

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

WHATFIX INC.,
Petitioner,

v.

WALKME LTD.,
Patent Owner.

IPR2024-00065
Patent 11,558,317 B2

Before CHARLES J. BOUDREAU, KARA L. SZPONDOWSKI, and
MICHAEL T. CYGAN, *Administrative Patent Judges*.

BOUDREAU, *Administrative Patent Judge*.

JUDGMENT
Final Written Decision
Determining No Challenged Claims Unpatentable
35 U.S.C. § 318(a)

I. INTRODUCTION

Whatfix Inc. (“Petitioner”) filed a Petition requesting *inter partes* review of claims 1–20 (“the challenged claims”) of U.S. Patent No. 11,558,317 B2 (Ex. 1001, “the ’317 patent”). Paper 2 (“Pet.”). Petitioner filed a Declaration of Dr. Homayoon Beigi (Ex. 1003) in support of the Petition. Patent Owner WalkMe Ltd. did not file a Preliminary Response. We instituted an *inter partes* review of the challenged claims on April 1, 2024. Paper 8 (“Decision on Institution” or “Dec.”).

After institution, Patent Owner filed a Response (Paper 15, “PO Resp.”), supported by a Declaration of Ivan Zatkovich (Ex. 2002); Petitioner filed a Reply to the Patent Owner Response (Paper 23, “Reply”), supported by a Reply Declaration of Dr. Beigi (Ex. 1042); and Patent Owner filed a Sur-reply (Paper 28, “Sur-reply”).

We held a combined oral hearing in this proceeding, IPR2023-01368, and IPR2023-01379 on December 18, 2024, and the transcript is entered into the record. Paper 33 (“Tr.”).

This is a final written decision under 35 U.S.C. § 318(a) as to whether the claims challenged in the *inter partes* review are unpatentable. For the reasons discussed below, we conclude that Petitioner has not established by a preponderance of the evidence that any of the challenged claims are unpatentable.

II. BACKGROUND

A. *Real Parties in Interest*

Whatfix Inc. identifies itself and Whatfix Private Limited as real parties in interest for Petitioner. Pet. 78. WalkMe Ltd. identifies itself as the real party in interest for Patent Owner. Paper 11, 2 (Patent Owner’s Updated Mandatory Notices).

B. Related Matters

The parties indicate that the '317 patent is involved in *WalkMe Ltd. v. Whatfix Inc.*, No. 1:23-cv-00227-MN (D. Del.). Paper 11, 2; Pet. 79.

The parties also identify as related matters IPR2023-01368, IPR2023-01379, and IPR2023-01443, involving patents related to the '317 patent that are also involved in the above-referenced district court litigation. Paper 11, 2; Pet. 79. Patent Owner reports that the district court litigation has been stayed pending resolution of this and the identified related *inter partes* review proceedings. Paper 11, 2.

C. The '317 Patent

The '317 patent, titled “Invoking an Automatic Process in a Web-based Target System Using a Chat-bot,” issued January 17, 2023, from U.S. Patent Application No. 17/577,530, filed January 18, 2022, as a continuation of U.S. Patent Application No. 17/026,305, filed September 21, 2020 (now U.S. Patent No. 11,258,732 (“the '732 patent”)), which was filed as a continuation of U.S. Patent Application No. 16/358,467, filed March 19, 2019 (now U.S. Patent No. 10,819,664 (“the '664 patent”)), which was in turn a continuation of application No. PCT/IL2018/051168, filed November 4, 2018. Ex. 1001, codes (21), (22), (45), (54), (63). The '317 patent also claims priority from U.S. Provisional Application No. 62/581,714, filed November 5, 2017. *Id.* at code (60).

The '317 patent discloses a “technical solution . . . to use a natural language interface to receive input from the user, and based thereon, select an automation process to be executed,” where “[t]he automation process may be executed in a manner that manipulates the [graphical user interface (GUI)] of the target system, in a similar manner to the manner in which the user operates.” Ex. 1001, 9:3–9. “The target system, generally referred to

as the computer program, may be a website, a web-based system, a native mobile application . . . , a desktop application . . . , or the like.” *Id.* at 8:14–18.

The ’317 patent discloses exemplary embodiments for a non-programmer user to define a flow of conversation for a chat bot. *See, e.g.*, Ex. 1001, Figs. 1–3. For example, a user “may define which questions the bot would ask, which remarks it will make, [and] flow control operations that may be based on evaluated conditions.” *Id.* at 11:56–59. Further, “the user may define for a conversation flow which automation process is invoked,” or “that a conversation is associated with multiple automation processes, one of which may be selected based on the interaction with the user.” *Id.* at 11:59–65. The automation process may also be defined by a user. *Id.* at 14:37–38.

Figure 2A, reproduced below, shows a flowchart in accordance with an exemplary embodiment:

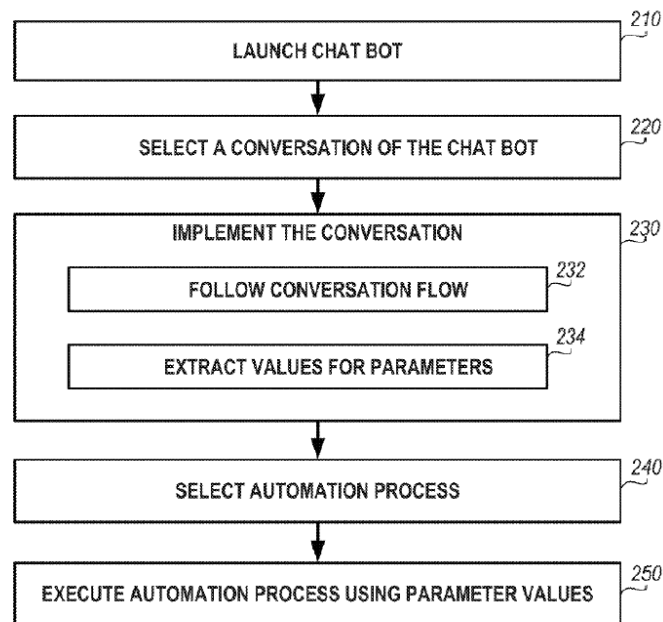


FIG. 2A

Figure 2A, above, shows step 210 (Launch Chat Bot), step 220 (Select a Conversation of the Chat Bot), Step 230 (Implement the Conversation), which further includes Step 232 (Follow Conversation Flow) and Step 234 (Extract Values for Parameters), Step 240 (Select Automation Process), and Step 250 (Execute Automation Process Using Parameter Values). After the chat bot is launched (step 210), the user may interact with the chat bot using natural language processing techniques and the appropriate conversation may be selected (step 220). Ex. 1001, 13:41–51. The user may, for example, “converse with the chat bot using natural language, such as using written text in a messenger-like [user interface (UI)], [or] using oral conversation such as by providing oral instructions that may be translated to text using speech-to-text methods.” *Id.* at 12:15–19. At step 230, the conversation may be implemented, and the chat bot may execute the conversation flow by following the flow defined for that conversation. *Id.* at 13:52–54. At step 240, an automation process may be selected based on the flow of the conversation. *Id.* at 14:12–14. “The automation may be a flow that comprises steps in a predefined order.” *Id.* at 14:40–41. At step 250, the automation process may be executed. *Id.* at 14:21. Certain actions can be defined to cause the corresponding steps to occur in an automation. *Id.* at 14:45–47. For example, the automation process may interact with an element-of-interest on the GUI, such as a clickable object or a button, and simulate a click thereon. *Id.* at 14:64–67; *see also id.* at 15:1–37 (describing additional elements-of-interest and how the automation process interacts with them). In some embodiments, the user may be provided with a link during the chat bot session, and the automation process may be executed after the user clicks on the link. *Id.* at, e.g., 16:32–39, Fig. 2B.

