

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

AMAZON.COM SERVICES LLC,

Petitioner,

v.

SMART SPEAKER LLC,

Patent Owner.

Patent No. 12,010,174
Filing Date: August 23, 2021
Issue Date: June 11, 2024

Inventors: Yehuda Binder and Benjamin Maytal
Title: SYSTEM AND METHOD FOR SERVER BASED CONTROL

PATENT OWNER'S RESPONSE

Case No. IPR2026-00147

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LIST OF EXHIBITS

Exhibit No.	Description of Document
2001	Plaintiff's Disclosure of Asserted Claims and Infringement Contentions in <i>Smart Speaker LLC v. Amazon.com Servs. LLC</i> , Case No. 2:25-cv-00707-JRG (E.D. Tex.), dated September 16, 2025
2002	Defendant's Invalidity and Subject Matter Eligibility Contentions in <i>Smart Speaker LLC v. Amazon.com Servs. LLC</i> , Case No. 2:25-cv-00707-JRG (E.D. Tex.), dated December 9, 2025
2003	Federal Register, Vol. 90, No. 199, dated Friday, October 17, 2025
2004	Second Amended Docket Control Order (Dkt. 33) in <i>Smart Speaker LLC v. Amazon.com Servs. LLC</i> , Case No. 2:25-cv-00707-JRG (E.D. Tex.), dated October 29, 2025
2005	Letter to Amazon.com, Inc. re May Patents Ltd. Patent Portfolio, dated July 23, 2024
2006	Appeal Statistics, Patent Trial and Appeal Board, dated October 31, 2025
2007	Patent Trial and Appeals Board (PTAB) data at a glance December 2025
2008	Declaration of Dr. Michael Shamos

I. INTRODUCTION

On November 21, 2025, Amazon.com Services LLC (“Petitioner”) filed a petition (Paper 2, “Petition” or “Pet.”) for *inter partes* review of U.S. Patent No. 12,010,174 (EX1001, the “’174 Patent”), challenging Claims 1-29 (the “Challenged Claims”) as obvious across sixteen grounds resting on two prior-art foundations: Lim (EX1005) for Grounds 1-8, and the combination of Williams (EX1006) and Lim for Grounds 9-16. Trial has been instituted on all grounds. Patent Owner Smart Speaker LLC (“Patent Owner”) submits this Response, supported by the Declaration of Dr. Michael Shamos (Ex. 2008), and respectfully requests that the Board issue a final written decision confirming the patentability of all Challenged Claims.

First, Grounds 1-8 rely on Lim as the primary reference, but Lim does not disclose a server that “*produce[s] first and second messages respectively in response to the processing*” of captured human voice data. Lim’s remote server 500 is a speech-recognition engine: it converts spoken syllables into a recognition result, and the client device’s own pre-programmed app logic determines what happens next. A recognition output that feeds the client device’s local decision tree is not a server-produced “*message*” to which the system responds by operating an actuator. The Petition’s alternative mapping—Lim’s “command code data”—fares no better: that data is a pre-existing entry in a codeset library that the server merely retrieves and transmits, not a message “*produce[d]*” “*in response to the processing*” of voice data,

and FIG. 6, the workflow on which the theory rests, contains no server at all. And the Petition concedes the gap by reaching to three references outside Ground 1 to establish that servers “routinely” returned speech-processing results. Ex. 2008, ¶¶ 45-55.

Second, Grounds 9-16 rely on the Williams-Lim combination, but Williams’s “services 218” are the delivery of informational content—*e.g.*, ordering groceries, identifying songs, or answering questions—not a server-produced “*second message*” that causes the system “*to operate the second actuator in the controlled device in response to the received second message.*” Williams’s sole mention of device control, in a single aspirational sentence pair of paragraph [0051], discloses no server-to-device messaging path or function. The Petition concedes the gap by inserting the parenthetical “(e.g., a control message)” and reaching to three references outside Ground 9 to supply the concept of a control “*message*,” converting what is presented as a two-reference ground into a five-reference combination. And the Petition’s fallback—a “relay” redesign in which Williams’s server routes control information through the client device “as taught by Lim”—rests on nothing more than “obvious to try” and other conclusory assertions. Ex. 2008, ¶¶ 57-66.

Third, the grounds directed to the dependent claims, Grounds 2-8 and 10-16, each fail for additional and independent reasons. None of the **seven** secondary

references is cited for or remedies the defects of the two grounds directed at the independent claim. Further, the dependent-claim grounds add defects of their own. The Petition repeatedly reaches outside its stated grounds to purportedly supply claimed elements—*e.g.*, the claimed sensor types from Fraden, the claimed device addresses from Doherty, Roberts, Johnson, and Shimonski, cellular-connected home appliances from Wang, and the claimed “*sounder*” from Sinclair. Additionally, the motivations to combine are merely generic assertions, *e.g.*, “obvious to try,” “expanding the capabilities,” “improve the usability,” without the articulated, reference-grounded reasoning the law requires. And several of the mappings do not address the actual claim language at all, *e.g.*, Claim 3’s requirement that “*the first message is sent by the server in response to the sensor data,*” and Claim 8’s requirement that the claimed microphones array be “*operative to estimate*” specified parameters. Ex. 2008, ¶¶ 69-89.

As every ground rests on one of these two defective foundations, because the missing limitations are common to every Challenged Claim, and because the grounds directed to the dependent claims independently fail, Petitioner has not proven that any Challenged Claim is unpatentable.

II. THE ’174 PATENT

The ’174 Patent, titled “System and Method for Server Based Control,” issued on June 11, 2024, from an application filed on August 23, 2021, and claims priority

to a provisional application filed on January 9, 2012, which Petitioner treats as the earliest effective filing date only for purposes of this proceeding. Pet. at 3. Independent Claim 1 recites “[a] system for operating multiple actuators in response to captured human voice data,” for use with “a wireless network in a building” and “a controlled device that comprises a second actuator in the building.” The system comprises “an Internet-connected server device external to the building,” “a client device in the building,” “a microphone in the client device,” and “a first actuator in the client device.” ’174 Patent, Claim 1; Ex. 2008, ¶¶ 26-27.

Claim 1 requires the server to be “configured for processing first and second human voice data, and to produce first and second messages respectively in response to the processing.” The system must be “operative for sending to the server by the client device via the wireless network, the captured first and second human voice data,” and “further operative for receiving from the server the first and second messages in response to the sending, to operate the first actuator in the client device in response to the received first message, and to operate the second actuator in the controlled device in response to the received second message.” ’174 Patent, Claim 1. In each sequence, the claimed “message” is produced by the server in response to its processing of captured voice data, and the received message is what causes the operation of the corresponding actuator; the “second message” operates an actuator in a different device—the “controlled device”—than the client device that captured

the command. Ex. 2008, ¶ 28.

The specification describes this networked control architecture. As the Petition acknowledges, the specification describes “a router,” a first device in the building “operative to transmit a digital data corresponding to the sensed voice to the router,” and a second device that “may be operative to execute actuator commands received from the router,” with a “control server” that “may be operative to produce actuator commands in response to [a] voice processor output”; FIG. 19 depicts a high-level flowchart of a “controller involving voice processing.” Pet. at 2-3 (quoting ’174 Patent, 32:25-38, 32:63-64, 32:57-33:13, 55:64-65). The specification also identifies a display as an exemplary actuator: “[a]n actuator may be a display for presentation of visual data or information, commonly on a screen.” ’174 Patent, 25:33-38. Ex. 2008, ¶ 29.

