applying a known technique to a video doorbell ready

for improvement. RING-1003, ¶ 76. Such a combination would yield the predictable and beneficial result of increasing the responsiveness of Siminoff's Wireless Communication Doorbell. *Id*.

3. Detailed Analysis

The following describes how Siminoff in view of Imao renders obvious each and every element of claim 7 of the '109 Patent. A corresponding claim chart is contained in Dr. Madisetti's declaration. *See* RING-1003, pp. 71-84.

Claim 7

[7.0] ***"A method of using a doorbell system, wherein the doorbell system comprises a remote computing device and a doorbell having a camera, the method comprising:"***

[7.1] ***"coupling communicatively the doorbell and the remote computing device"***

[7.2] ***"detecting, by the doorbell system, an indication of a presence of a visitor"***

[7.3] ***"entering, by the doorbell, a camera sleep mode in which the camera is configured to not record"***

Claim elements [7.0]-[7.3] are substantially similar to claim elements [1.0]-[1.3]. As such, for the reasons discussed in association with claim elements [1.0]-[1.3] above, Siminoff discloses claim elements [7.0]-[7.3]. *See* RING-1003, pp. 71-72.

[7.4] ***"exiting, by the doorbell, the camera sleep mode and entering a camera recording mode in response to receiving, by the doorbell, a first wireless communication session from the remote computing device;"***

Siminoff in view of Imao renders obvious this limitation. First, as discussed

above, Siminoff teaches that several different activation triggers—including a signal from a remote device, a visitor pushing the doorbell button, and an infrared sensor detecting motion—can bring the Wireless Communication Doorbell out of the low power/hibernation mode. RING-1005, claim 1, ¶¶ [0046], [0066], [0076]. In particular, Siminoff recites in the context of its claim 1, as filed, that "a signal from the user at the remote communication device" is one of the activation triggers that switches the Wireless Communication Doorbell from "low-power mode to active mode." *Id*., claim 1.

Second, with respect to the "remote communication device" from which the activation signal recited in claim 1 originates, Siminoff teaches that its doorbell system includes a "Smart Device" that wirelessly controls the Wireless Communication Doorbell. RING-1005, ¶¶ [0077], [0079], [0088], Fig. 12. Accordingly, Siminoff teaches exiting the Wireless Communications Doorbell's low power/hibernation mode with a wireless activation signal from the Smart Device. RING-1003, p. 76.

Third, Siminoff teaches that at least some of the activation triggers that wake the Wireless Communication Doorbell also cause the doorbell to provide power to the camera and cause the camera to record video and/or images that are sent to the Smart Device (*i.e.*, exit the camera sleep mode and enter a camera recording mode):

> In one aspect, ***upon depressing Button 11 or another trigger*** may cause Camera 18 of Wireless Communication Doorbell 61 ***to record a static or continuous video image, which is sent to User 62*** along with notification at Smart Device 54.

Id. ¶ [0086] (emphasis added).

> ***[A]fter Button 11 is pressed, Power Processor 51 may provide the power to activate Camera 18*** and Night Vision LEDs 19. ***Camera 18 records any visuals of Visitor 63*** and processes the visuals using CCD/CMOS Sensor 49.

Id. ¶ [0076] (emphasis added).

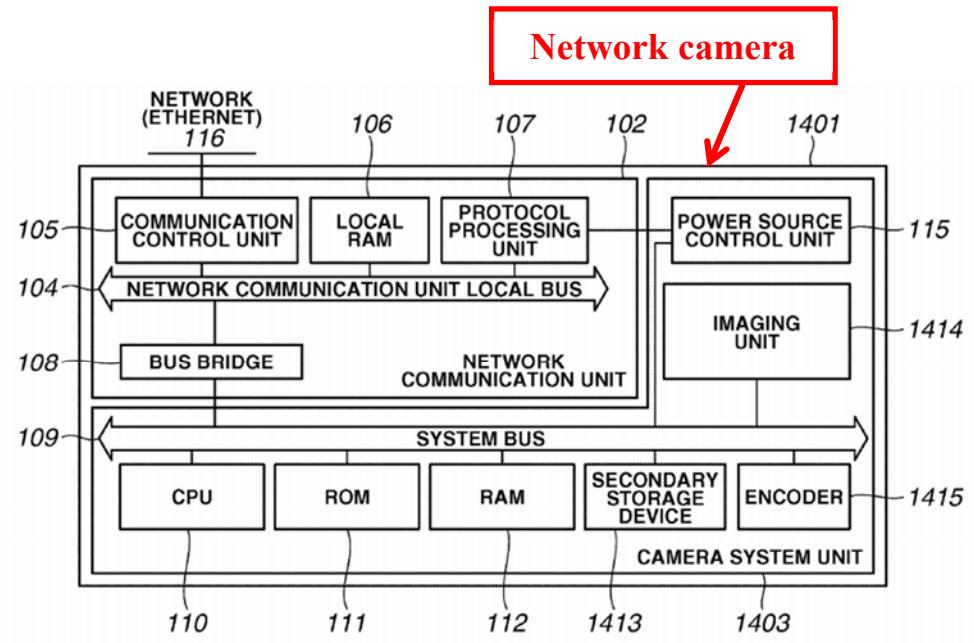
> Still referencing FIG. 1, ***Wireless Communication Doorbell 61 may be triggered to wake through Infrared Sensor 42***, installed within Housing 5. ***Infrared Sensor 42 may trigger Camera 18 to record live video or still images of Visitor 63 when Visitor 63 crosses the path of the Infrared Sensor 42***.

Id. ¶ [0046] (emphasis added); *id*. ¶ [0066].

Fourth, to the extent Siminoff does not explicitly teach that the camera is activated and begins recording when the activation signal from the remote computing device is a "wireless communication session," it was well known prior to the '109 Patent for a network camera to wake up and begin recording when it receives a communication session over a wireless network. RING-1003, p. 77.

For example, Imao teaches a network camera that can be connected to a client apparatus "such as … a mobile phone" via a "wireless network." RING-

1007, 15:31-54, 5:31-32. The network camera is shown in Fig. 14, annotated below.