The '317 patent also discloses various schematic illustrations of a user interface by which a user can edit and define a bot (Figures 4A and 4B), edit and define a conversation (Figures 5A and 5B), edit and define an action step (Figure 5C), edit and define a question step (Figure 5D), edit and define a condition step (Figure 5E), and edit and define an automation process (Figure 6). Ex. 1001, 17:39–22:36. One example described in the foregoing figures is to “Add New Employee.” *Id.*

Figure 7A, reproduced below, shows a schematic illustration of a user interface of the user with a chat bot.

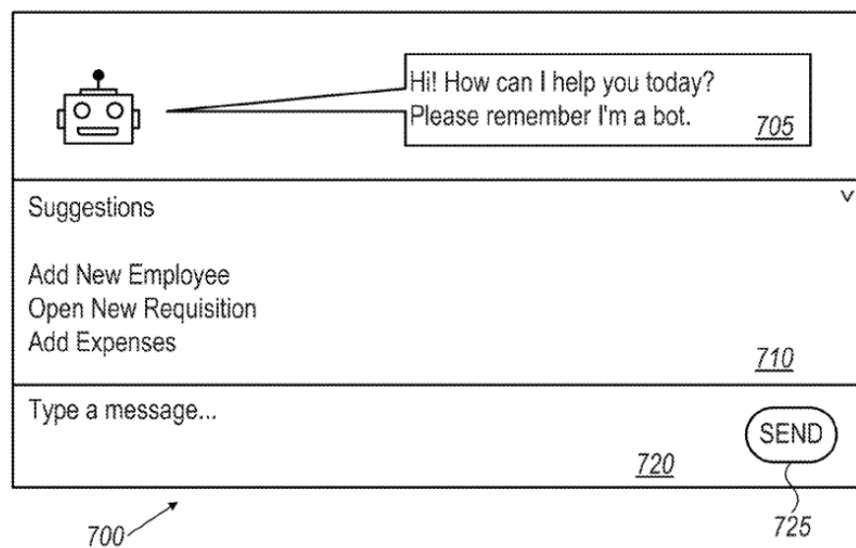


Fig. 7A

Figure 7A, above, shows a user interface of a user conversing with a chat bot after the chat bot has been launched. Ex. 1001, 22:40–43. The chat bot has provided a greeting “Hi! How can I help you today? Please remember I’m a bot.” (message 705), which may be based on the definition of the chat bot. *Id.* at 22:43–46. The chat bot has indicated suggested conversations 710 of “Add New Employee,” “Open New Requisition,” and “Add Expenses.” *Id.* at 22:55–58; *see id.* at 18:5–8. The user may converse with the chat bot by

entering a message in text field 720, or speech to text may be used to analyze speech of the user and generate a text string. *Id.* at 22:47–54.

Figure 7B, reproduced below, further shows a schematic illustration of a user interface of the user with a chat bot.

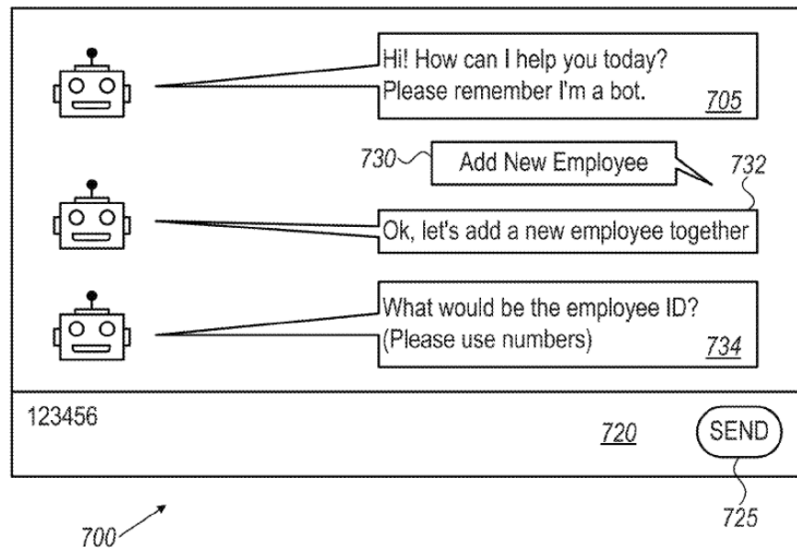


Fig. 7B

In Figure 7B, above, the user has indicated in message 730 that they would like to “Add New Employee.” The chat bot has started to implement the conversation flow of this selected conversation, and responds “Ok, let’s add a new employee together” (message 732) and “What would be the employee ID? (Please use numbers)” (message 734). Ex. 1001, 22:60–66. The user has replied in text field 720 with “123456.” *Id.* at 22:66–67.

D. Illustrative Claim

Of the challenged claims, claims 1, 9, and 16 are independent claims.

Claim 1, reproduced below with bracketed alphanumeric reference identifiers used by Petitioner, is illustrative of the claimed subject matter.

1. A chat-bot program product, wherein the chat-bot program product comprises non-transitory computer readable medium retaining program instructions, which program instructions when read by a processor, cause the processor to:

- [a] receive a user instruction from a user using a natural language interface;
- [b] determine to implement an automation process on a web-based target system in response to the user instruction;
- [c] collect information to be used as part of the automation process; and
- [d] implement the automation process by interacting with a Graphical User Interface (GUI) of the web-based target system and simulating user input to the GUI of the web-based target system, [e] wherein the automation process is performed with respect to third-party web-based target system and [f] without relying on an Application Programming Interface (API) exposed by the web-based target system, [g] wherein the implementation of the automatic process comprises:
 - automatically and without user input, filling in a text input field in the GUI of the web-based target system; and
 - [h] automatically and without user input, interacting with a widget in the GUI to cause the web-based target system to perform a predefined functionality.

Ex. 1001, 25:24–50.

E. Grounds of Unpatentability

Petitioner asserted, and we instituted *inter partes* review on, the following grounds of unpatentability:

Claim(s) Challenged	35 U.S.C. § ¹	Reference(s)/Basis
1–20	103	Symons (Article ² and Video) ³ Williams ⁴
1–20	103	Allen ⁵

¹ The Leahy-Smith America Invents Act, Pub. L. No. 112-29, 125 Stat. 284 (2011) (“AIA”), amended 35 U.S.C. § 103, effective March 16, 2013. Because the earliest filing date claimed by the ’317 patent is after that date, we refer to the AIA version of § 103.

² Senne Symons, *When Chatbots meet RPA bots*, available at <https://medium.com/roborana/when-chatbots-meet-rpa-bots-c8b22579f49a> (October 19, 2017) (Ex. 1004). Petitioner contends that the Symons Article is prior art to the ’317 patent at least under 35 U.S.C. § 102(a)(1) as a printed publication or as being otherwise available to the public. Pet. 10.

³ Screenshots from Senne Symons, “RPA meets chatbot: Automatically generate e-mail signature,” Vimeo (Oct. 19, 2017), <https://vimeo.com/238927879> (Ex. 1005 (original); Ex. 1006 (English translation)). Petitioner contends that the Symons Video is prior art to the ’317 patent at least under 35 U.S.C. § 102(a)(1) as a printed publication or as being otherwise available to the public. Pet. 10.

⁴ Douglas D. Williams and Ira L. Allen, *IBM Global Business Services White Paper: Using artificial intelligence to optimize the value of robotic process automation* (IBM 2017) (Ex. 1011). Petitioner contends that Williams is prior art to the ’317 patent at least under 35 U.S.C. § 102(a)(1) as a printed publication or as being otherwise available to the public. Pet. 13.

⁵ Allen et al., US 7,983,997 B2, issued July 19, 2011 (Ex. 1014). Petitioner contends that Allen is prior art to the ’317 patent at least under 35 U.S.C. § 102(a)(1). Pet. 37.

Claim(s) Challenged	35 U.S.C. § ¹	Reference(s)/Basis
1–4, 6, 7, 9–12, 14, 16–18	103	Krishnan, ⁶ Radhakrishnan ⁷

Pet. 8–77.