III. THE CITED PRIOR ART

A. Lim (EX1005)

Lim describes methods for the setup and configuration of “controlling devices such as universal remote controls.” EX1005, [0007]. To that end, “a controlling device may be provisioned with means to receive voice input from a user, e.g., a microphone,” so that in a setup mode the device “may solicit spoken appliance descriptive information, for example brand and model number,” to be matched to command data. *Id.* In the FIG. 4 setup workflow, “at step 402 the controlling device

may prompt the user to speak the brand name of the appliance,” and “[t]his and subsequent prompts for voice input may take the form of an illuminated LED and/or ‘speak’ symbol, a displayed text or image, a synthesized spoken message” and the like. *Id.*, [0027]. “The resulting spoken syllables may be digitized and presented to a speech recognition means for processing,” and “all or part of said speech recognition processing . . . may be performed by programming resident on a remote server 500 accessible via a network 502 such as the Internet or PSTN,” to which “access . . . may be . . . via a local network connection 508, such as WiFi or Bluetooth, through a gateway device such as a router (not illustrated).” *Id.* Ex. 2008, ¶¶ 30-31.

Once an appliance has been identified, the corresponding “command code data”—“data which serves to define the necessary control protocols and command values for use in transmitting command signals to controllable appliances”—may be provisioned to the controlling device, including by “downloading of a complete set of command code data into the controlling device from an off-platform database of codesets located” for example “on a remote server 500.” EX1005, [0020], [0030]. In use, “the controlling device 100 may be capable of transmitting commands to the appliances, using any convenient IR, RF, Point-to-Point, or networked protocol 120, to cause the appliances to perform operational functions.” *Id.*, [0017]. Lim’s FIG. 6 operational workflow is discussed in Section VI.A below. Ex. 2008, ¶¶ 32-33.

B. Williams (EX1006)

Williams describes an audio-based system for a home in which an interface device 116 captures audio and conveys audio-based information over a network 114, which “may thus include” the Internet, to an application engine 118 and cloud-based applications 120 that may be implemented by a server 400. EX1006, [0015], [0021]-[0022], [0052]. The applications “may use the information from the event notifications 216 to initiate or customize services 218 on behalf of users associated with the home 102,” and “[s]uch services may be provided through any of the media devices 106 located in the home, as well as through other application devices 220.” *Id.*, [0036]. Williams’s examples of services 218 are the provision of information or content to the user—*e.g.*, interpreting a spoken grocery order, identifying a song and offering related content, or answering a question such as “What’s the recipe for deviled eggs?” *Id.*, [0044]-[0050]. Williams’s only reference to controlling devices is the single sentence pair of paragraph [0051], discussed below, and Williams does not disclose how that potential control is accomplished. Ex. 2008, ¶¶ 34-37.

C. Wittenberg (EX1008)

Wittenberg, U.S. Patent No. 7,529,677, is cited in Grounds 2 and 10, against dependent Claim 2. Pet. at 6-7. According to the Petition, Wittenberg’s “[v]oice recognition processor analyzes audio signals received at the remote processor to determine whether the person issuing the voice command is authorized to issue the

command” by “comparing the characteristics (e.g., frequency spectrum, speech patterns, etc.) of the audio signal to stored voice information.” Pet. at 45 (quoting EX1008, 5:61-6:6). Wittenberg thus adds an authorization check to voice-command processing.

D. Gruber (EX1009)

Gruber, U.S. Patent Pub. No. 2012/0265528, is cited in Grounds 3 and 11, against dependent Claims 3-4. Pet. at 6-7. Gruber describes a virtual assistant that “uses context information to supplement natural language or gestural input from a user.” EX1009, Abstract. Gruber’s example sources of context include device sensors providing “the current light level, temperature and other environmental measures.” *Id.*, [0218]-[0225]. In Gruber, context serves the interpretation of the user’s input.

E. Benesty (EX1010)

Benesty, which comprises excerpts of the *Springer Handbook of Speech Processing*, is cited in Grounds 4 and 12, against dependent Claims 7-8. Pet. at 6-7. The Petition quotes Benesty’s survey observations that “microphone arrays have the ability to offer directional gains that can significantly improve the quality of signal pickup in reverberant and noisy environments,” and that “for speech source localization, microphone array beam scanning and time delay estimation (TDE)-based localization methods are the two most widely used approaches.” Pet. at 50-51

(quoting EX1010, 1021, 1044).

F. Goldsmith (EX1042)

Goldsmith, which includes excerpts of the textbook *Wireless Communications*, is cited in Grounds 5 and 13 against dependent Claims 13–15. Pet. at 6–7. The Petition quotes Goldsmith’s survey of wireless protocols, stating that the Bluetooth and Zigbee specifications are “designed to be compliant with the IEEE 802.15 standards,” and its descriptions of the 802.11 family, the ISM bands, and cellular standards. EX1035, 601-602; Pet. at 43-44, 94.

G. Chatterjee (EX1012)

Chatterjee, U.S. Patent Pub. No. 2013/0052946, is cited in Grounds 6 and 14 against dependent Claims 17–19 and 22. Pet. at 6–7. Chatterjee describes “a system and method for providing home automation using a mobile device,” in which household appliances, *e.g.*, ovens, dishwashers, refrigerators, HVAC, are controlled via a device controller integrated into the appliance devices and directed from the user’s mobile device. Pet. at 56 (quoting EX1012, Abstract, [0012]).

H. Rosenberger (EX1013)

Rosenberger, U.S. Patent No. 8,340,975, is cited in Grounds 7 and 15, against dependent Claims 24–25. Pet. at 6-7. Rosenberger concerns “speech-recognizing control devices that respond to oral commands from a system user to produce a desired effect or result,” where the device itself recognizes a trigger phrase and

command against “a known vocabulary or grammar stored in the speech pattern memory 14,” and its “multi-colored LED status light 34” indicates the device’s states and modes. Pet. at 59-60 (quoting EX1013, 1:7-13, 8:8-16, 8:20-32).

I. Rossing (EX1014)

Rossing, which comprises excerpts of the *Springer Handbook of Acoustics*, is cited in Grounds 8 and 16, against dependent Claims 9 and 26-28. Pet. at 6-7. The Petition draws from Rossing the physics of microphones and loudspeakers. Pet. at 62-65 (quoting EX1014, 757-759, 309, 763, 903, 18).

IV. LEVEL OF ORDINARY SKILL IN THE ART

Petitioner proposes that a POSITA “would have a bachelor’s degree in electrical engineering, computer engineering, or equivalent, and two years of experience working on remote device control and/or networked devices,” and that “[a]n advanced graduate degree may make up for the work experience indicated above.” Pet. at 4 (citing EX1002, ¶¶ 46-48). For purposes of this Response, Patent Owner applies Petitioner’s definition. Dr. Shamos likewise applies Petitioner’s definition. Ex. 2008, ¶¶ 23-24.

V. CLAIM CONSTRUCTION

Petitioner contends that no claim construction is necessary and claim terms carry their plain and ordinary meaning. Pet. at 4-5. Patent Owner agrees that the Board need not construe any term to resolve this proceeding because, as

demonstrated below, the Petition fails under any reasonable interpretation of the claims, including Petitioner's own reading.

VI. PETITIONER HAS NOT PROVEN BY A PREPONDERANCE OF THE EVIDENCE THAT ANY CHALLENGED CLAIM IS UNPATENTABLE

In an instituted *inter partes* review, “the petitioner shall have the burden of proving a proposition of unpatentability by a preponderance of the evidence.” 35 U.S.C. § 316(e). “To satisfy its burden of proving obviousness, a petitioner cannot employ mere conclusory statements.” *In re Magnum Oil Tools Int’l, Ltd.*, 829 F.3d 1364, 1380 (Fed. Cir. 2016).