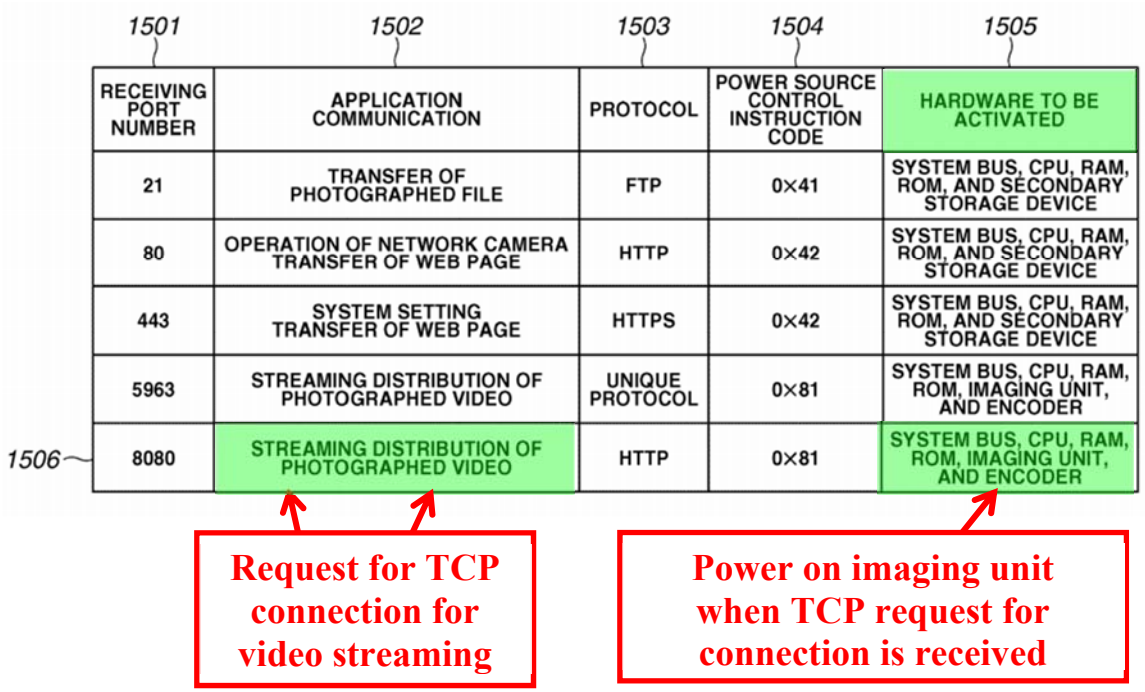


RING-1007, Fig. 14 (annotated); RING-1003, p. 78

Imao explains that the network camera may enter a "low power consumption state" where "the network camera 1401 powers off each hardware device in the camera system unit 1403" "while no application communication is [being] performed." RING-1007, 16:62-17:3. Imao's network camera exits the low power state and powers on the components, such as the imaging unit, when a network communication from the client device "is a request for starting an application communication." RING-1007, 17:31-36; *see also id.*, 17:8-15. This request includes receiving a communication session in the form of a "TCP packet requesting a start of a TCP connection." *Id.* at 17:16-28, 18:10-17; *see* RING-1003,

pp. 80-81 (citing RING-1014 and explaining that a POSITA would understand a TCP connection to meet the recited "communication session"). As Dr. Madisetti notes in his declaration, the '109 Patent does not make a distinction between receiving a communication session and receiving a request for a communication session. RING-1003, p. 81-82.

Imao teaches that one type of application communication session that may be started by this technique is video streaming. RING-1007, 17:16-28, 17:54-18:1. For example, as illustrated in Fig. 15 annotated below, when a TCP request for port 8080 (which corresponds to video streaming) is received, the network camera activates the "imaging unit." *Id.*



RING-1007, Fig. 15 (annotated); RING-1003, p. 82

Accordingly, in Imao's camera system, when a user requests a video stream and the network camera receives a TCP communication session, the camera powers on the imaging unit in order to begin recording. RING-1003, p. 83.

As discussed above in Section VII(B)(2), a POSITA would have found it obvious to combine Imao's method of activating a camera upon receiving a communication session with Siminoff's video doorbell system. *See* RING-1003, p. 83.

Thus, the Wireless Communication Doorbell exiting hibernation mode upon receiving an activation signal from a remote communication device, as taught by Siminoff, in view of Imao's teaching of a network camera exiting a low power sleep state in response to receiving a request for a TCP connection (communication session), as taught by Imao, renders obvious "exiting, by the doorbell, the camera sleep mode and entering a camera recording mode in response to receiving, by the doorbell, a first wireless communication session from the remote computing device." *See* RING-1003, pp. 72-83.

[7.5] "***receiving, by the remote computing device, a first video recorded by the camera of the doorbell.***"

Siminoff discloses this limitation because it teaches that when the Wireless Communication Doorbell is triggered to wake up, the camera records continuous video, which is sent to the user at the Smart Device:

> In one aspect, upon depressing Button 11 or another trigger may cause Camera 18 of Wireless Communication Doorbell 61 ***to record a static or continuous video image, which is sent to User 62 along with notification at Smart Device 54***.

RING-1005, ¶ [0086] (emphasis added); *see also id*. ¶¶ [0066], [0076]; RING-1003, pp. 83-84.

C. Challenge #3: Claims 20 and 21 are invalid under 35 U.S.C § 103 over Siminoff in view of Imao and Huisking

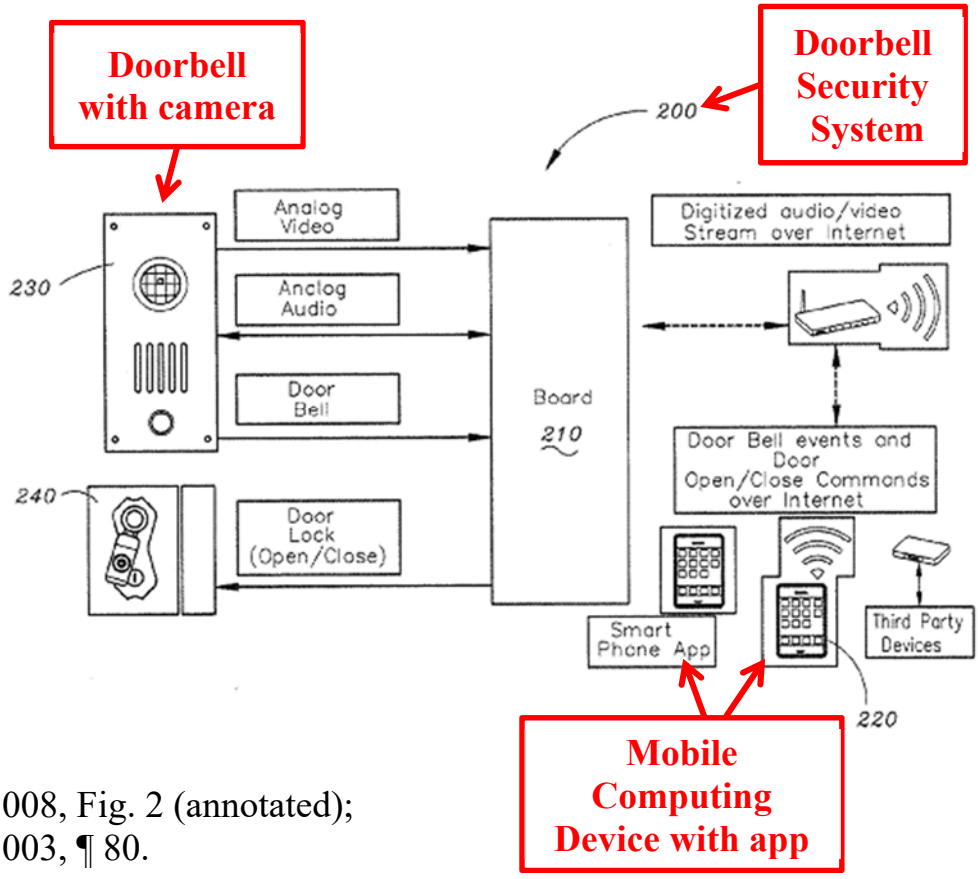
1. Summary of Siminoff and Imao

As discussed in association with Challenge #2, it would have been obvious, beneficial, and predictable to combine the teachings of Siminoff and Imao. Specifically, Siminoff teaches sending an activation signal from a remote computing device to bring the Wireless Communication Doorbell out of low power mode. Imao illustrates that it was well known that such an activation signal from a mobile device may be a request for a communication session. With respect to the types of actions on the mobile device that trigger a request for a communication session, it was well known in the video doorbell art that waking up a mobile device by turning it on was one such action that may trigger a request for a communication session, as illustrated by Huisking. RING-1003, ¶ 79.

2. Summary of Huisking

Like Siminoff, Huisking is directed to "a doorbell security system

configured to send … user doorbell notifications on a mobile computing device" such as a "smartphone" running an application. RING-1008, ¶¶ [0026], [0046]. And, also like Siminoff, Huisking teaches that its doorbell system includes "an audio/video intercom doorbell" with "a camera, a microphone, a speaker, and one or more doorbell user interfaces." *Id.* ¶ [0037]. The doorbell, camera, and mobile computing device are illustrated in Fig. 2 of Huisking, annotated below.



RING-1008, Fig. 2 (annotated);
RING-1003, ¶ 80.