III. ANALYSIS

A. Legal Standards

In an *inter partes* review, a petitioner bears the burden of persuasion to prove “unpatentability by a preponderance of the evidence.” *Dynamic Drinkware, LLC v. Nat’l Graphics, Inc.*, 800 F.3d 1375, 1378 (Fed. Cir. 2015) (quoting 35 U.S.C. § 316(e)). This burden never shifts to Patent Owner. *Dynamic Drinkware*, 800 F.3d at 1378 (citing *Tech. Licensing Corp. v. Videotek, Inc.*, 545 F.3d 1316, 1326–1327 (Fed. Cir. 2008)). Petitioner must explain with particularity how the prior art would have rendered the challenged claims unpatentable. 35 U.S.C. § 312(a)(3); 37 C.F.R. § 42.104(b)(4) (“The petition must specify where each element of the claim is found in the prior art patents or printed publications relied upon.”).

A patent claim is unpatentable under 35 U.S.C. § 103 if “the differences between the claimed invention and the prior art are such that the claimed invention as a whole would have been obvious before the effective filing data of the claimed invention to a person having ordinary skill in the

⁶ Krishnan et al., US 10,839,798 B2, filed Jan. 30, 2018 (Ex. 1016). Petitioner contends that Krishnan claims priority from a provisional application filed on Nov. 3, 2017, and published on May 9, 2019, and is prior art to the ’317 patent at least under 35 U.S.C. § 102(a)(2). Pet. 58.

⁷ Radhakrishnan et al., US 10,503,627 B2, filed Oct. 30, 2017, published May 2, 2019 (Ex. 1018). Petitioner contends that Radhakrishnan is prior art to the ’317 patent at least under 35 U.S.C. § 102(a)(2). Pet. 60.

art to which the claimed invention pertains.” The question of obviousness is resolved based on 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 ordinary skill in the art; and (4) when presented, objective evidence of obviousness or nonobviousness, i.e., secondary considerations. *Graham v. John Deere Co.*, 383 U.S. 1, 17–18 (1966).

A patent claim “is not proved obvious merely by demonstrating that each of its elements was, independently, known in the prior art.” *KSR Int’l Co. v. Teleflex Inc.*, 550 U.S. 398, 418 (2007). An obviousness determination based on a combination of references requires finding “both ‘that a skilled artisan would have been motivated to combine the teachings of the prior art references to achieve the claimed invention, and that the skilled artisan would have had a reasonable expectation of success in doing so.’” *Intelligent Bio-Sys., Inc. v. Illumina Cambridge Ltd.*, 821 F.3d 1359, 1367–68 (Fed. Cir. 2016) (citation omitted); *see KSR*, 550 U.S. at 418. Further, an assertion of obviousness “cannot be sustained by mere conclusory statements; instead, there must be some articulated reasoning with some rational underpinning to support the legal conclusion of obviousness.” *KSR*, 550 U.S. at 418; *In re NuVasive, Inc.*, 842 F.3d 1376, 1383 (Fed. Cir. 2016) (a finding of a motivation to combine “must be supported by a ‘reasoned explanation’”).

In some instances, “inherency may supply a missing claim limitation in an obviousness analysis.” *PAR Pharm., Inc. v. TWI Pharms., Inc.*, 773 F.3d 1186, 1194–95 (Fed. Cir. 2014). However a party must “meet a high standard in order to rely on inherency to establish the existence of a claim limitation in the prior art in an obviousness analysis—the limitation at issue

necessarily must be present, or the natural result of the combination of elements explicitly disclosed by the prior art.” *Id.* at 1196. In other words, “the mere fact that a certain thing may result from a given set of circumstances is not sufficient” to find a limitation as inherent. *In re Oelrich*, 666 F.2d 578, 581 (C.C.P.A. 1981).

B. Level of Ordinary Skill in the Art

Determining whether an invention would have been obvious under 35 U.S.C. § 103 requires resolving the level of ordinary skill in the pertinent art at the time of the effective filing date of the claimed invention. *Graham*, 383 U.S. at 17. The person of ordinary skill in the art is a hypothetical person who knows the relevant art. *In re GPAC Inc.*, 57 F.3d 1573, 1579 (Fed. Cir. 1995). Factors that may be considered in determining level of ordinary skill in the art include (1) the educational level of the inventor; (2) the types of problems encountered in the art; (3) prior art solutions to those problems; (4) the rapidity with which innovations are made; (5) the sophistication of the technology; and (6) the educational level of active workers in the field. *Daiichi Sankyo Co. v. Apotex, Inc.*, 501 F.3d 1254, 1256 (Fed. Cir. 2007).

Petitioner proposes that a “person of ordinary skill in the art (‘POSITA’) in the field of the ’317 patent would have [had a] bachelor’s degree in engineering or computer science and two years of experience working on NLP [natural language processing] or automation processes” or “[a]lternatively . . . would have [had] five to six years of experience working on NLP or automation processes.” Pet. 6 (citing Ex. 1003 ¶¶ 43–45). We adopted Petitioner’s proposal for purposes of the Decision on Institution, explaining that it appeared to be consistent with the evidence of record, including the asserted prior art and the ’317 patent. Dec. 12.

Patent Owner disagrees with Petitioner’s proposal, contending that it is inconsistent with the asserted Symons prior art and with factors (4)–(6) set forth in *Daiichi Sankyo*. PO Resp. 20–21 (citing Ex. 2002 ¶¶ 36–45). According to Patent Owner, the technology of the ’317 patent was “evolving rapidly” and the level of sophistication in the technology was “relatively low” in November 2017. *Id.* at 21–22 (citing Ex. 1004, 1–2; Ex. 1009, 2; Ex. 2002 ¶ 42; Ex. 2003 (transcript of June 26, 2024, deposition of Dr. Beigi), 141:2–9, 191:18–197:5; Ex. 2007; Ex. 2008). Further, Patent Owner contends, “[a]ctive work[ers] in the field, like Symons,^[8] had less experience than [Dr. Beigi] proposed.” *Id.* at 22 (citing Ex. 2002; Ex. 2003, 112:12–24). Accordingly, Patent Owner argues, “[t]he evidence of record demonstrates a more appropriate level of skill would [be] a worker who had some education, formal or informal, in computer science and 1–2 years’ work experience with chatbots using NLP and/or automation processes.” *Id.* (emphasis omitted) (citing Ex. 1003 ¶ 44; Ex. 2002 ¶ 44; Pet. 5–6). “Under Patent Owner’s more appropriate analysis,” Patent Owner contends, “Dr. Beigi’s interpretation of what a POSITA would understand are overstated,” as “[h]e expects a POSITA to have ‘more experience’ (like himself) and apply a more ‘technically correct’ (in his view) understanding of the prior art than less skilled authors and artisans would have understood.” *Id.* (citing Ex. 2003, 141:2–9, 191:18–197:5). Nonetheless, Patent Owner argues, “[s]hould the Board continue to apply Petitioner’s

⁸ We understand “Symons” to refer to Senne Symons, the author of the Symons Article (Ex. 1004) and Symons Video (Ex. 1005) cited in Petitioner’s first asserted ground of unpatentability. *See* Ex. 1008 ¶¶ 5, 7 (Declaration of Senne Symons).

proposed level, Mr. Zatkovich confirms his analysis would still remain accurate.” *Id.* at 23 (citing Ex. 2001 ¶ 43).