The question of obviousness is resolved on the basis of underlying factual determinations, including: (1) the scope and content of the prior art, (2) any differences between the claimed subject matter and the prior art, (3) the level of skill in the art, and (4) so-called secondary considerations where in evidence. *KSR Int’l Co. v. Teleflex Inc.*, 550 U.S. 398, 406 (2007). The question is not whether the differences themselves would have been obvious, but whether the claimed invention as a whole would have been obvious. *Stratoflex, Inc. v. Aeroquip Corp.*, 713 F.2d 1530, 1537 (Fed. Cir. 1983). The Board has held that a failure to identify the differences between the claimed subject matter and the prior art is fatal to an obviousness challenge. *See Apple, Inc. v. Contentguard Holdings, Inc.*, IPR2015-00355, Paper 9 at 9-10 (P.T.A.B. June 26, 2015). The Board must sufficiently

explain and support the conclusions that the prior-art references disclose all the elements recited in the challenged claims and that a skilled artisan not only could have made, but would have been motivated to make, the combination in the way the patent claims, with a reasonable expectation of success. *Pers. Web Techs., LLC v. Apple, Inc.*, 848 F.3d 987, 994 (Fed. Cir. 2017); *Los Angeles Biomedical Rsch. Inst. at Harbor-UCLA Med. Ctr. v. Eli Lilly & Co.*, 849 F.3d 1049, 1067 (Fed. Cir. 2017). The combinability determination requires a plausible rationale as to why the prior-art references would have worked together. *Broadcom Corp. v. Emulex Corp.*, 732 F.3d 1325, 1335 (Fed. Cir. 2013). Absent some articulated rationale, a “common sense” finding is no different than a mere conclusory statement that a combination “would have been obvious.” *In re Van Os*, 844 F.3d 1359, 1361 (Fed. Cir. 2017).

A. Grounds 1-8: Petitioner Has Not Shown that Lim Discloses a Server Configured “*to produce first and second messages respectively in response to the processing*” (Element 1[A][2]), a System “*operative for receiving from the server the first and second messages in response to the sending*” (Element 1[F][1]), or the Operation of Either Actuator “*in response to*” a Received Message (Elements 1[F][2], 1[F][3])

Claim 1 requires “*an Internet-connected server device external to the building configured for processing first and second human voice data, and to produce first and second messages respectively in response to the processing.*” ’174 Patent, Claim 1 (Element 1[A][2]); see Pet. at 22. It further requires that the system be “*operative for receiving from the server the first and second messages in response to the*

sending” (Element 1[F][1]), “*to operate the first actuator in the client device in response to the received first message*” (Element 1[F][2]), “*and to operate the second actuator in the controlled device in response to the received second message*” (Element 1[F][3]). ’174 Patent, Claim 1; *see* Pet. at 33, 36, 40. Together, these limitations define a voice-command architecture in which the server produces distinct “*messages*” in response to its processing of captured voice data, and those server-produced messages are what cause the system to operate actuators in both the client device and the controlled device. Lim does not disclose this architecture. Ex. 2008, ¶¶ 45-56.

1. Lim’s Server Provides Recognition Data, Not Actuator-Directing “*messages*”

The Petition maps the “*first message*” to speech processing results returned by Lim’s remote server 500 during the FIG. 4 setup-and-configuration workflow. Pet. at 22-24, 36-38. In that workflow, the user speaks a brand name at step 402, and “[t]he resulting spoken syllables may be digitized and presented to a speech recognition means for processing,” which processing “may be performed by programming resident on a remote server 500 accessible via a network 502 such as the Internet or PSTN.” EX1005, [0027]; *see* Pet. at 33. The Petition then asserts that the server returns speech processing results to the client device, and that the client device operates its actuator—a display, speaker, or LED—by presenting the next

prompt in the setup sequence. Pet. at 36-39 (citing EX1002, ¶¶ 132-136).

But Lim does not disclose the server returning any “*message*” to the client device during the FIG. 4 workflow. Paragraphs [0027]-[0030] describe voice input being sent to the server for speech recognition and then proceed directly to what the client device does next—without identifying any data transmission from the server to the client device in between. After describing the server’s recognition processing, Lim states: “[a]t step 404, if the speech recognition means is unable to uniquely identify the desired brand, step 402 may be repeated in order to solicit additional identifying information from the user.” EX1005, [0028]. And: “[o]nce a brand has been successfully identified, at step 406 the user may be prompted to provide spoken appliance type and/or model number information.” *Id.*, [0029]. In each instance, the narrative proceeds from server-side recognition directly to the next user-facing prompt. Ex. 2008, ¶ 46.

Further, even assuming a result were returned that could be mapped to the claimed “*first message*,” Lim does not disclose “*operating the first actuator in response to the received first message*,” as Element 1[D][3] requires. The client device’s actuator operation—displaying or sounding the next prompt—is determined by its own pre-programmed app logic, not by any server message. The server’s contribution at each stage is, at most, a recognition outcome, and the client device’s local firmware then decides what to do with it: if recognition fails, step 402

may be repeated “in order to solicit additional identifying information from the user” (EX1005, [0028]); once a brand is identified, “at step 406 the user may be prompted to provide spoken appliance type and/or model number information” (*id.*, [0029]); and so on through the further prompts of blocks 410 and 414 (*id.*, [0029]–[0030]). Indeed, the Petition’s own theory for Element 1[D][3] is that “the speech processing result(s) is needed to determine what next prompt to display or otherwise output,” so the purported result is one input to the client device’s own determination. Pet. at 41. A “*message*” the claim makes the cause of the actuator’s operation cannot be recast as raw data for the client device’s independent decision-making. In Lim, the server functions as a speech-recognition engine that returns recognition data, and the client device’s own software logic determines what actuator operation, if any, to perform. Ex. 2008, ¶ 47.

2. Lim Does Not Disclose a “*second message*” from the Server in Response to “*second human voice data*”

The Petition offers two alternative mappings for the claimed “*second message*,” and neither satisfies the claim. Pet. at 24-27, 36, 40-42; EX1002, ¶¶ 106-110, 129-131.

First, the Petition maps the “*second message*” to “the speech processing result(s) from the speech recognition server that allows the controlling device to determine whether to proceed to the next action 610” in FIG. 6—that is, “recognized

speech (e.g. text strings)” or “result[s] of further analyzing the recognized speech.” Pet. at 25 (citing EX1002, ¶¶ 106-107). The Petition’s own framing demonstrates why this cannot be the claimed “*second message*”: on the Petition’s description, the speech processing result merely allows the client device “to determine whether to perform step 610”—an internal determination about whether to proceed. A recognition result that enables a local decision is not a server-produced “*message*” in response to which the system “*operate[s] the second actuator in the controlled device.*” It is the same speech-recognition output as the purported “first message,” feeding the client device’s local decision tree. Ex. 2008, ¶ 49.

Second, the Petition argues in the alternative that the “*second message*” is the “command code data” provisioned at block 610 of FIG. 6. Pet. at 26-27, 41 (citing EX1005, [0036]; EX1002, ¶¶ 107-110). That mapping fails for two reasons. The command code data is not received “*in response to the sending of the captured . . . second human voice data,*” as Element 1[D][2] requires: it is a pre-existing, static codeset—drawn from “a library of codesets suitable for commanding the functional operations of various types of appliances of multiple manufactures and/or models”—that is merely retrieved from a database, whether by “downloading the data itself” or by “supply of a pointer to an entry in a local database.” EX1005, [0024], [0036]; *see id.*, [0020], [0022], [0030]. Lim’s system is, at bottom, an app-based universal remote control: the user configures which appliance to control through a setup

dialogue, and the app downloads the appropriate codeset from a database. A database-retrieval operation delivering pre-packaged IR/RF codes is not the server generating and sending a “*message*” in response to processing voice data. Ex. 2008, ¶ 50.