Huisking teaches establishing a communication session between the doorbell system and the smartphone so that, for example, the smartphone may be alerted to doorbell events. RING-1008, ¶ [0083]. Notably, Huisking teaches that the

communication session "may be established when the registered mobile computing device 200 (installed with the application) ***is powered on***." *Id*. (emphasis added); *see also id*. ¶ [0085]. Huisking explains that the communication session is established when the smartphone is powered on by "starting the application and running it in the background" (*i.e.,* before the application is opened by a user). *Id*. ¶ [0085]; RING-1003, ¶ 81.

3. Reasons to Combine Huisking with Siminoff and Imao

For the reasons set forth below, a POSITA would have found it obvious, beneficial, and predictable to modify the combination of Siminoff and Imao to include Huisking's technique of establishing a communication session between a doorbell and a mobile device when the mobile device wakes up. *See* RING-1003, ¶¶ 83-91.

As an initial matter, a POSITA when considering the teachings of Siminoff and Imao would have also considered the teachings of Huisking. RING-1003, ¶ 84. Like Siminoff and Imao, Huisking is directed to networked camera systems that stream video to a mobile device. RING-1008, ¶ [0048] (teaching that "[o]nce the application is invoked, the user may be able to view the video (H.264, MJPEG) being captured by the camera installed with the doorbell unit in real-time or substantially real-time"). A POSITA looking to implement and improve upon the combination of Siminoff and Imao would naturally refer to literature describing

similar devices with the same purpose in the same field, and would thus naturally look to Huisking. RING-1003, ¶ 84.

As explained in association with Challenge #2, a POSITA would have found it obvious that Siminoff's activation signal sent from the remote computing device could be a communication session, as taught by Imao. RING-1003, ¶¶ 69-76. With respect to implementing and improving the combination of Siminoff and Imao, Huisking teaches that it was well known that the action of waking up a smartphone by powering it on could trigger a request for a communication session, as discussed above. RING-1008, ¶¶ [0083], [0085]. For the reasons below, a POSITA would have been motivated to apply these teachings in Huisking to the combination of Siminoff and Imao to yield the predictable result of Siminoff's activation signal being a communication session sent from the Smart Device upon powering on and waking up. RING-1003, ¶ 85.

First, building on the combination of Siminoff and Imao discussed in Challenge #2, a POSITA would have been motivated to apply Huisking's method of starting a communication session immediately upon waking up a smartphone to Siminoff's system in order to improve the responsiveness of the doorbell to user commands, such as streaming video requests. RING-1003, ¶ 86. For example, adding Huisking's technique would further improve the responsiveness of the Wireless Communication Doorbell to Smart Device commands because the

communication session between the Smart Device and doorbell would be established upon the Smart Device waking up—allowing the doorbell to be ready to respond to user commands when the doorbell application is subsequently opened. RING-1003, ¶ 87. In that regard, lowering response time for remote viewing of surveillance cameras was a common concern in the home security field for which POSITAs were actively developing solutions. *See id*. (citing RING-1007).

Second, as discussed above, another stated goal of Siminoff's disclosure is reduced power consumption of video doorbells. *See* RING-1005, ¶ [0090]. In that regard, modifying Siminoff as described above would allow the doorbell to stay in the hibernation mode and to save power when not in use, but, at the same time, allow the doorbell to be responsive to the user by coming out of hibernation in anticipation of a user sending a command after waking up the device. RING-1003, ¶ 88. A hybrid doorbell solution that provides both a low power mode and short response times would consume less power than, for example, doorbell systems that remained fully-powered at all times in order to provide short response times. *Id*.

A POSITA would find these modifications to Siminoff predictable and likely to result in success because, like Siminoff and Imao, Huisking's technique contemplates the use of any mobile computing device, such as an iPhone or Android smartphone, connected to the internet using "standard communication

protocols." RING-1008, ¶¶ [0026], [0054]; RING-1003, ¶ 89. Substituting and modifying standardized and interchangeable components within a system such as Siminoff's would have been well within the skill of a POSITA in 2014. RING-1003, ¶¶ 89-90 (citing RING-1011, which describes similar network cameras that receive activation signals while in a sleep state).

Accordingly, a POSITA would have found it obvious to apply Huisking's known technique of establishing a communication session between a doorbell and a mobile device when the mobile device wakes up to Siminoff's doorbell system (as modified by Imao) because the combination amounts to applying a known technique to a video doorbell ready for improvement. RING-1003, ¶ 91. The combination would yield the predictable and beneficial result of the Wireless Communication Doorbell waking and activating the camera in response to the Smart Device waking and sending an activation signal consisting of a communication session. *Id*.

4. Detailed Analysis

The following describes how Siminoff in view of Imao and Huisking renders obvious each and every element of claims 20 and 21 of the '109 Patent. A corresponding claim chart is contained in Dr. Madisetti's declaration. *See* RING-1003, pp. 94-115.

Claim 20

[20.0] ***"A method of using a doorbell system, wherein the doorbell system comprises a remote computing device and a doorbell having a doorbell camera, the method comprising:"***

Siminoff discloses this limitation as discussed in the context of claim element [1.0]. *See* RING-1003, pp. 94-95.

[20.1] ***"sending a first signal from the remote computing device to the doorbell in response to waking the remote computing device prior to opening a doorbell control application on the remote computing device; and"***

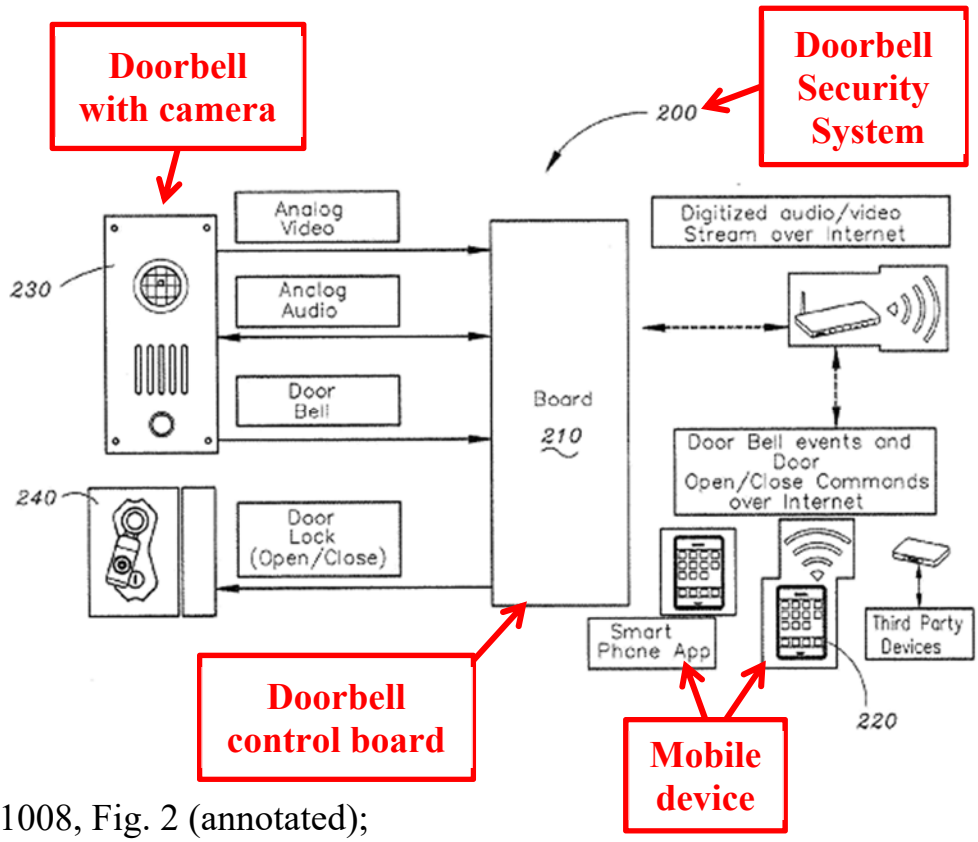
Siminoff in view of Imao and Huisking renders obvious this limitation.