In the Reply, Petitioner stands by its proposal, arguing that “[t]he record shows that the key aspects of the art—chatbots, RPAs [robotic process automations] and their combinations—were well known by 2017 and thereby point to a higher level of skill in the art.” Reply 23. In support, Petitioner points, for example, to descriptions of chatbots from 1994/1995 that used natural language processing and descriptions of chatbot/RPA combinations from as early as 2007. *Id.* (citing Ex. 1014; Ex. 1028, 4; Ex. 1031, 4, 12–13; Ex. 1032, 3; Ex. 1042 ¶¶ 110–111). Further, according to Petitioner, Patent Owner mischaracterizes the asserted prior art and evidence insofar as it reflects that the general technology landscape, rather than the chatbot/RPA combination specifically, was “evolving rapidly” at the time of the alleged invention. *Id.* (citing PO Resp. 21–22; Ex. 1004, 1; Ex. 1009, 2; Ex. 1042 ¶¶ 113–114). As for Symons’ experience, Petitioner argues, Patent Owner “improperly assumes that Symons’ experience before his job at RoboRana^[9] does not count.” *Id.* (citing PO Resp. 22; Ex. 1036, 16:7–25; Ex. 1042 ¶ 115). Still further, Petitioner contends, “it is unclear what ‘some education, formal or informal’ and ‘some’ work experience mean.” *Id.* (citing PO Resp. 22; Ex. 2002 ¶ 44; Ex. 1042 ¶¶ 116). In any event, Petitioner argues, “the parties do not dispute that the outcome would be the same regardless of which POSITA level the Board adopts.” *Id.* (citing PO Resp. 23; Ex. 1042 ¶ 117).

⁹ We understand “RoboRana” to refer to Mr. Symons’ employer at the time the Symons Article and Symons Video were published. *See* Ex. 1008 ¶ 2.

Having considered the parties' respective arguments and the evidence of record, we adopt a modified version of Patent Owner's proposal and determine for purposes of this Decision that a person of ordinary skill in the art as of November 5, 2017, would have had a bachelor's degree in computer science and 1–2 years' work experience with chatbots using NLP or automation processes. We agree with Petitioner that Patent Owner's original proposal introduces unnecessary ambiguity through its inclusion of the phrase "some education, formal or informal," but we find that proposal otherwise consistent with the record evidence. Nonetheless, we agree with Petitioner that the outcome would be the same if we were instead to adopt the proposal set forth in the Petition.

C. Claim Construction

In an *inter partes* review, we apply the same claim construction standard as would be used by a district court to construe a claim in a civil action involving the validity or infringement of a patent. 37 C.F.R. § 42.100(b). Under that standard, claim terms are given their ordinary and customary meaning, as would have been understood by a person of ordinary skill in the art at the time of the invention, in light of the language of the claims, the specification, and the prosecution history of record. *Id.*; *Phillips v. AWH Corp.*, 415 F.3d 1303, 1312–19 (Fed. Cir. 2005) (en banc); *Thorner v. Sony Comput. Entm't Am. LLC*, 669 F.3d 1362, 1365–66 (Fed. Cir. 2012). "The Board is required to construe 'only those terms . . . that are in controversy, and only to the extent necessary to resolve the controversy.'" *Realtime Data, LLC v. Iancu*, 912 F.3d 1368, 1375 (Fed. Cir. 2019) (quoting *Vivid Techs., Inc. v. Am. Sci. Eng'g, Inc.*, 200 F.3d 795, 803 (Fed. Cir. 1999))).

Petitioner states that it “does not believe any terms require a formal construction” “[f]or purposes of this Petition.” Pet. 6. Patent Owner similarly represents that “[t]he parties agree that the claim terms used in the ’317 Patent claims have their ‘ordinary and custom[ary] meanings of terms’ as would be understood by a POSITA as of November 5, 2017.” PO Resp. 24. After reviewing the parties’ arguments and evidence, we determine that no express claim construction is necessary. *See Realtime Data*, 912 F.3d at 1375.

D. Asserted Prior Art

1. Symons (Article and Video)

The Symons Article, titled “When Chatbots meet RPA bots,” is an online publication that describes a “join[der of] forces” between Symons’ employer, RoboRana, described as “[a] part of the iBizz cluster within the Cronos Group, . . . focus[ed] on delivering RPA technology to a wide spectrum of clients across different sectors,” and Arinti, another member of the Cronos Group, “specialized in chatbot and AI technologies,” “to explore the possibilities to combine RPA bots with chatbots.” Ex. 1004, 1; *see also* Ex. 1008 ¶¶ 4–6 (identifying the Symons Article as a blog post published and made available online). According to the Symons Article, “[b]oth technologies have their specific advantages and combining them to automate processes can tremendously boost productivity in multiple organizations.” Ex. 1004, 1–2. By way of background, the Symons Article explains, “**Chatbots** enable organizations to offer a more intuitive, natural way to interact with their customers,” and “[b]y handling and structuring problems and questions quicker, it greatly reduces waiting times and improves customer satisfaction.” *Id.* at 2. Eventually, according to the Symons Article, “a chatbot powered by AI will become indistinguishable from a

human, leading to reduced costs and higher productivity.” *Id.* On the other hand, the Symons Article continues, “**Robotics Process Automation (RPA)** allows organizations to execute manual processes much faster, more accurate and reliable,” as an “RPA bot can mimic the users[’] actions and thus enables organizations to automate repetitive tasks and ensures that those tasks are always executed with the same consistency and precision.” *Id.*

The Symons Article states that “[t]he goal of the showcase is to automate the process of creating an email signature.” Ex. 1004, 2. First, “the chatbot collects all the necessary information in a friendly, interactive manner.” *Id.* Next, “[t]his information gets passed on the RPA robot, which will then automatically generate the signature, save it, and email it back to the requester.” *Id.* According to the Symons Article, the automated process is shown in the Symons Video, titled “RPA meets chatbot: Automatically generate e-mail signature,” linked therein. *Id.* at 3; *see also* Ex. 1008 ¶¶ 7–8 (stating that the Symons Video was described and included in the Symons Article, as well as being published and made available on the Vimeo online video sharing platform). The Symons Video shows a chatbot interacting with a user to collect information necessary to create an email signature. Ex. 1006, 2–9. Following collection of the necessary information, a RPA bot is triggered, automatically opening a Cronos email signature generator program in a browser and entering the details previously provided by the user. *Id.* at 11–12. The RPA bot then automatically copies the signature generator program’s output to a clipboard and then to a Word file. *Id.* at 13–15. Finally, the RPA bot emails the Word file with the signature to the user. *Id.* at 17–22.

2. *Williams*

Williams, titled “IBM Global Business Services White Paper: Using artificial intelligence to optimize the value of robotic process automation,” discusses the use of “cognitive computing” to address challenges of RPA and provides “examples of complex process automation and intelligent automation using IBM Watson® in business process services.” Ex. 1011, 1–2. According to Williams, “[a]lthough robots can be configured to interface directly with applications through pre-existing application programming interfaces (APIs), these platforms are equally able to work through systems’ graphical interfaces, including web browsers and Citrix terminal sessions,” “mean[ing] that robotic automation can be deployed in a relatively short period of time measured in days and weeks, instead of more heavy, traditional IT programming efforts that can take months and require a much larger upfront investment.” *Id.* at 2. Further, according to Williams,

Cognitive computing provides a new way of interacting with non-digital, upstream processes to collect and transcribe information in a manner that can then be leveraged downstream in the process by robots. For example, chatbots or digital assistants are deployed within helpdesk functions to interact with an end user, replacing the human agent in a traditional call center.

These chatbots can engage in natural language dialog with the caller and discern, through a series of interactions, the nature of the call and then capture information required to further handle the request. The chatbot will then trigger a robot, passing the required information to the robot to complete the request.

. . . Using chatbots, we have replaced the call center agent and now use a virtual agent to interact directly with the supplier. Through several scripted questions, the virtual agent can surmise that the supplier is asking for status on their payment and, thus, trigger an RPA robot to access the appropriate enterprise resource planning (ERP) backend system, validate the caller’s details, retrieve necessary information, and provide status back in real-time to the supplier. The chatbot then closes the call and

updates the ticket management system used to track call center activities.