And FIG. 6—the workflow on which the Petition rests the “*second message*” mapping—does not itself disclose any server generating or sending messages at all. FIG. 6 depicts a workflow on the client device: solicit the function name (step 604), determine whether the function is uniquely identified (step 606), provision the “indicated command code data” (step 610), and transmit the command (step 614), and “at step 614 the provisioned data may be utilized to transmit the desired command to the target appliance.” EX1005, [0035]–[0036]. The server’s only roles in this workflow are as an off-screen speech-recognition engine and as a database from which codesets may be downloaded. There is no disclosure of the server generating or sending any “*message*” to the client device—let alone a “*second message*” received “*in response to*” the sending of “*second human voice data*.” Ex. 2008, ¶ 51.

3. The Petition’s Reliance on References Outside Ground 1 Cannot Carry Petitioner’s Burden

The Petition’s own mapping confirms that Lim alone does not disclose the claimed “*messages*.” To support the inference that speech-processing results flow

back from the server, the Petition asserts that “at the time of the invention, remote speech processing servers routinely transmit results related to speech recognition back to the requesting device,” citing three references **outside** Ground 1—Gruber (EX1009), Chang (EX1036, 307), and Tu (EX1037, 2367)—and repeats those citations when defining what the purported “result(s)” might be. Pet. at 22; *see id.* at 23 (same citations). Dr. Houh’s Declaration does the same, resting on the same proposition and the same outside references. EX1002, ¶¶ 101, 106, 131; Ex. 2008, ¶ 52.

Ground 1, however, is Lim alone. Petitioner may not supply a missing limitation from references outside the ground, and the Board may not adopt a multi-reference theory that Petitioner did not raise. 37 C.F.R. § 42.104(b)(4); July 31, 2025 Stewart Memorandum; *Magnum Oil*, 829 F.3d at 1380-81. Nor can generalized assertions of what servers “routinely” did, or expert say-so about what a result “may be,” substitute for the required disclosure. *Id.* at 1380. As framed, Ground 1 is a four-reference obviousness theory disguised as a single-reference § 103 ground. And even taken on its own terms it fails, because none of the three outside references is asserted, much less shown, to disclose a server that “*produce[s]*” actuator-directing “*messages*” “*in response to the processing*” of captured voice data. On this record, Petitioner has not shown that Lim discloses—or that Ground 1 renders obvious—at least Elements 1[A][2], 1[F][1], 1[F][2], and 1[F][3]. Ex. 2008, ¶ 53.

4. Ground 1's Showing for Claims 10-12 Rests on POSITA Assertion and Eight References Outside the Ground

Ground 1 also challenges dependent Claims 10 and 12, and its showings for those claims reach outside the ground as well. Claim 10 adds “*a volatile or non-volatile memory for storing the IP address,*” and Claim 12 requires that the IP address be “*a static or dynamic Internet Protocol (IP) address that is IPv4 or IPv6 type address.*” ’174 Patent, Claims 10, 12. For Claim 10’s storing limitation, the Petition offers Lim’s generic memory disclosures and then supplies the claimed storage from purported general knowledge: “[i]t was common knowledge that a networked device locally stores the associated IP address,” citing Doherty (EX1007, 211, Figure 10-44, 265). Pet. at 43-44 . For Claim 12, Petitioner similarly asserts that “[i]t was well-known, that networked devices are associated with IP addresses that are layer 3, either static, and of IPv4 type,” citing Roberts (EX1029, 127) and Doherty (EX1007, 277). *Id.* Neither Doherty nor Roberts, however, is a Ground 1 reference. Pet. at 6–7. Supplying the claimed locally stored, typed IP address from references outside the ground is precisely what 37 C.F.R. § 42.104(b)(4) and the Stewart Memorandum prohibit, and the Board may not adopt the unraised theory on Petitioner’s behalf. *Magnum Oil*, 829 F.3d at 1380-81. Ex. 2008, ¶¶ 54-55.

5. All Other Grounds Relying on Lim Alone Fail for the Same Reasons

Claims 5-6, 16, 20-21, 23, and 29 are challenged in Ground 1 alongside Claims 1 and 10-12, and each incorporates all of Claim 1's limitations. Because Petitioner has not shown that Lim discloses at least the server-produced "*message*" limitations of Claim 1, Ground 1 fails as to every claim it challenges. Grounds 2-8 rely on Lim in combination with, respectively, Wittenberg, Gruber, Benesty, Goldsmith, Chatterjee, Rosenberger, and Rossing, to challenge dependent claims. Pet. at 45-65. None of those secondary references is cited for, or remedies, Lim's failure to disclose the "*message*" limitations of independent Claim 1. Ex. 2008, ¶ 56. Grounds 1-8 therefore fail in their entirety.

In sum, Lim's server is a speech-recognition engine whose output feeds the client device's own pre-programmed logic; the "command code data" is a static codeset retrieved from a library, not a message "*produce[d]*" "*in response to the processing*" of voice data; FIG. 6 discloses no server at all; and the Petition's resort to references outside Ground 1—echoed by its expert's reliance on what servers "routinely" did—confirms the gaps those references cannot fill. Petitioner has not proven by a preponderance of the evidence that any claim challenged in Grounds 1-8 is unpatentable. The additional, ground-specific defects of Grounds 2-8 are addressed in Sections VI.C through VI.I, below.

B. Grounds 9-16: Petitioner Has Not Shown that the Williams-Lim Combination Discloses a Server that “*produce[s]*” the Claimed “*second message*” (Element 1[A][2]) or a System that “*operate[s]* the second actuator in the controlled device in response to the received second message” (Elements 1[F][1], 1[F][3])

Claim 1 requires the server to “*produce first and second messages respectively in response to the processing*” (Element 1[A][2]), and the system to be “*operative for receiving from the server the first and second messages in response to the sending*” (Element 1[F][1]) and “*to operate the second actuator in the controlled device in response to the received second message*” (Element 1[F][3]). ’174 Patent, Claim 1; *see* Pet. at 78, 85, 91. Grounds 9-16 rest on Williams as the primary reference, with Lim offered as an alternative delivery path. The combination discloses none of these limitations, because Williams’s “services 218” are informational content rather than server-produced control “*messages*,” and the Petition’s alternative Williams-Lim “relay” theory rests on an unexplained redesign of Williams supported only by conclusory assertions. Ex. 2008, ¶¶ 57-67.

1. Williams’s “services 218” Are the Delivery of Informational Content, Not the Claimed “*second message*”

The Petition’s mapping rests on Williams’s disclosure that the server “processes” the audio-based information and as a result “may . . . initiate or customize services 218,” and that “[s]uch services may be provided through any of

the media devices 106 located in the home, as well as through other application devices 220.” Pet. at 79, 89, 91 (quoting EX1006, [0036]). But in Williams, “services 218” are the substance of the service itself—content delivered to and experienced by the user—not “*messages*” produced by the server and sent to a “*controlled device*” to operate an actuator there. Williams’s own examples confirm as much: interpreting a spoken grocery order and submitting it to a store or recording “a shopping list that the user can view on their smartphone” (EX1006, [0044]); identifying a song and “provid[ing] information about related articles, offer[ing] samples, suggest[ing] related music and playlists, or present[ing] information allowing the user to purchase individual music tracks” (*id.*, [0047]); and answering questions by “emailing or otherwise providing a recipe” (*id.*, [0048]). *See id.*, [0044]-[0050]. In each instance, what the system delivers is information content, and nothing in these disclosures involves operating “*the second actuator in the controlled device in response to the received second message.*” Ex. 2008, ¶ 58.