First, as discussed above in association with claim elements [1.5] and [7.4], Siminoff teaches that several different activation triggers—including a signal from a remote device, such as a smartphone—can bring the Wireless Communication Doorbell out of the low power/hibernation mode. RING-1005, claim 1, ¶¶ [0046], [0066], [0076], [0079], [0088]-[0089], Figs. 12 and 15.

Second, as also discussed in association with claim element [7.4], a POSITA would have found it obvious in view of Imao that Siminoff's activation signal may be a communication session request from a mobile device. RING-1007, 17:8-36, 17:54-18:17; RING-1003, p. 96.

With respect to the types of actions on a mobile device that could trigger the request for a communication session, Huisking illustrates that it was well known in the video doorbell art that waking up a mobile device by turning it on was such an action. Specifically, Huisking describes "a doorbell security system configured to

send … user doorbell notifications on a mobile computing device" such as a "smartphone" running an application. RING-1008, ¶¶ [0026], [0046]. Huisking also teaches that its doorbell system includes "an audio/video intercom doorbell" with "a camera, a microphone, a speaker, and one or more doorbell user interface" and also a control board to facilitate communication between the doorbell and mobile device. *Id*. ¶¶ [0037]-[0038]. The doorbell, camera, mobile computing device, and control board are illustrated in Fig. 2 of Huisking, annotated below



RING-1008, Fig. 2 (annotated);
RING-1003 p. 98

Huisking teaches that a communication session is started between the doorbell and the mobile device when the mobile device is powered on so that the two can communicate:

> A doorbell press event notification may be transmitted as data over an SIP connection between the doorbell security system board 210 and a registered iOS 4 device 220. ***The SIP connection may be established when the registered mobile computing device 200 (installed with the application) is powered on***.

RING-1008, ¶ [0083] (emphasis added). Huisking explains that the SIP communication session is established when the smartphone is powered on by "starting the application and running it in the background" (*i.e.,* before the application is opened by a user). RING-1008, ¶ [0085] (emphasis added); RING-1003, ¶ 81.

Accordingly, in Huisking's doorbell system, the mobile device establishes a communication session with the doorbell in response to the device waking up and starting—but not opening—an application so that the mobile device can communicate with the doorbell. RING-1008, ¶ [0062]; RING-1003, p. 101. As Dr. Madisetti explains in his declaration, a POSITA would have understood that powering on a mobile device includes waking the device. RING-1003, pp. 101-103 (citing RING-1013 and RING-1001).

As discussed above in Section VII(C)(3), a POSITA would have found it obvious to apply Huisking's technique to the combination of Siminoff and Imao to yield the predictable result of Siminoff's doorbell activating upon receiving an activation signal that is a communication session sent from the Smart Device upon powering on and waking up. RING-1003, p. 103.

Thus, sending an activation signal from a remote communication device, as taught by Siminoff, in view of Imao's teaching of sending a communication session to activate a network camera, in view of Huisking's technique of establishing a communication session in response to a mobile device waking up and starting an application in the background, renders obvious "sending a first signal from the remote computing device to the doorbell in response to waking the remote computing device prior to opening a doorbell control application on the remote computing device." *See* RING-1003, pp. 95-103.

[20.2] *"**exiting, by the doorbell, in response to the first signal, a camera sleep mode in which the doorbell camera is configured to not record and entering a camera recording mode,"***

This claim element is substantially similar to claim element [7.4], which recites exiting the camera sleep mode in response to a "communication session." Imao's teaching of receiving a request for a TCP communication session discussed in association with claim element [7.4] is also applicable to this claim element. Accordingly, for the reasons discussed in association with claim element [7.4],

Siminoff in view of Imao renders obvious this limitation. *See* RING-1003, pp. 103-114.

[20.3] "***wherein the camera recording mode consumes more power than the camera sleep mode.***"

Siminoff discloses this limitation as discussed above in the context of claim element [1.6]. *See* RING-1003, p. 114.

Claim 21

"The method of claim 20, further comprising recording, by the doorbell camera, a first video in response to the first signal."

Siminoff in view of Imao and Huisking renders obvious this limitation. As explained above in association with claim element [7.4], Siminoff teaches that the Wireless Communication Doorbell captures video for streaming to its Smart Device in response to at least some of the activation triggers that bring the doorbell out of the hibernation mode. RING-1005, ¶¶ [0046], [0066], [0076], [0086].

To the extent Siminoff does not explicitly teach that the camera is activated and begins recording upon receiving the signal-based activation trigger from the remote computing device (recited in claim 1), it was well known before the '109 Patent for a network camera to wake up and begin recording when it receives a communication session over a wireless network from a mobile device, as taught by Imao and explained in association with claim element [7.4]. RING-1007, 17:4-36, 17:54-18:3, Fig. 15; RING-1003, p. 115.

As discussed above in Section VII(B)(2), a POSITA would have found it obvious to combine Imao's method of remotely activating camera recording upon receiving a communication session with Siminoff's video doorbell system, such that the Wireless Communication Doorbell records a video when it receives the activation signal. *See* RING-1003, p. 115

Thus, the Wireless Communication Doorbell camera recording video for streaming to the smart device in response to the doorbell waking from a hibernation mode, as taught by Siminoff, in view of recording streaming video by a camera system for providing to a mobile device in response to receiving a communication from the mobile device, as taught by Imao, renders obvious "recording, by the doorbell camera, a first video in response to the first signal." *See* RING-1003, pp. 114-115.

D. Challenge #4: Claim 15 is invalid under 35 U.S.C § 103 over Siminoff '618 in view of Huisking

1. Summary of Siminoff '618

Siminoff '618 is a parent application to the Siminoff application applied in Challenges #1-3, where both applications include the same figures 1-19 and corresponding disclosure. Siminoff '618 includes claims not found in Siminoff.

As discussed in association with Challenges #1-3, Siminoff teaches a variety of activation triggers that bring the Wireless Communication Doorbell out of

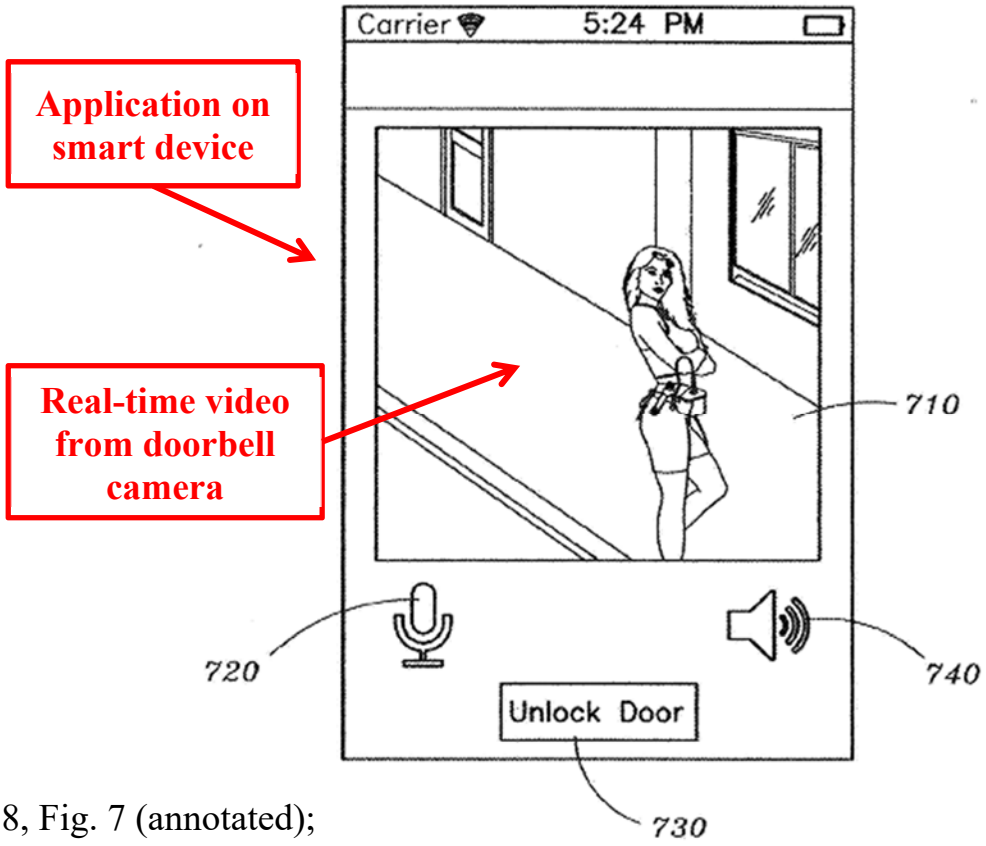
hibernation mode. In addition to the activation triggers described in Siminoff, Siminoff '618 describes another activation trigger involving the application running on the Smart Device. Specifically, claims 1 and 2 of Siminoff '618 recite switching the doorbell "from low-power mode to active mode in response to an activation trigger" where "the activation trigger includes . . . ***activation of an application running on a remote device***." RING-1009, claims 1 and 2 (emphasis added).