Id. at 3. Williams also states that chatbots “can be used in a variety of other process and across industries . . . to help reinvent call center operations.” *Id.*

Williams describes the “Watson Policy Management Library (WPML), which allows business process owners to draft, create and amend rules and policy changes outside of the RPA product using normal conversational text. The robot then interacts with WPML to look up and apply rules related to automated processes.” Ex. 1011, 4.

Williams shows an example of an intelligent automation continuum in Figure 1, reproduced below.

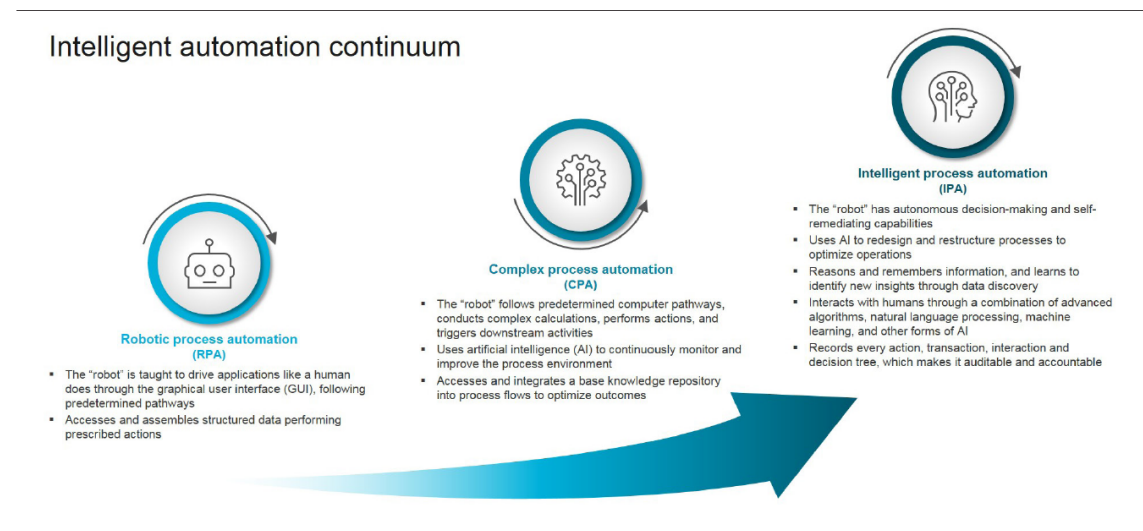


Figure 1. This diagram shows IBM's intelligent automation continuum.

Figure 1, above, is a “diagram show[ing] IBM’s intelligent automation continuum,” ranging from “Robotic process automation (RPA),” to “Complex process automation (CPA),” and then to “Intelligent process automation (IPA).” Ex. 1011, 4. At the RPA stage, a “‘robot’ is taught to drive applications like a human does through [a] graphical user interface (GUI), following predetermined pathways” and then “[a]ccesses and

assembles structured data performing prescribed actions.” *Id.* In the CPA stage, “[t]he ‘robot’ follows predetermined computer pathways, conducts complex calculations, performs actions, and triggers downstream activities,” “[u]ses artificial intelligence (AI) to continuously monitor and improve the process environment,” and “[a]ccesses and integrates a base knowledge repository into process flows to optimize outcomes.” *Id.* Finally, at the IPA stage, “[t]he ‘robot’ has autonomous decision-making and self-remediating capabilities” and can, *inter alia*, “[i]nteract with humans through a combination of advanced algorithms, natural language processing, machine learning, and other forms of AI.” *Id.*

3. *Allen*

Allen, titled “Interactive Complex Task Teaching System That Allows for Natural Language Input, Recognizes a User’s Intent, and Automatically Performs Tasks in Document Object Model (DOM) Nodes,” is generally directed to a “system which allows a user to teach a computational device how to perform complex, repetitive tasks that the user usually would perform using the device’s graphical user interface (GUI).” Ex. 1014, codes (54), (57). Allen explains that “[t]he user ‘teaches’ task steps by inputting natural language and demonstrating actions with the GUI.” *Id.* at code (57). “After a complete task has been taught, the system is able to automatically execute the task in new situations.” *Id.*

Figures 2 and 3 show how the system (called “Procedural Learning on the Web,” or “PLOW”) can learn to order a book. Ex. 1014, 4:64–66,

5:23–24. Figure 2, reproduced below, shows a graphical user interface. *Id.* at 4:1–2.

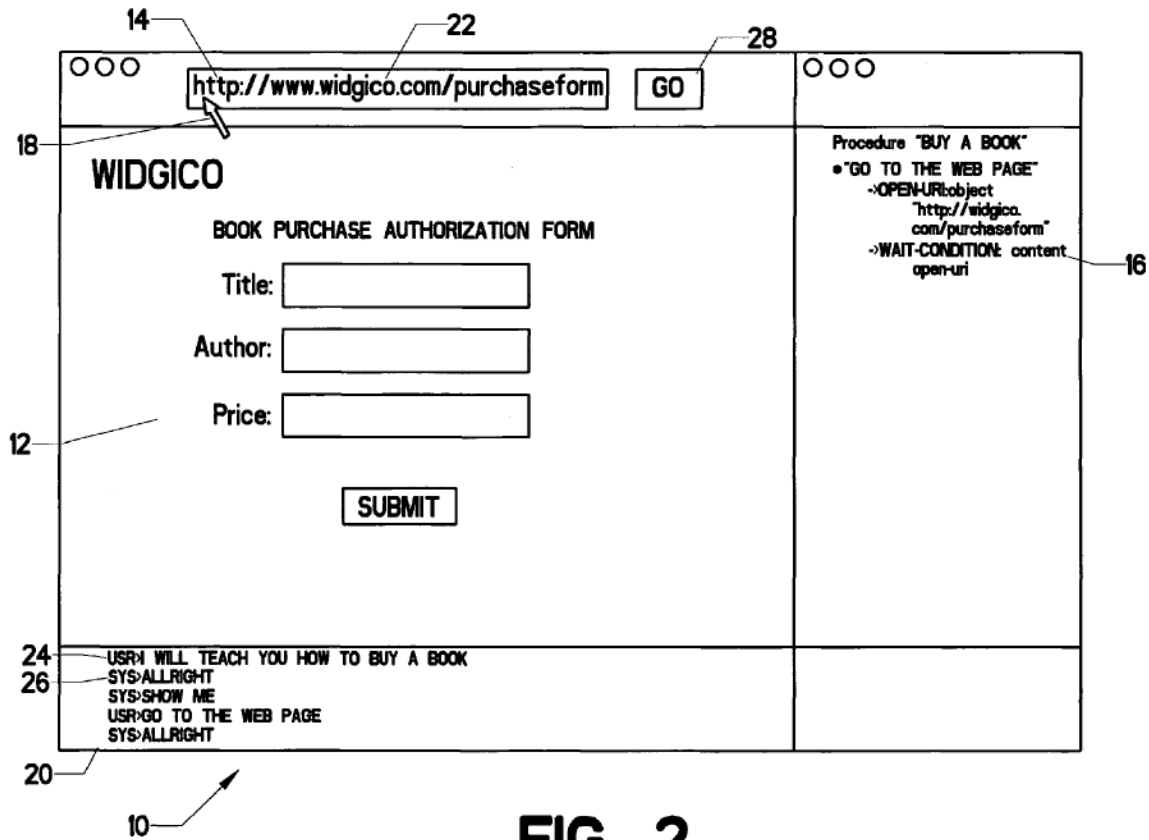


FIG. 2

Figure 2 shows, among other things, browser display 12, speech interface display 20, and task log 16. The user may type words using a keyboard, or speak the words that will be deciphered with a language recognition software module that will be displayed as user speech 24 in speech interface display 20. *Id.* at 5:24–31. In this example, the system displays “USR>I WILL TEACH YOU HOW TO BUY A BOOK” in speech interface display 20, where “USR” indicates that the speech was uttered by the user. *Id.* at 5:36–40. The system provides responsive statements back to the user that are displayed as system speech 26 in speech interface display 20, shown in this example as “SYS>ALLRIGHT SYS>SHOW ME,” where “SYS”

indicates that the speech was uttered by the computer. *Id.* at 5:41–49. The system’s language understanding module can ultimately determine the user’s intent. *Id.* at 5:52–55. After receiving the statement from the user, the system creates a title for the new process it is about to learn (here, “BUY A BOOK”), and displays the title in task log 16. *Id.* at 5:56–60.