FIG. 2 confirms the deficiency. Its arrows from the applications 120 to the media devices 106 and application devices 220 depict the general availability of services through home devices—the user experiences the service via a particular device—not a control message produced in response to a voice command, addressed to a particular controlled device, and causing that device to operate an actuator. EX1006, [0036], FIG. 2. Streaming media content to a device is fundamentally

different from sending a directed control “*message*” to that device in response to a voice command. Williams simply does not disclose any data object, communication, or signal satisfying the claimed “*second message*.” Ex. 2008, ¶ 59.

2. Paragraph [0051] Is Aspirational and Discloses No Server-Produced Control “*message*”

The Petition asserts that Williams’s system “may accept spoken commands from a user regarding on-premises devices, and may respond by interacting with such devices through available network connections,” resting on paragraph [0051]. Pet. at 66, 69, 72, 78; EX1002, ¶¶ 293, 312, 336. Paragraph [0051], however, merely states that an application “might also be designed to allow a user to control various on-premises devices and equipment.” EX1006, [0051]. That passage tells the reader **what** the system might do—*i.e.*, accept voice commands and interact with devices—but says nothing about **how**. It is silent on whether the server generates any “*message*,” what form it would take, how the *client device* would receive it, or what “*control message*” would follow. Yet those are precisely the elements Claim 1 requires. A statement that a system “may respond by interacting with such devices through available network connections” identifies no message and provides nothing of the specific server-to-client-device-to-controlled-device sequence that Claim 1 requires. And the only device interaction Williams actually describes is the provision of “services 218” that, as discussed above, comprise informational content and not

“*messages.*” Ex. 2008, ¶¶ 60-61.

A statement that a system “may respond by interacting with such devices through available network connections” identifies no message and provides nothing of the specific server-to-controlled-device communication that Claim 1 requires. And the only device interaction Williams actually describes is the provision of “services 218” that, as discussed above, comprise informational content and not “*messages.*” *Id.*, ¶ 58.

3. The Petition’s Reliance on References Outside Ground 9, and on “Common Knowledge,” Cannot Carry Petitioner’s Burden

The Petition’s own mapping confirms that Williams does not disclose the claimed “*second message.*” To bridge the gap between Williams’s “services 218” and an actual control message, the Petition inserts the parenthetical “(e.g., a control message)” and asserts that sending such a message to a controlled device was “common knowledge” and “consistent with common implementations,” citing three references outside Ground 9—Van der Meulen (EX1019, 3:19-22, 6:23-27), Wittenberg (EX1008, Claim 1), and Chatterjee (EX1012, [0012]). Pet. at 79, 90. Dr. Houh’s Declaration does the same: his opinion that “information related to the services 218 (e.g., a control message) is sent to and received by the controlled device” rests on what “was common knowledge”—not on any disclosure of Williams. EX1002, ¶¶ 343-347, 380; Ex. 2008, ¶ 62.

Ground 9, however, is Williams and Lim. Petitioner may not supply a missing limitation from references outside the ground, and the Board may not adopt a multi-reference theory that Petitioner did not raise. 37 C.F.R. § 42.104(b)(4); July 31, 2025 Stewart Memorandum; *Magnum Oil*, 829 F.3d at 1380-81. Nor can generalized “common knowledge” or expert say-so substitute for the required disclosure. *Id.* at 1380. Wittenberg and Chatterjee, moreover, are Ground 10 and Ground 14 references—deployed here in a ground to which they do not belong. Pet. at 7. As framed, Ground 9 is a five-reference obviousness combination disguised as a two-reference ground—and even taken on its own terms it fails, because none of the three outside references is asserted, much less shown, to render the claimed “*second message*” obvious in combination with Williams and Lim. On this record, Petitioner has not shown that the Williams-Lim combination discloses—or that Ground 9 renders obvious—at least Elements 1[A][2], 1[F][1], and 1[F][3]. Ex. 2008, ¶ 63.

4. The Williams-Lim “Relay” Theory Rests on an Unexplained Redesign of Williams and on “Obvious to Try” Boilerplate

The Petition offers, in the alternative, a combined system in which “Williams’ server 400 sends information (e.g., related to services 218) for controlling controlled devices to the client device (rather than to the controlled devices), which in turn transmits commands to the controlled devices as taught by Lim.” Pet. at 68 (citing EX1002, ¶¶ 298-299); *see id.* at 90, 92-93. On this theory, the “*second message*” is

received by the client device—not the controlled device—and the client device “uses it to control the controlled device.” *Id.* at 90. The Petition presents this theory only as a hedge: “[t]o the extent that limitation 1[B] requires actual data transmission—beyond mere hardware configuration—between the client and controlled devices (which is not conceded).” *Id.* at 68.

The relay theory fails in two ways. On the one hand, it presupposes the very disclosure Williams lacks: a server-produced control “*message*.” Rerouting “information (e.g., related to services 218)” through the client device does not transform Williams’s informational services into the claimed “*second message*,” and Lim—whose server, as shown above, returns speech-recognition data and retrieves static codesets—supplies no server-produced control message either. *Supra* § VI.A. Two references that each lack the claimed “*second message*” do not disclose it in combination. Ex. 2008, ¶¶ 65-66.

On the other hand, the proffered reasons to combine are conclusory. The Petition asserts that, by having the server “only” maintain a connection with the client device, the combination “would predictably simplify network management and improve reliability and security, as well as making the system easier to scale, troubleshoot, and manage,” and that “[i]t would have been obvious to try combining the communication method described in Lim with Williams, as there is a finite number of identified, predictable solutions for transmitting messages and control

signals from a remote server to home appliances.” Pet. at 68-69 (citing EX1002, ¶¶ 298-301). But Williams’s own architecture already delivers services directly from the server to the home devices, *e.g.*: FIG. 2 shows the services 218 flowing from the applications 120 to the media devices 106 and application devices 220. EX1006, [0036], FIG. 2. The Petition identifies no design need in Williams that interposing the client device as a command relay would answer, and the asserted benefits appear nowhere in either reference. “Obvious to try” has force only “[w]hen there is a design need or market pressure to solve a problem and there are a finite number of identified, predictable solutions.” *KSR*, 550 U.S. at 421. The Petition identifies neither the design need nor the finite solution set—it simply announces one. Absent an articulated, reference-grounded rationale, these assertions are no different than a mere conclusory statement that the combination “would have been obvious.” *In re Van Os*, 844 F.3d at 1361; *Magnum Oil*, 829 F.3d at 1380.

5. All Other Grounds Relying on the Williams-Lim Combination Fail for the Same Reasons

Ground 9 challenges Claims 1, 5-6, 10-12, 16, 20-21, 23, and 29, each of which incorporates the limitations addressed above. Grounds 10-16 rest on the same Williams-Lim foundation and add one secondary reference each—Wittenberg, Gruber, Benesty, Goldsmith, Chatterjee, Rosenberger, and Rossing—to address dependent-claim features. Pet. at 95-100. None of those references is cited for, or

remedies, the combination's failure to disclose a server-produced "*first message*" or "*second message*" or the claimed message-responsive operation of the controlled device's actuator. Ex. 2008, ¶ 67. Grounds 9-16 therefore fail in their entirety. The additional, ground-specific defects of Grounds 10-16 are addressed in Sections VI.C through VI.I, below.