To the extent Siminoff '618 does not explicitly teach that this application-based activation trigger includes sending a *signal* to the doorbell in response to activating the control application, and that the doorbell camera enters a recording mode when the doorbell is activated (as it does in response to the other activation triggers), these concepts were well known prior to the earliest alleged priority date of the '109 Patent, as illustrated by Huisking below. RING-1003, ¶ 98.

2. Summary of Huisking

As discussed above in association with Challenge #3, Huisking is directed to a video doorbell and connected mobile computing device. RING-1008, ¶ [0026]. Huisking teaches that an "application" is installed on the mobile computing device, and that once "the application is invoked, the user may be able to view the video (H.264, MJPEG) being captured by the camera installed with the doorbell unit…." RING-1008, ¶ [0046], [0048]. As an aspect of this, when the application opens, an

"HTTP request" is sent to the video doorbell system, which responds with a "sequence of digital video frames" that is played for a user. *Id*. ¶¶ [0097]-[0098] ("When the application starts, an HTTP request may be sent to the board 210 which may respond with the web page containing a video frame (first in a sequence of digital video frames) compressed as a JPEG image.").



RING-1008, Fig. 7 (annotated);
RING-1003, ¶ 99

3. Reasons to Combine Siminoff '618 and Huisking

For the reasons set forth below, a POSITA would have found it obvious, beneficial, and predictable to implement Huisking's technique in the context of Siminoff '618, such that when the application on the Smart Device is activated (as

recited in claims 1 and 2), a signal is transmitted to the Wireless Communication Doorbell that not only brings it out of hibernation but also triggers the camera to begin recording. RING-1003, ¶¶ 100-108.

As an initial matter, a POSITA when considering the teachings of Siminoff '618 would have also considered the teachings of Huisking, as they are both directed to wireless video doorbell systems that stream video to a mobile device. RING-1009, ¶ [0062]; RING-1008, ¶ [0048]; RING-1003, ¶ 101. A POSITA looking to implement and improve upon the system of Siminoff '618 would naturally refer to literature describing similar devices with the same purpose in the same field, and would thus naturally look to Huisking. RING-1003, ¶ 101.

With respect to implementing and improving Siminoff '618, Siminoff '618 teaches that its Wireless Communication Doorbell may be switched from the low-power hibernation mode to an active mode in response to "activation of an application running on a remote device." RING-1009, claims 1 and 2. Siminoff '618 does not describe the communication between the remote device and doorbell during such activation, but a POSITA would find it obvious that some type of signal is transmitted to the doorbell when the application is activated in order to wake the doorbell up and activate the camera. RING-1003, ¶ 102. For example, this is how other video doorbell systems in the art operated, as illustrated by Huisking and discussed above. RING-1008, ¶ [0062]; *see also id*. ¶¶ [0097],

[0098]. For the reasons below, a POSITA would have been motivated to apply Huisking's known video doorbell technique to the Wireless Communication Doorbell of Siminoff '618 to yield the predictable result of Siminoff's Smart Device sending a signal (*e.g.*, an HTTP request) to the doorbell when the application is opened and the doorbell's camera activating and recording video to be displayed in the application on the mobile device. RING-1003, ¶ 102.

First, a POSITA would have been motivated to pursue such a combination because it would have furthered Siminoff's goal of allowing users to "see who is within view of Wireless Communication Doorbell 61 at any given time" in a reduced amount of time. RING-1009, ¶ [0062]; RING-1003, ¶ 103. Specifically, modifying Siminoff's doorbell camera to activate and stream video upon opening the application on the Smart Device reduces the number of steps (and time) required before a user can see who is at the door. RING-1003, ¶ 103. In that regard, lowering response time for remote viewing of surveillance cameras was a common concern in the home security field for which POSITAs were actively developing solutions. *See id*. (citing RING-1007). Additionally, artisans in the home security field knew that instant access to streaming video of the area around a front door provided an out-of-town home owner "with peace of mind." *See* RING-1006, ¶ [0005]; RING-1003, ¶ 104.

Second, as discussed above, another stated goal of Siminoff's disclosure is reduced power consumption of video doorbells. *See* RING-1009, ¶ [0073] (teaching that in hibernation mode "components that draw power from Battery 24 … do not waste battery power when not in use."). In that regard, the above combination would allow the doorbell to save power in hibernation mode, but, at the same time, allow a user to selectively request a video stream of the area around the doorbell by activating the application. RING-1003, ¶ 105. A hybrid doorbell solution that provides both a low power mode and on-demand streaming would consume less power than, for example, doorbell systems that remained fully-powered at all times in order to provide the same streaming service. *Id*.

A POSITA would find this modification to Siminoff '618 predictable and likely to result in success because Siminoff's doorbell system is meant to work with "any electronic device capable of receiving and transmitting data via the internet" such as a "smartphone," and utilizes "off the shelf" internal components and standardized transmission protocols. RING-1009, ¶¶ [0047], [0060], [0062]; RING-1003, ¶ 106. Like Siminoff, Huisking contemplates the use of any mobile device such as a smartphone that is connected to the internet using "standard communication protocols such as HTTP." RING-1008, ¶¶ [0026], [0054]; RING-1003, ¶ 106. Substituting and modifying standardized and interchangeable components within a system such as Siminoff's would have been well within the

skill of a POSITA in 2014. RING-1003, ¶¶ 106-107 (citing RING-1011, which describes similar network cameras that receive activation signals while in a sleep state).

Accordingly, a POSITA would have found it obvious to apply Huisking's known technique of initiating a doorbell video stream in response to opening an application on a mobile device to Siminoff's Wireless Communication Doorbell because the combination amounts to applying a known technique to a video doorbell ready for improvement. RING-1003, ¶ 108. Such a combination yields the predictable and beneficial result of Siminoff's doorbell waking up and immediately streaming video upon activation of the application on the remote device. *Id*.