The user further speaks the phrase “Go to this web page,” which is displayed as “USR>GO TO THE WEB PAGE” in speech interface display 20. Ex. 1014, 5:63–65. The system responds “ALLRIGHT,” as shown in speech interface display 20. *Id.* at 5:65–6:3. The user then demonstrates the action rather than speaking. *Id.* at 6:4.

Figure 3, reproduced below, shows a graphical user interface demonstrating the user’s actions.

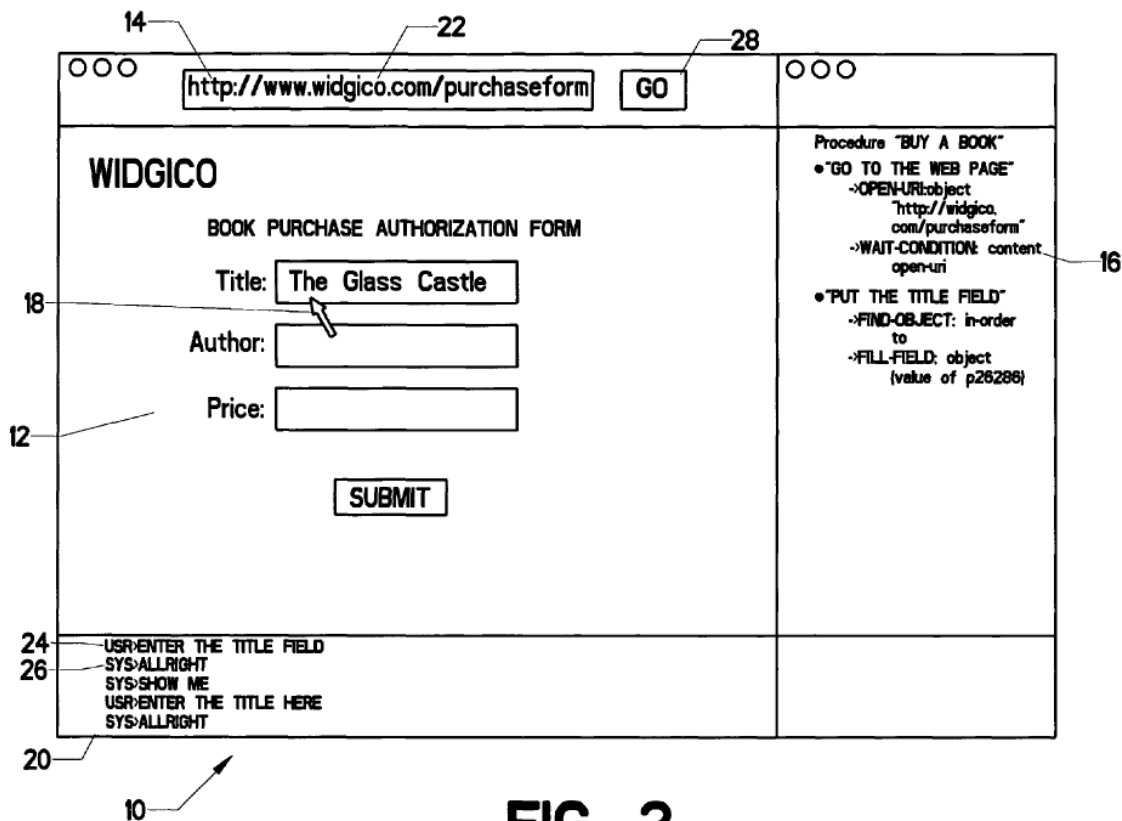


FIG. 3

Figure 3, above, shows, among other things, a graphical user interface with moveable cursor 18 and Uniform Resource Identifier (URI) entry box 14. The user moves moveable cursor 18 to URI entry box 14, types input 22 using a keyboard to identify the URI for the desired website (here, www.widgico.com/purchaseform), and presses GO button 28, which causes the web browser to “navigate” to the URI. Ex. 1014, 6:4–11. The system monitors the user actions and stores them, understanding that the typed URI identifies the appropriate website. *Id.* at 6:12–14. Each of the steps is represented in task log 16. *Id.* at 6:14. “The step is stored by PLOW as a series of actions, so that when it is later asked to carry out the process on its own, the system will execute the same actions.” *Id.* at 6:16–18. The process continues:

The user utters the statement “Enter the title field,” which appears as deciphered text in speech interface display 20. PLOW then responds by issuing the voice-synthesized statement “All right. Show me.” The user moves movable cursor 18 to title entry box 30, while uttering the instruction “Enter the title here.” The system responds by saying “All right.” This indicates that PLOW has understood the last instruction and has recorded the necessary steps. The user then types the desired book title (“The Glass Castle”) into title entry box 30. Task log 16 is updated with a new step and the procedures defining the step.

Id. at 6:30–40. The system, thus, observes the user’s demonstration.

Id. at 6:47–48. The teaching process continues forward, with the user teaching the PLOW system how to finish ordering the book. *Id.* at 6:49–53.

Allen further states that

Once the complete task is learned, the user can employ PLOW’s task database the next time he or she wishes to order a book. The user would only need to say something like “I want to buy a book.” The system would then ask, “What is the title of

the book?” Once that information is provided, PLOW would then perform the steps it was previously taught and complete the transaction.

Ex. 1014, 12:62–13:1 (hereafter, “the execution process”).

4. *Krishnan*

Krishnan, titled “Intent Interpreter for a Visual Bot Builder,” explains that designing chatbots often involves using text editors, which makes the configuration and design process burdensome for the developer. Ex. 1016, code (54), 1:19–21. Thus, according to Krishnan, improved interfaces for the design, configuration, and testing of chatbots are desired. *Id.* at 1:21–23. Krishnan describes a visual chatbot builder that operates, in one embodiment, by “receiving a selected dialog including . . . interactions between a chat bot and a recipient” and receiving a plurality of “phrases corresponding to triggering an execution of the selected dialog.” *Id.* at code (57). The selected dialog is configured such that upon receipt of one or more of the plurality of phrases, the chat bot executes the selected dialog responsive to the received phrase or phrases. *Id.* For example, the chat bot may be configured to interact and serve as an interface between a customer and one or more backend databases or other information processing systems and also may be used in conjunction with a live person, to whom the customer may be transferred if the chatbot is unable to fulfill the customer’s request. *Id.* at 2:27–39. Further, the chatbot may respond to customer input by retrieving and providing requested information, requesting additional input or information from the user, or performing an action and providing the user with status updates about the progress of the action. *Id.* at 2:40–44. “An interaction with a bot may begin with the bot executing a welcome dialog that includes a basic greeting from the bot such as ‘Hello, how may I

help you today?”” *Id.* at 2:56–58. “From there, depending on how the user answers, different dialogs, programs, or other sub-routines may be called by the bot to interact with the user.” *Id.* at 2:58–61.

Figure 1 of Krishnan, reproduced below, shows an example interface and conversation between the chatbot and a customer.