In sum, Williams's "services 218" are informational content, not the claimed "*second message*"; paragraph [0051] is aspirational and discloses no server-produced control "*message*"; the Petition's resort to multiple references outside Ground 9 confirms the gaps those references cannot fill; and the alternative "relay" combination rests on an unexplained redesign of Williams supported only by "obvious to try." Thus, Petitioner has not proven by a preponderance of the evidence that any claim challenged in Grounds 9–16 is unpatentable. The additional, ground-specific defects of Grounds 10–16 are addressed in Sections VI.C through VI.I, below.

6. Ground 9 Does Not Disclose The Limitations of Claims 27 or 29

Further, Claim 29 is only challenged in Ground 9. Claim 29 depends from Claim 27, which depends from Claim 1. While the Petition challenges Claim 29 (Pet. at 95), the Petition does not challenge Claim 27. Therefore, the Petition is defective as to Claim 29. The prior art cited for Ground 9 does not disclose the limitations of

Claims 27 or 29. EX2008, ¶ 68.

C. Grounds 2 and 10 Do Not Show that Claim 2 Is Unpatentable

Ground 2 challenges Claim 2 over Lim and Wittenberg (EX1008); Ground 10 challenges the same claim over Williams, Lim, and Wittenberg. Pet. at 45-46, 95-96. Claim 2 depends from Claim 1 and adds that “*the processing comprises performing a voice recognition algorithm for identifying the voice of a specific person.*” ’174 Patent, Claim 2. Claim 2, however, is not further obvious over Wittenberg. Ex. 2008, ¶ 69.

Wittenberg does not disclose the limitation Claim 2 adds. The claimed algorithm is “*for identifying the voice of a specific person*”—determining who is speaking. Wittenberg’s voice recognition answers a different question: its function is “to determine whether the audio signal has been supplied by an authorized user.” EX1008, Abstract. The passage the Petition quotes describes the same authorized-or-not determination, “comparing the characteristics . . . of the audio signal to stored voice information to determine whether the audio signal voice matches that of an authorized user.” Pet. at 45 (quoting EX1008, 5:61-6:6). A match at most tells the system that the speaker is one of its authorized users, but it does not identify which specific person is speaking, and Wittenberg discloses no use or output of any speaker’s individual identity. Neither the Petition nor Dr. Houh explains how an

authorized-or-not determination disclosed in Wittenberg performs the claimed identification. *Pers. Web Techs.*, 848 F.3d at 994. Ex. 2008, ¶ 70.

Further, the proffered motivation—“to achieve greater security”—does not bridge the gap. Pet. at 46, 96. On Wittenberg’s own disclosure, security is achieved by the authorization gate itself, so the rationale supplies no reason to build the claimed personal identification. *Magnum Oil*, 829 F.3d at 1380; *In re Van Os*, 844 F.3d at 1361. In sum, Wittenberg determines whether a speaker is authorized, not who the speaker is. Thus, Petitioner has not shown by a preponderance of the evidence that Claim 2, challenged in Grounds 2 and 10, is unpatentable.

D. Grounds 3 and 11 Do Not Show that Claims 3-4 Are Unpatentable

Ground 3 challenges Claims 3-4 over Lim and Gruber (EX1009); Ground 11 challenges the same claims over Williams, Lim, and Gruber. Pet. at 46-49, 96-97. Grounds 3 and 11 each fail for the reasons discussed below.

1. The Petition Does Not Show that “*the first message is sent by the server in response to the sensor data,*” as Claim 3 Requires

Claim 3 adds three requirements: the client device “*further comprises a sensor that outputs sensor data that responds to a physical phenomenon*”; the system is “*further configured for sending to the server, by the client device via the wireless network, the sensor data*”; and “*the first message is sent by the server in response to*

the sensor data.” ’174 Patent, Claim 3. The Petition addresses the first two requirements and then stops. The Petition states that Gruber discloses that a device “may have one or more sensors” that “can provide sources of contextual information,” and that context “can be communicated among distributed components such as client 1304 and server 1340.” Pet. at 47 (quoting EX1009, [0218]-[0225], [0366]-[0367]). The proposed combination, in turn, “would capture sensor data (e.g., temperature, location) using one or more sensors (e.g., as taught by Gruber/Lim) in the controlling device and transmit such data and/or related information to Lim’s server . . . which can use the captured sensor data as contextual information as taught by Gruber to supplement speech processing.” *Id.* at 48; *see id.* at 97 (Ground 11: “to supplement audio processing”). Nowhere, however, does the Petition identify any disclosure that the “*first message*”—the message Claim 1 requires the server to “*produce*” “*in response to the processing*” of captured voice data—is also “*sent by the server in response to the sensor data.*” In Gruber, sensor-derived context serves “to supplement natural language or gestural input from a user,” to “clarify the user’s intent,” and to “reduce[] the need for the user to provide excessive clarification input”—that is, to help interpret the user’s command. EX1009, Abstract; *see* Pet. at 49. Assisting the interpretation of voice input is not a disclosure that the responsive message is sent in response to the sensor data. Ex. 2008, ¶¶ 71-72.

2. Claim 4's Sensor Types Come from Fraden, a Reference Outside Both Grounds

Claim 4 requires that the sensor be “*a thermoelectric sensor that responds to a temperature or to a temperature gradient of an object using conduction, convection, or radiation,*” or “*a photoelectric sensor that responds to a visible or an invisible light or gamma rays.*” ’174 Patent, Claim 4. Gruber’s contribution is a generic list, *i.e.*, “light sensor, thermometer, . . . and the like” providing “the current light level, temperature and other environmental measures.” Pet. at 49 (quoting EX1009, [0225]); EX1009, [0222]. A “thermometer” is not a disclosure of a “*thermoelectric*” sensor that operates “*using conduction, convection, or radiation,*” and a “light sensor” is not a disclosure of a “*photoelectric*” sensor responsive to “*invisible light or gamma rays.*” To bridge that gap, the Petition offers a single sentence: “A POSITA would have understood that photoelectric sensors are common light sensors and thermoelectric sensors are common temperature sensors.” Pet. at 49. That sentence, however, is not supported by Williams, Howard, Doherty, or Gruber, but by Fraden (EX1030, 116, 466), a reference outside of both grounds. Pet. at 42. Under 37 C.F.R. § 42.104(b)(4) and the Stewart Memorandum, an outside reference and expert say-so may not supply the claimed sensor types, and the Board may not adopt a Williams-Gruber-Fraden (or Howard-Doherty-Gruber-Fraden) combination that the Petition never asserted. *Magnum Oil*, 829 F.3d at 1380-81. Ex.

2008, ¶ 73.