4. Detailed Analysis

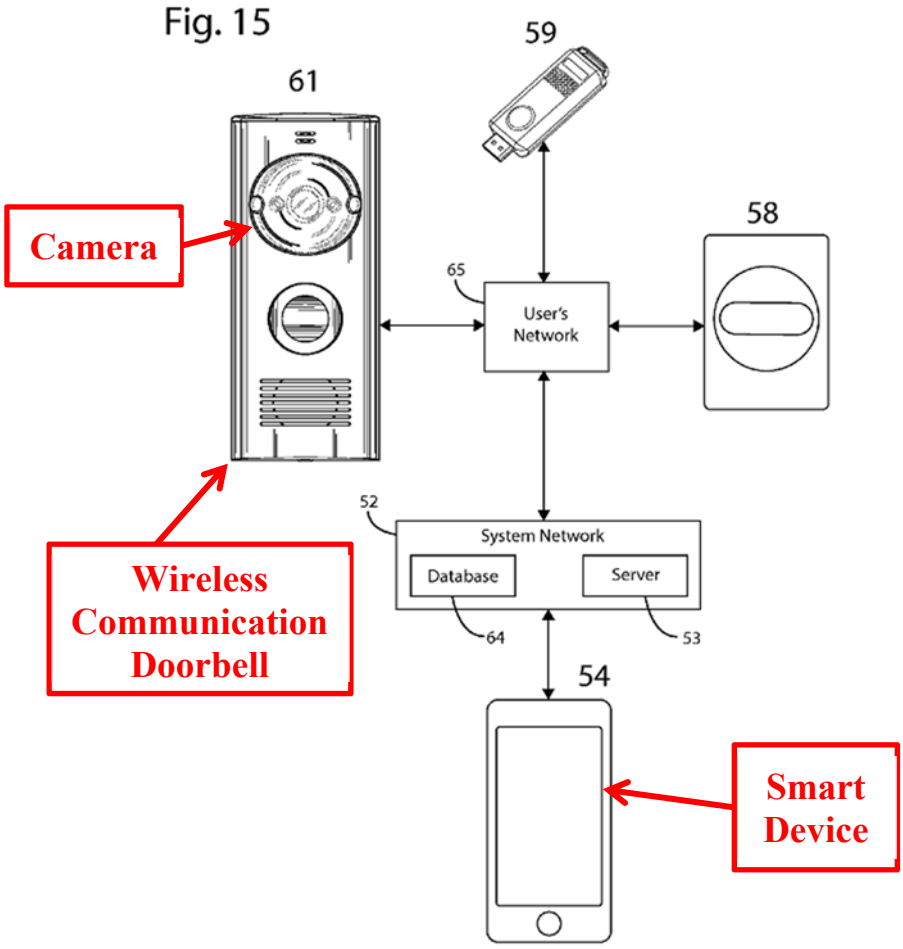
The following describes how Siminoff '618 in view of Huisking renders obvious each and every element of claim 15 of the '109 Patent. A corresponding claim chart is contained in Dr. Madisetti's declaration. *See* RING-1003, pp. 124-147.

Claim 15

[15.0] ***"A method of using a doorbell system, wherein the doorbell system comprises a remote computing device and a doorbell having a doorbell camera, the method comprising:"***

Just like Siminoff, Siminoff '618 teaches a method of using a doorbell system that includes a Smart Device, such as a smartphone, and a Wireless

Communication Doorbell with a camera, as shown in Fig. 15 (annotated below). RING-1009, ¶ [0071]; RING-1003, p. 124-128.



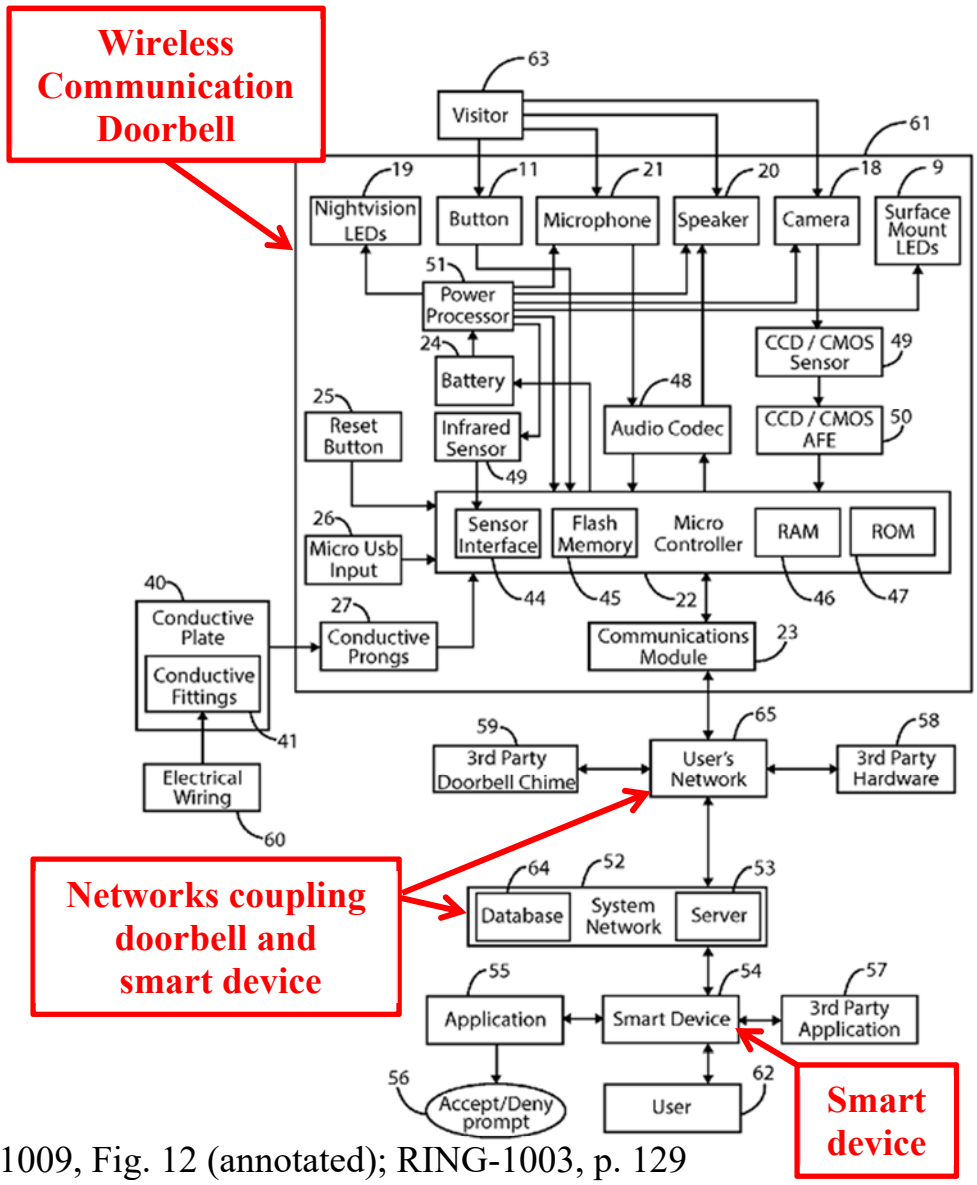
RING-1009, Fig. 15 (annotated); RING-1003, p. 125.

Siminoff '618 teaches that the smart device "may be any electronic device capable of receiving and transmitting data via the internet" including "smartphones." RING-1009 ¶ [0062].

[15.1] ***"coupling communicatively the doorbell and the remote computing***

device"

Siminoff '618 teaches communicatively coupling the Wireless Communication Doorbell and the smart device via a "wireless telecommunications network" (System Network 52) and a wireless User's Network 65, as illustrated in Fig. 12 (annotated below). RING-1009, ¶¶ [0060]-[0061], [0071]; *see also* RING-1003, pp. 128-131.