100

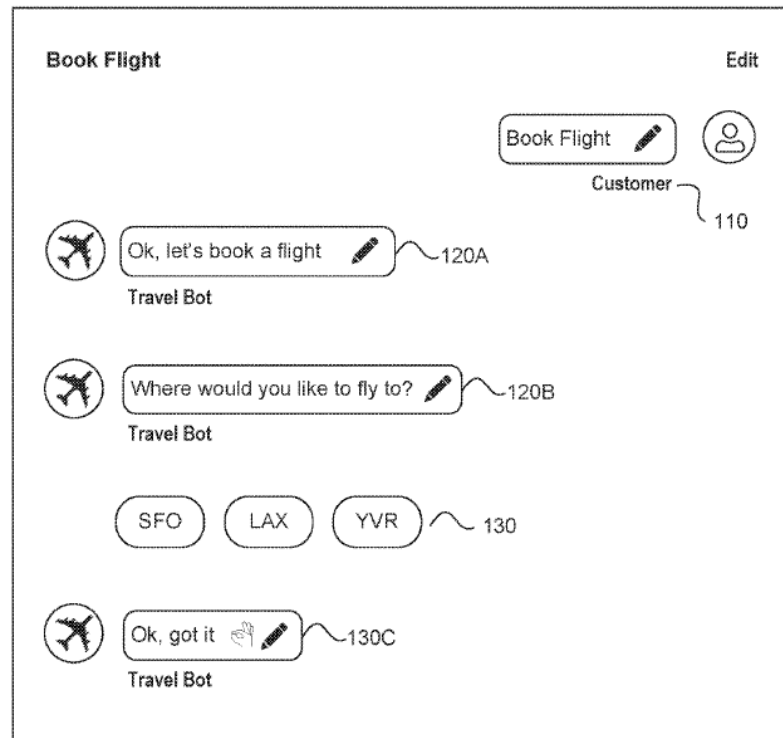


FIG. 1

Figure 1 “illustrates an example conversation 100 of an execution of a book flight dialog between a chat bot and a user, according to an embodiment” of Krishnan’s invention. Ex. 1016, 2:51–53. More particularly, “[i]n conversation 100, a user or customer [110] is requesting to book a flight via a chat bot.” *Id.* at 2:53–55. Upon receiving a book flight command, the chatbot may execute a book flight dialog. *Id.* at 2:62–63. “In its execution, the chat bot may respond by acknowledging the customer’s request to book a flight 120A, and may begin requesting additional information 120B.” *Id.*

at 2:63–66. “The book flight dialog may cause the chat bot to request information necessary to book the flight, such as locations, dates of travel, seat preferences, and credit card information, and then processes the request to book the flight.” *Id.* at 2:66–3:3. In response to the chatbot’s inquiry, “the user may select one of the provided options for a destination 130 (e.g., by clicking on a button), and the chat bot may confirm the selection 130C.” *Id.* at 3:4–7. The chatbot may then continue executing the book flight dialog until the user books a flight or cancels the request. *Id.* at 3:7–9.

5. *Radhakrishnan*

Radhakrishnan, titled “Robotic Process Automation Enabled File Dissection for Error Diagnosis and Correction,” describes an RPA module that interacts with a user interface of an application to simulate user operations with a user device to generate an operation record for automatically generating and transmitting a diagnosis and correction request to a workstation. Ex. 1018, codes (54), (57). In some embodiments, the simulated user operations may be executed in parallel with the operations of the user to be able to provide a detailed record of the user’s operational steps should an error occur such as a program crash, file corruption, or the like. *Id.* at code (57), 1:56–2:3. According to Radhakrishnan, the invention leverages RPA technology to diagnose and rectify errors experienced during typical operation of a system or user device and reduces the amount of computing resources required to execute tasks when compared with executing the same tasks using a traditional API. *Id.* at 6:17–25.

Figure 2 of Radhakrishnan, reproduced below, provides a high-level process flow for automated error diagnosis and correction, in accordance with embodiments of the invention. Ex. 1018, 9:57–59.

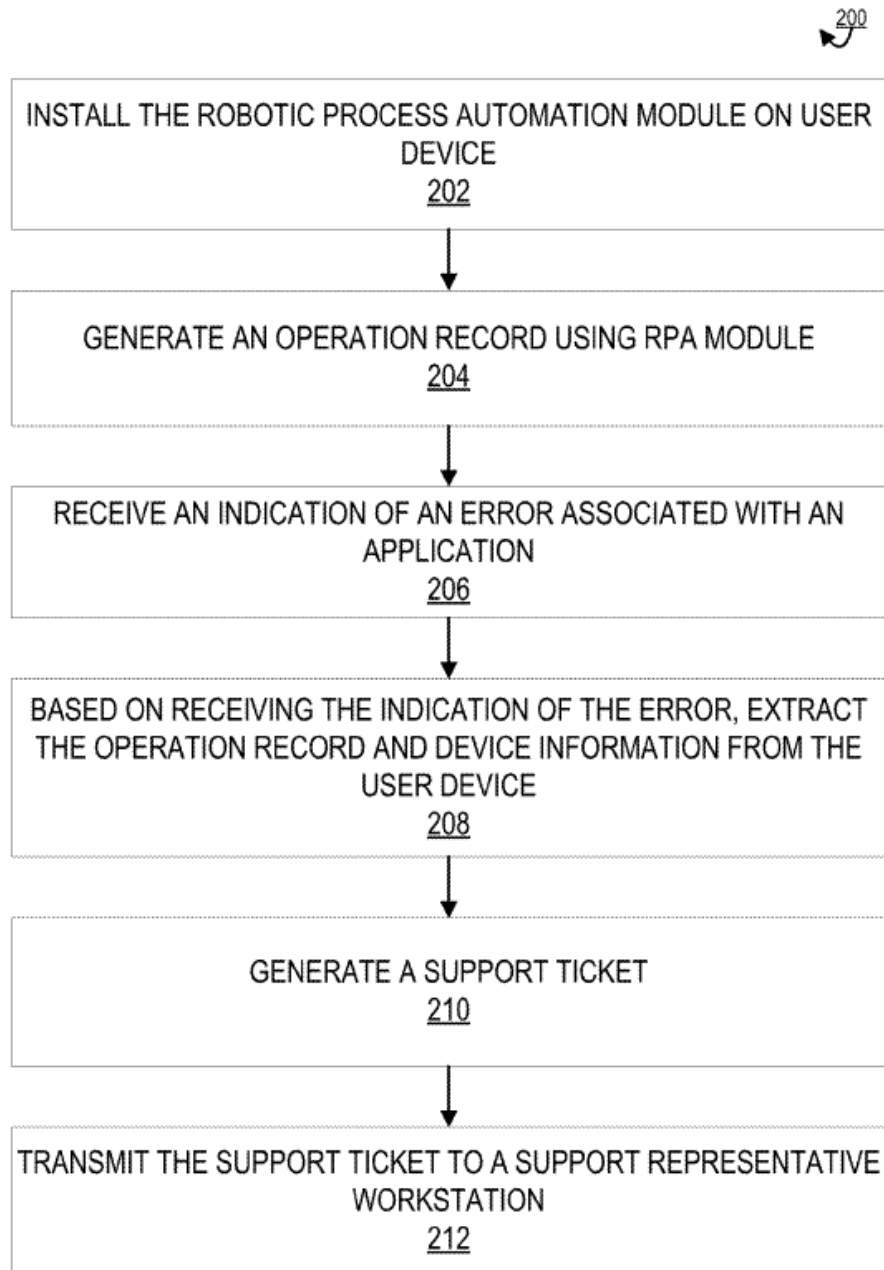


FIG. 2

With reference to Figure 2, above, the system first installs an RPA module on a user device (step 202), where “[t]he RPA module may be configured,

programmed, or ‘taught’ to execute one or more operations such as reproduce user input into the user device,” either before installation, subsequently, or in real time while monitoring the user’s input operations on the user device. *Id.* at 9:59–10:6. In step 204, the system generates an operation record by “monitor[ing] for one or more operations of the user device and/or an application executed on the user device,” where the operation record may include, for example, user information, device information, or the like, in addition to the record of operations. *Id.* at 10:51–62. In step 206, the system receives an indication of an error associated with the application, which may be “any interruption of normal operation of the application of a file associated with the application,” including “application process failures, crashes, bugs, glitches, corrupt files, missing files, or the like.” *Id.* at 11:61–67. In step 208, the system extracts the operation record and device information from the user device, based on receiving the indication of the error, and may generate an error log in addition to or as part of the operation record. *Id.* at 12:24–29. Finally, in steps 210 and 212, respectively, the system generates a support ticket and transmits the support ticket to a support representative workstation. *Id.* at 12:37–39.