E. Grounds 4 and 12 Do Not Show that Claims 7-8 Are Unpatentable

Ground 4 challenges Claims 7–8 over Williams and Benesty (EX1009); Ground 12 challenges the same claims over Howard, Doherty, and Benesty. Pet. at 50-52, 97-98. Claim 7 depends from Claim 1, and Claim 8 depends from Claim 7. Claim 8 requires that the multiple microphones of Claim 7 be “*arranged as a directional microphones array operative to estimate a number, magnitude, frequency, Direction-Of-Arrival (DOA), distance, or speed of a phenomenon impinging the microphones array.*” ’174 Patent, Claim 8. The Petition quotes Benesty’s survey statements that “microphone arrays have the ability to offer directional gains that can significantly improve the quality of signal pickup in reverberant and noisy environments,” and that “for speech source localization, microphone array beam scanning and time delay estimation (TDE)-based localization methods are the two most widely used approaches.” Pet. at 50-51 (quoting EX1010, 1021, 1044). What the Petition does not show is the claimed capability in the proposed combination: a client device whose array is “*operative to estimate*” the recited parameters. The Petition goes no further than merely placing “multiple microphones as taught by Benesty” in Lim’s client device “to capture and process human voice data, yielding the predictable results of effectively improved

audio capturing, especially in a room where the microphone is not placed near the mouth of the user.” *Id.* at 52; *see id.* at 97-98 (same for Ground 12). But while capturing voice data with multiple microphones is covered by Claim 7, Claim 8’s estimation capability is neither mapped to the combined system nor explained. The Board must be able to find that the combination discloses all the elements as claimed, and a “predictable results” assertion cannot supply the missing showing. *Pers. Web Techs.*, 848 F.3d at 994; *Magnum Oil*, 829 F.3d at 1380. Ex. 2008, ¶¶ 74-75.

The motivation offered, i.e., that a POSITA would have looked to Benesty for microphone-related techniques “to, for example, implement/improve the audio signal capturing and processing in Lim,” at most describes consulting the handbook, but falls short for providing an actual reason to build the claimed estimating array into Lim’s controlling device or Williams’s interface device 116. Pet. at 50. Benesty surveys certain techniques that existed, but the Petition identifies no design need in Lim or Williams that the claimed directional array would answer, and no reason grounded in the references to select it. *In re Van Os*, 844 F.3d at 1361. In sum, Grounds 4 and 12 inherit the failures of Grounds 1 and 9 and never show Claim 8’s “operative to estimate” limitation in the proposed combination. Thus, Petitioner has not proven by a preponderance of the evidence that either claim challenged in Grounds 4 and 12 is unpatentable. Ex. 2008, ¶ 76.

F. Grounds 5 and 13 Do Not Show that Claims 13-15 Are Unpatentable

Ground 5 challenges Claims 13-15 over Lim and Goldsmith; Ground 13 challenges the same claims over Williams, Lim, and Goldsmith. Pet. at 52-56, 98. Each claim depends from Claim 1 and specifies what “*the wireless network*” must be, *e.g.*: a WLAN according to, or based on, the enumerated IEEE 802.11 standards (Claim 13), a network using wireless communication over “a licensed or an unlicensed radio frequency band, that is an Industrial, Scientific and Medical (ISM) radio band” (Claim 14), and a “*cellular telephone network*” of the recited 3G or 4G types (Claim 15). ’174 Patent, Claims 13-15.

1. Goldsmith’s Protocol Survey Does Not Disclose the Configured Claimed System, and the “Obvious to Try” Assertion Is Unsupported

For Claim 13, the Petition first re-cites Lim’s disclosure that the client device communicates with the remote server over the Internet via WiFi, characterizes WiFi as “a form of WLAN based on the IEEE 802.11 standard group comprising 802.11a/b/g standard,” and then quotes Goldsmith’s survey: 802.11b, and the “[t]wo additional standards in the 802.11 family were developed to provide higher data rates than 802.11b.” Pet. at 52-53 (citing EX1005, [0027]; quoting EX1042, 15-16). The WLAN characterization itself leans on Rosenberger (EX1013, 7:48-51)—a Ground 7 reference deployed in Grounds 5 and 13, to which it does not belong. Pet. at 53,

98. For Claim 14, the Petition reproduces Goldsmith’s table of “unlicensed radio frequency spectrum allocations in the U.S.” *Id.* at 54 (citing EX1042, 22-23). But Claim 1 requires more of “*the wireless network*” than that its protocol exist: it is the network over which the client device communicates “with the controlled device and with the server device,” through which the system sends “the captured first and second human voice data” to the server, and through which the client device and the controlled device receive and act on the server’s “*first and second messages.*” ’174 Patent, Claim 1. A textbook survey establishing that 802.11 a/b/g and the ISM bands existed does not show the claimed system configured to perform those operations over any of them. The combination rationale is that “it would have been obvious to try combining the wireless communication techniques of Goldsmith (e.g., WLAN over IEEE 802.11 b, 802.11 a, and/or 802.11 g, 3G) with the teachings of Lim without requiring much effort and with a reasonable expectation of success” and, for Ground 13, “obvious to try combining the wireless communication techniques of Goldsmith (e.g., 802.11 b WLAN and cellular 3G network) with the teachings of Williams-Lim without requiring much effort.” Pet. at 54 and 98. “Obvious to try” has force only “[w]hen there is a design need or market pressure to solve a problem and there are a finite number of identified, predictable solutions.” *KSR*, 550 U.S. at 421. The Petition identifies no design need in Lim or Williams, nor a finite set of identified solutions, nor any reason to select any particular standard—it simply walks through

the claims' own lists. Ex. 2008, ¶ 78.

**2. Claim 15's Cellular Connectivity Comes from Wang,
a Reference Outside Both Grounds**

Claim 15 requires that “*the wireless network*” itself be a “*cellular telephone network*” of the recited 3G or 4G types. '174 Patent, Claim 15. The Petition quotes Goldsmith's descriptions of 3G, GSM, EDGE, and W-CDMA, and then, because nothing in Lim, Williams, or Goldsmith places the home's client and controlled devices on a cellular network, adds that “home appliances with cellular connectivity were well-known,” citing Wang (EX1031, Claims 14-16, 18)—yet another reference outside both grounds. Pet. at 54-55; *see id.* at 6-7. Supplying the claimed cellular connectivity from an outside reference is what 37 C.F.R. § 42.104(b)(4) and the Stewart Memorandum prohibit. *Magnum Oil*, 829 F.3d at 1380-81. Ex. 2008, ¶ 79.

In sum, Goldsmith's survey merely shows that the recited network types existed; it does not show the claimed system configured with any of them. And the potentially relevant disclosures in the prior art—i.e., cellular-connected home appliances and the WLAN characterization—come in part from references outside the grounds, under an “obvious to try” label that *KSR* does not permit on this record. Thus, Petitioner has not proven by a preponderance of the evidence that any claim challenged in Grounds 5 and 13 is unpatentable.

G. Grounds 6 and 14 Do Not Show that Claims 17-19 and 22 Are Unpatentable

Ground 6 challenges Claims 17–22 over Williams and Chatterjee (EX1012); Ground 14 challenges Claim 22 over Howard, Doherty, and Chatterjee. Pet. at 51–54, 106–107. Claims 17–22 depend from Claim 16 and specify the appliance in which “*the controlled device*” is integrated, *e.g.*: food storage, handling, or preparation (Claim 17), heating food (Claim 18), refrigeration and kitchen appliances (Claim 19), HVAC (Claim 20), temperature control (Claim 21), and cleaning (Claim 22). ’174 Patent, Claims 16–22.

Chatterjee, however, at most just discloses the existence of certain types of appliances. Pet. at 57 (quoting EX1012, [0012], [0014]). The claims, however, require more of the appliance: it houses “*the controlled device*”—the device whose “*second actuator*” the system must operate “*in response to the received second message*.” The Petition never explains how Chatterjee’s appliances would be integrated into Lim’s system, in which the client device transmits locally stored command codes to appliances, or into Williams’s system, in which the server’s applications deliver informational “services 218” rather than control messages. *Supra* §§ VI.A-VI.B. And Chatterjee itself, as the Petition describes it, controls its appliances through “a device controller integrated into the appliance devices” directed from a mobile device—“a system and method for providing home

automation using a mobile device”—not through a server-produced “*message*.” *Id.* at 56 (quoting EX1012, Abstract, [0012]). Ex. 2008, ¶ 81.