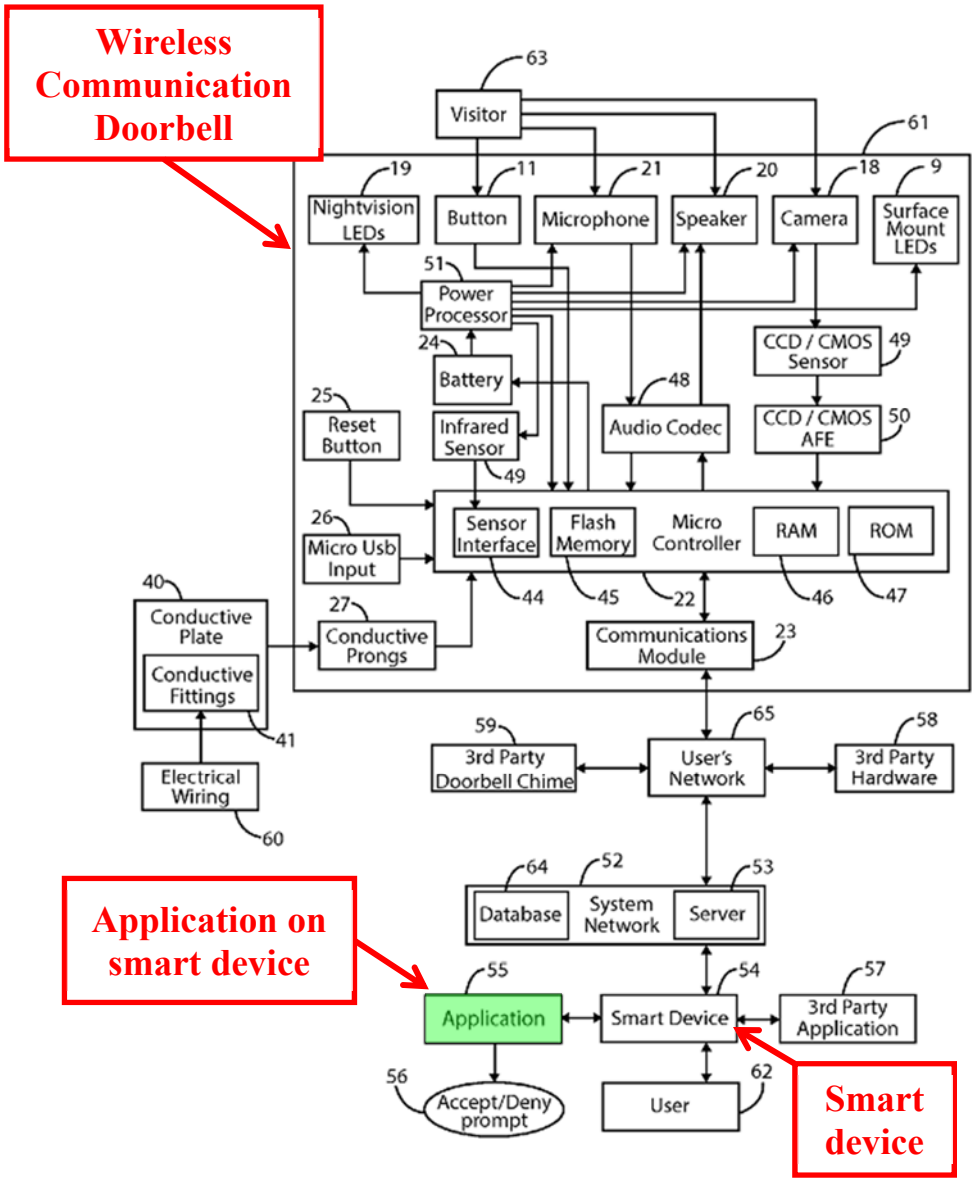
RING-1009, Fig. 12 (annotated); RING-1003, p. 129

[15.2] ***"detecting, by the doorbell system, an indication of a presence of a visitor"***

Siminoff '618 teaches that the Wireless Communication Doorbell detects the presence of a visitor with a doorbell button push or with an infrared sensor. RING-1009, ¶ [0049]; RING-1003, pp. 131-132. For example, "the transmission of data to and from Wireless Communication Device to a Smart Device … may be initiated when the Visitor 63 presses Button 11 of Wireless Communication Doorbell 61." RING-1009, ¶ [0069]; *see also id*. ¶¶ [0028]-[0029], Fig. 14. As another example, an "[i]nfrared Sensor 42 may trigger Camera 18 to record live video or still images of Visitor 63 when Visitor 63 crosses the path of the Infrared Sensor 42." *Id*. ¶ [0029].

[15.3] "***opening a doorbell control application on the remote computing device***"

Siminoff '618 teaches that the "Application 55 may be installed on Smart Device 54 and provide an interface for User 62 to communicate and interact with Wireless Communication Doorbell 61." RING-1009, ¶ [0063]; *see also id*. ¶ [0059]. The Application on the smart device is illustrated in Fig. 12 of Siminoff '618, annotated below.



RING-1009, Fig. 12 (annotated); RING-1003, p. 134

The Application allows the user to, among other things, "view still images or video taken by Wireless Communication Doorbell 61," "focus or zoom Camera 18," and communicate with a visitor. RING-1009, ¶¶ [0059], [0063]. A POSITA would have understood that the application is opened on the smart device to allow the user to view images or video and to control the doorbell. RING-1003, p. 134-

136 (citing RING-1012).

Thus, opening and interacting with an application on the smart device to communicate with the Wireless Communication Doorbell, as taught by Siminoff '618, discloses "opening a doorbell control application on the remote computing device." *See* RING-1003, pp. 132-136.

[15.4] "***sending, automatically, a first signal from the remote computing device to the doorbell in response to opening the doorbell control application***"

Siminoff '618 in view of Huisking renders obvious this limitation. First, Siminoff '618 teaches that several different activation triggers can bring the Wireless Communication Doorbell out of the low power/hibernation mode. RING-1009, claims 1, 2, ¶¶ [0029], [0049], [0059]. One of these activation triggers is "activation of an application running on a remote device." RING-1009, claims 1 and 2. To the extent Siminoff '618 does not explicitly teach that the activation trigger is sent as a "signal" from the remote device to the Wireless Communication Doorbell when the application is opened, it was well known before the '109 Patent for a remote device, such as a smartphone, to send a signal to a video doorbell when an application is opened so that the user can begin viewing video from the doorbell. RING-1003, p. 138.

For example, Huisking teaches that its "doorbell security system" includes an "application" installed on a mobile computing device such as a smartphone, and that once "the application is invoked, the user may be able to view the video

(H.264, MJPEG) being captured by the camera installed with the doorbell unit." RING-1008, ¶¶ [0036], [0046], [0048]. As an aspect of this, when the application opens, an "HTTP request" is sent to the video doorbell system, which responds with a "sequence of digital video frames" that is played for a user:

> For MJPEG over HTTP, the video view port on the screen of the iOS 4/iOS 3 mobile computing device 220 may be a web browser control. ***When the application starts, an HTTP request may be sent to the board 210 which may respond with the web page containing a video frame (first in a sequence of digital video frames)*** compressed as a JPEG image…. This process creates the effect of a motion picture. The connection may remain open as long as the browser control wants to receive new frames and the board wants to send new frames.

RING-1008, ¶ [0097]; *see also id*. ¶ [0098]. Huisking further teaches that, when a control application is "brought to the foreground," "[t]he mobile computing device application may subsequently initiate an http (HyperText Transfer Protocol)/RTP (Realtime Transport Protocol) session with the board to download the video." RING-1008, ¶ [0062]; *see also id*. ¶ [0065].

As discussed above in Section VII(D)(3), a POSITA would have found it obvious to implement Huisking's technique in the context of Siminoff '618, such that when the application on the Smart Device is activated (as recited in claims 1 and 2), a signal is transmitted to the Wireless Communication Doorbell that not

only brings it out of hibernation but also triggers the camera to begin recording, so that a user can immediately begin viewing video from the doorbell camera on the Smart Device. RING-1003, p. 141.

Thus, the activation trigger received by the Wireless Communication Doorbell in response to activating an application on a remote device, as taught by Siminoff '618, in view of Huisking's teaching of automatically sending an HTTP request signal from a remote device to a wireless doorbell in response to opening an application on the remote device, renders obvious "sending, automatically, a first signal from the remote computing device to the doorbell in response to opening the doorbell control application." *See* RING-1003, p. 136-141.