Further, the motivation to combine offered is simply to combine Lim with “Chatterjee’s teachings regarding control of automated devices, therefore expanding the capabilities of Lim,” and, for Ground 14, the statement that combining “would improve and expand the capabilities of Williams-Lim in the same way.” Pet. at 58, 99. An aspiration to “expand the capabilities” simply restates a desire to combine without providing an actual reason to do so, which is insufficient. *Magnum Oil*, 829 F.3d at 1380; *In re Van Os*, 844 F.3d at 1361. In sum, to the extent certain of the appliances of Claims 17-19 and 22 appear in Chatterjee, the claimed system does not: no ground reference shows the server-produced “*second message*” operating an actuator in any of them, and no articulated reason supports the combination. Thus, Petitioner has not proven by a preponderance of the evidence that any claim challenged in Grounds 6 and 14 is unpatentable. Ex. 2008, ¶ 82.

H. Grounds 7 and 15 Do Not Show that Claims 24-25 Are Unpatentable

Claim 24 requires that “*the first actuator*”—the actuator that Claim 1 operates “*in the client device in response to the received first message*”—be “*an electric light source for converting electrical energy into light that emits visible or non-visible light for illumination or indication*.” Claim 25 depends from Claim 24 and recites

species such as LEDs.

Rosenberger’s light, however, does not do what the claims require. In Rosenberger, the “multi-colored LED status light 34” belongs to a self-contained speech-recognizing control device that performs its own recognition: “[u]pon receiving and recognizing a speech trigger phrase . . . the device beeps, changes its status light 34 or plays a prerecorded or synthesized audio message,” prompting the user to speak commands “from a known vocabulary or grammar stored in the speech pattern memory 14.” Pet. at 60 (quoting EX1013, 8:20-32); *see id.* at 59-60 (quoting EX1013, 8:8-16). As such, the light of Rosenberger indicates the device’s own, locally determined “device states and modes.” *Id.* But Claim 24’s light source is “*the first actuator*,” and Claim 1 requires the system “*to operate the first actuator in the client device in response to the received first message*”—the message “*produce[d]*” by the remote server “*in response to the processing*” of the captured voice data. A light that reflects local device state is not shown to operate in response to any server-produced message, and neither the Petition nor Dr. Houh identifies any disclosure that it would. The mapping does not address the claim as written. Ex. 2008, ¶ 84.

Further, the proffered motivation to combine is entirely generic: “to improve the usability of the device.” Pet. at 61, 99-100. And the proffered improvement is one Lim already has: the Petition itself notes that Lim’s client device includes LEDs and that Lim’s “prompts for voice input may take the form of an illuminated LED.”

Id. at 60-61 (quoting EX1005, [0027]; citing EX1005, [0019]). The Petition does not say what usability problem Rosenberger’s status light would solve in a device that already signals with an illuminated LED, or why a POSITA designing Lim’s controlling device or Williams’s interface device 116 would add it, other than that the claims recite one. *Id.* at 61, 99-100; *In re Van Os*, 844 F.3d at 1361. In sum, Rosenberger’s status light answers to the device’s own speech recognition, not to a “*first message*” received from a server, and no articulated reason supports adding it. Thus, Petitioner has not proven by a preponderance of the evidence that either claim challenged in Grounds 7 and 15 is unpatentable. Ex. 2008, ¶ 85.

I. Grounds 8 and 16 Do Not Show that Claims 9 and 26-28 Are Unpatentable

Ground 8 challenges Claims 9 and 26-28 over Lim and Rossing (EX1014); Ground 16 challenges the same claims over Williams, Lim, and Rossing. Pet. at 61-65, 100.

Regarding Claim 9, the Petition argues that “[a] POSITA would understand that the claim refers to a standard microphone.” Pet. at 62; *see id.* at 100. Claim 9, however, recites specific microphone constructions and operating principles—an omnidirectional, unidirectional, or bidirectional microphone based on sensing the sound-induced motion of a diaphragm or ribbon, or “*a condenser, an electret, a dynamic, a ribbon, a carbon, or a piezoelectric microphone.*” ’174 Patent, Claim 9.

Neither Lim nor Williams discloses anything about its microphone's construction. Pet. at 62-63. And Rossing—from which the Petition quotes that “[c]ommon to virtually all microphones ever made is a diaphragm,” along with descriptions of ribbon, condenser, electret, carbon, and piezoelectric microphone types—establishes only that such microphones existed. *Id.* (quoting EX1014, 757-759, 309). The Petition never identifies which microphone the combined system would use, or why; “look[ing] to Rossing for techniques and details” is merely a description of consulting a reference book, not a reason to configure the claimed system with any recited construction. *Id.* at 64, 100; *Magnum Oil*, 829 F.3d at 1380; *In re Van Os*, 844 F.3d at 1361. Ex. 2008, ¶ 87.

Claim 26 requires that “*the first actuator is a motion actuator that causes a linear or rotary motion.*” ’174 Patent, Claim 26. The Petition’s only theory is that the primary reference’s speaker is the claimed “*motion actuator*” because Rossing describes a loudspeaker as a device in which “the electrical energy is converted to mechanical energy, specifically the movement of a diaphragm.” Pet. at 64 (quoting EX1014, 763); *see id.* at 100. On Petitioner’s logic, every Claim 27 “*sounder*” (which produces sound precisely by moving a diaphragm or equivalent element) is also a Claim 26 “*motion actuator*,” collapsing the two claims and reading their distinct actuator categories out of the claims. The remaining Rossing citations supply only the observations that loudspeakers exhibit “linear motion” and that a moving-

coil loudspeaker's coil can "move axially." *Id.* at 64 (quoting EX1014, 903, 18). The Petition identifies no other candidate motion actuator in either combination. Ex. 2008, ¶ 88.

The mapping for Claims 27-28 has an additional defect. To show the claimed "*sounder*," the Petition asserts that "a POSITA would have understood that a speaker is a sounder for converting an electrical energy to sound waves," resting in part on Sinclair (EX1018, 122, 123, Figure 10.8)—once again, a reference outside both grounds. Pet. at 64-65; 37 C.F.R. § 42.104(b)(4). And for Claim 28's specific requirements, the Petition offers Rossing's general observation that "many of the same transduction methods that have been used in microphones have at least been tried for loudspeakers including magnetic (also known as dynamic), piezoelectric, and condenser," with no reason to select any of them for the combined system. Pet. at 65 (quoting EX1014, 763). But Rossing's general survey of what has "at least been tried" is not a showing of what the combination actually discloses, and the Stewart Memorandum forbids supplying the element from a reference outside the ground. Ex. 2008, ¶ 89.

In sum, the Petition rewrites Claim 9 to a "standard microphone," maps Claim 26 by collapsing it into Claims 27-28, and supports Claims 27-28 with an outside reference and a general survey. Thus, Petitioner has not proven by a preponderance of the evidence that any claim challenged in Grounds 8 and 16 is unpatentable.

VII. CONCLUSION

For the foregoing reasons, Petitioner has not proven by a preponderance of the evidence that any of Claims 1-29 of the '174 Patent is unpatentable. Patent Owner respectfully requests that the Board issue a final written decision confirming the patentability of all Challenged Claims.

Respectfully submitted,

Dated: July 29, 2026

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CERTIFICATE OF WORD COUNT

The undersigned hereby certifies that the portions of the above-captioned PATENT OWNER'S RESPONSE has 10,084 words in compliance with the 14,000 word limit set forth in 37 C.F.R. § 42.24. This word count was prepared using Microsoft Word for Office 365.

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