[15.5] "***exiting, by the doorbell, in response to the first signal, a camera sleep mode in which the doorbell camera is configured to not record and entering, by the doorbell, a camera recording mode***"

Siminoff '618 in view of Huisking renders obvious this limitation. First, with respect to the recited "camera sleep mode," Siminoff '618 teaches that the Wireless Communication Doorbell enters a "hibernation" mode during which the camera is inactive and does not record images or video. RING-1009, ¶ [0073]. Siminoff explains that "all hardware components within Wireless Communication Doorbell 61 may live in a state of hibernation" until activated. *Id*.; *see also id*. ¶¶ [0069]-[0070]. Siminoff calls this state of hibernation "a low power consumption mode." *Id*. ¶ [0070], Abstract. The hibernation mode is advantageous because "all

components that draw power from Battery 24, such as … Camera 18 do not waste battery power when not in use." *Id*. ¶ [0073].

Second, with respect to the state of the camera during the low power consumption mode, Siminoff teaches that the camera is inactive and without power until activated by an activation trigger. *See* RING-1009, ¶¶ [0059] ("In reference to FIG. 12, after Button 11 is pressed, Power Processor 51 may *provide the power to activate Camera 18* …." (emphasis added)), [0029], [0046], [0049], Abstract. Accordingly, when Siminoff's Wireless Communication Doorbell is in hibernation mode/low-power mode, the camera is in a sleep mode and configured not to record, because, in order for it to record an image, it must first be provided power and activated, for example, in response to an activation trigger. RING-1003, p. 144.

Third, with respect to the recited "exiting, by the doorbell, in response to the first signal, a camera sleep mode," Siminoff '618 teaches that one type of activation trigger that brings the doorbell out of hibernation mode is generated upon "activation of an application running on a remote device," as discussed above. RING-1009, claims 1 and 2, ¶¶ [0029], [0049], [0056]. And, as also discussed above, a POSITA would have found it obvious in view of Huisking that this activation trigger may include a signal sent to the doorbell when the application on the remote device is opened. RING-1003, p. 144.

To the extent Siminoff '618 does not explicitly teach that the doorbell camera begins recording when the activation trigger is received from a remote device, it was well known before the '109 Patent for a camera system to capture and provide a video to a mobile device in response to a signal generated when an application is opened on the mobile device for purposes such as on-demand viewing of camera images by the user. RING-1003, p. 144.

For example, Huisking teaches that in response to the application being opened on its mobile device and the HTTP request being sent to the doorbell camera, real-time video from the camera is streamed to the remote device:

> For MJPEG over HTTP, the video view port on the screen of the iOS 4/iOS 3 mobile computing device 220 may be a web browser control. ***When the application starts, an HTTP request may be sent to the board 210 which may respond with the web page containing a video frame (first in a sequence of digital video frames) compressed as a JPEG image. …*** This process creates the effect of a motion picture.

Id. ¶ [0097].

> For H.264 over RTP/RTSP or HTTP protocols, the video view port on the screen may be a media player control. ***When the application starts, the media player may start downloading and playing the video file*** specified by a URL that points to the location where the board is continuously creating short video files from the camera output.

Id. ¶ [0098].

As discussed above in Section VII(D)(3), a POSITA would have found it obvious to implement Huisking's technique in Siminoff's video doorbell system so that when the doorbell application on Siminoff's smart device is activated and the activation trigger is sent to the Wireless Communication Doorbell to wake it up, real-time video would be streamed to the smart device for immediate viewing by the user. RING-1003, p, 145.

Thus, waking a Wireless Communication Doorbell from a hibernation mode, in which the camera is without power and does not record images, via an activation trigger when an application is opened, as taught by Siminoff '618, in view of a wireless doorbell, in response to receiving an HTTP request, capturing and streaming a video to a mobile device when an application is opened, as taught by Huisking, renders obvious "exiting, by the doorbell, in response to the first signal, a camera sleep mode in which the doorbell camera is configured to not record and entering, by the doorbell, a camera recording mode." *See* RING-1003, pp. 141-145.

[15.6] ***"wherein the camera recording mode consumes more power than the camera sleep mode."***

Siminoff '618 discloses this limitation because it teaches that when the components of the Wireless Communication Doorbell are in a "state of hibernation" and inactive, the doorbell is in a "low power consumption mode" (*i.e.*, a mode that consumes less power) as compared to the doorbell's "active mode."

RING-1009, ¶¶ [0073], [0070], Abstract. In the hibernation mode "all components that draw power from Battery 24 … ***do not waste battery power when not in use***." RING-1009, ¶ [0073] (emphasis added). In contrast, when the Wireless Communication Doorbell exits the hibernation mode, "it may activate all components," which may include "***provid[ing] the power to activate Camera 18*** …." *Id.* ¶¶ [0073], [0059] (emphasis added); *see also id*. ¶¶ [0029], [0049], [0059]-[0070], Abstract; RING-1003, p.147.

Thus, the active mode, in which the camera is recording, consumes more power than the hibernation/low-power consumption mode, in which the camera is inactive, as taught by Siminoff '618, discloses "wherein the camera recording mode consumes more power than the camera sleep mode." *See* RING-1003, pp. 145-147.

VIII. CONCLUSION

For the reasons set forth above, Petitioner has established a reasonable likelihood that claims 1, 7, 15, 20, and 21 of the '109 Patent are unpatentable. Petitioner requests institution of an *inter partes* review and cancellation of these claims.

Respectfully submitted,

Dated: December 17, 2018

/Scott T. Jarratt/

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CERTIFICATE OF WORD COUNT

Pursuant to 37 C.F.R. §42.24(d), Petitioner hereby certifies, in accordance with and reliance on the word count provided by the word-processing system used to prepare this petition, that the number of words in this paper is 13,972. Pursuant to 37 C.F.R. §42.24(d), this word count excludes the table of contents, table of authorities, mandatory notices under §42.8, certificate of service, certificate of word count, appendix of exhibits, and any claim listing.

Dated: December 17, 2018

/Scott T. Jarratt/
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PETITIONER'S EXHIBIT LIST

December 17, 2018

RING-1001	U.S. Patent No. 9,179,109
RING-1002	Prosecution History of U.S. Patent No. 9,179,109
RING-1003	Declaration of Vijay Madisetti, Ph.D., Under 37 C.F.R. § 1.68
RING-1004	Curriculum Vitae of Vijay Madisetti, Ph.D.
RING-1005	U.S. Patent Application Publication No. 2015/0022620 to Siminoff ("Siminoff")
RING-1006	U.S. Patent Application Publication No. 2014/0267740 to Almomani ("Almomani")
RING-1007	U.S. Patent No. 7,809,966 to Imao ("Imao")
RING-1008	U.S. Patent Application Publication No. 2013/0057695 to Huisking ("Huisking")
RING-1009	U.S. Patent Application Publication No. 2015/0022618 to Siminoff ("Siminoff '618")
RING-1010	Wayback Machine archived webpage, "ENFORCER® DP-236Q Wireless Video Door Phone Manual," archived October 13, 2014, https://web.archive.org/web/20141013231309/http://www.seco-larm.com:80/pdfs/Mi-DP-236Q_1403.pdf ("Enforcer Manual")
RING-1011	WIPO Publication No. 2014/144628 to Smith et al. ("Smith")
RING-1012	Wayback Machine archived webpage, "Ring Video Doorbell for your Smartphone|Ring," archived December 25, 2014, https://web.archive.org/web/20141225095749/https://ring.com/ ("Ring.com")
RING-1013	U.S. Patent No. 8,224,311 to Majmundar ("Majmundar")
RING-1014	Select pages from: Harry Newton, Newton's Telecom Dictionary (19th ed. 2003) ("Newton's Telecom Dictionary")

CERTIFICATE OF SERVICE

The undersigned certifies that, in accordance with 37 C.F.R. § 42.6(e) and 37 C.F.R. § 42.105, service was made on Patent Owner as detailed below.

Date of service	December 17, 2018
Manner of service	FEDERAL EXPRESS
Documents served	Petition for *Inter Partes* Review of U.S. Patent No. 9,179,109 Certificate of Word Count Petitioner's Exhibit List Exhibits RING-1001 through RING-1014
Persons served	Schwie Law, LLC 445 Minnesota St Suite 1500 St. Paul MN 55101

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