E. Ground 1: Obviousness over Symons and Williams

Petitioner contends claims 1–20 are unpatentable under 35 U.S.C. § 103 over the Symons Article and Symons Video (collectively, “Symons”) in combination with Williams. Pet. 15–37; Reply 1–14. Patent Owner opposes. PO Resp. 2–7, 24–45; Sur-reply 4–14. For the reasons explained below, we determine that Petitioner has not shown by a preponderance of the evidence that any of the challenged claims are unpatentable on this ground.

1. Independent Claim 1

a. Petitioner's Contentions

Petitioner contends that the combination of Symons and Williams teaches the limitations of independent claim 1. Pet. 15–23. In support, Petitioner identifies certain passages and figures in the references and explains their significance with respect to the corresponding claim limitations, with additional support from Dr. Beigi's Declaration, as detailed below. *Id.*

- i. "A chat-bot program product, wherein the chat-bot program product comprises non-transitory computer readable medium retaining program instructions, which program instructions when read by a processor, cause the processor to"*

Petitioner contends that, to the extent the preamble¹⁰ of claim 1 is limiting, it is disclosed by Symons. Pet. 15–16. In particular, Petitioner argues "Symons discloses a computer program, operated by a computer system, comprising a 'chatbot [that] collects . . . information' and 'automate[s] the process of creating an email signature.'" *Id.* at 15 (citing Ex. 1004, 2). Citing Dr. Beigi's declaration, Petitioner further contends that a computer system "comprises a non-transitory computer readable medium

¹⁰ Petitioner identifies as the preamble of claim 1 the entire clause "A chat-bot program product, wherein the chat-bot program product comprises non-transitory computer readable medium retaining program instructions, which program instructions when read by a processor, cause the processor to." Pet. 15. For purposes of this Decision, we need not make any determination whether the recitation "non-transitory computer readable medium retaining program instructions, which program instructions when read by a processor, cause the processor to," following the word "comprises," is properly considered to be part of the preamble.

retaining program instructions and processor” and “performs steps according to the program instructions when read by the processor.” *Id.* at 15–16 (citing Ex. 1003 ¶ 70).

- ii. *1[a]: “receive a user instruction from a user using a natural language interface;”*

Petitioner relies on Symons as teaching limitation 1[a], arguing that Symons’s chatbot uses a natural language interface to receive an input from the user in the form of the user instruction “I want a new signature” depicted in the screenshot at page 3 of Exhibit 1006. Pet. 16 (citing Ex. 1003 ¶¶ 71–74; Ex. 1006, 3).

- iii. *1[b]: “determine to implement an automation process on a web-based target system in response to the user instruction;”*

With regard to limitation 1[b], Petitioner contends, first, that “Symons *determines* whether to implement an automation process that ‘***automate[s] the process*** of creating an email signature’” in response to the user’s request (“I want a new signature”) cited as the “user instruction” in connection with limitation 1[a]. Pet. 16–17 (quoting Ex. 1004, 2 (emphasis added)) (citing Ex. 1003 ¶¶ 75–7, 77); *see supra* § III.E.1.a.ii. According to Petitioner, it would have been obvious for Symons to determine to implement an automation process based on waiting for the user to provide the user instruction, or based on receiving collected information from the chatbot, citing the Symons Video’s disclosure that “[t]he chatbot triggers the RPA bot.” Pet. 17 (quoting Ex. 1006, 10) (citing Ex. 1003 ¶¶ 76–77; Ex. 1004, 2).

Second, Petitioner contends that, “[t]o the extent that Symons does not determine to implement an automation process, it would have been obvious

in view of Williams.” Pet. 17 (citing Ex. 1003 ¶ 78). In particular, Petitioner argues,

Williams discloses a method comprising “chatbots [that] engage[s] in natural language dialog with the caller and ***discern, through a series of interactions, the nature of the call and then capture information required to further handle the request.*** The chatbot will then trigger a robot, passing the required information to the robot to complete the request.”

A POSITA would have been motivated to have a chatbot that discerns the user’s intent (the nature of the call) so that the RPA can handle multiple requests, improving the costs, time, and capabilities. RPA robots are designed to execute multiple different types of automation processes, so combining Symons and Williams, both which disclose chatbots-RPA bot systems, is a natural extension of exploiting the full capabilities of RPA. The Symons-Williams combination results in a chatbot-RPA bot system capable of handling a user request for automated email signature generation along with other requests, such as automated generation of an electronic letterhead or an electronic invoice. The ability to handle multiple requests would expand the capabilities and flexibilities of the chatbot-RPA bot without requiring much effort and with a reasonable expectation of success.

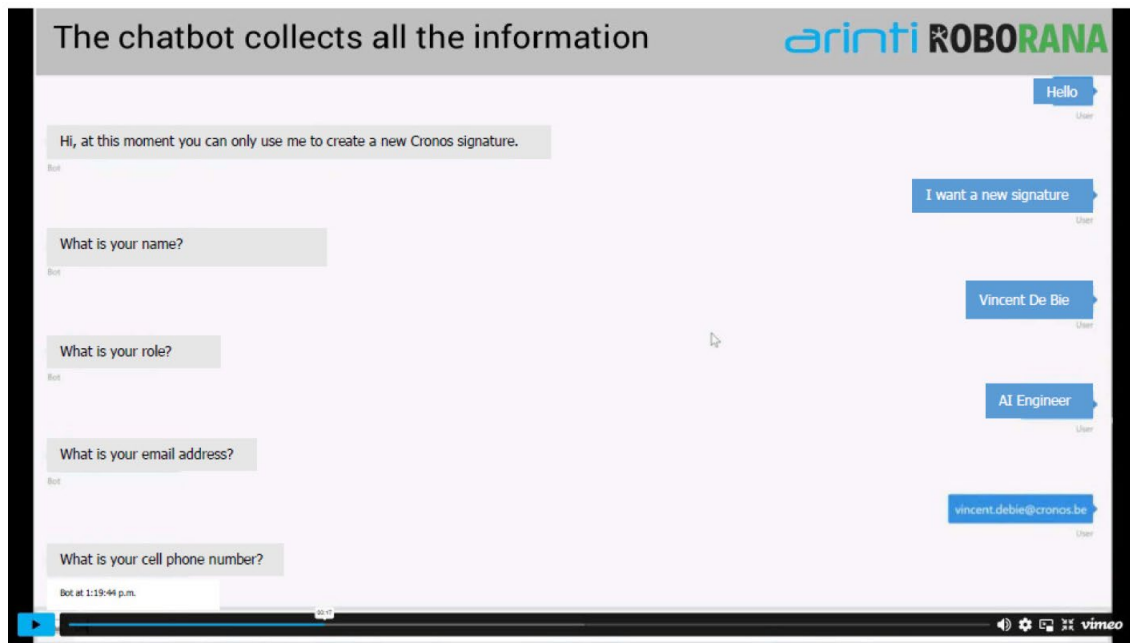
Id. at 17–18 (alterations in original) (quoting Ex. 1011, 3 (emphasis added)) (citing Ex. 1003 ¶¶ 79–82).

Finally, Petitioner contends “Williams discloses a web-based target system (‘these platforms are equally able to work through systems’ graphical interfaces, include web browsers’), so the Symons-Williams combination implements an automation process on a web-based target system.” Pet. 18 (quoting Ex. 1011, 2) (citing Ex. 1003 ¶ 83).

iv. 1[c]: “collect information to be used as part of the automation process; and”

Petitioner relies on Symons for limitation 1[c], citing Symons’s disclosure that “the chatbot collects all the necessary information in a

friendly, interactive manner” and referring to following screenshot from the Symons Video depicted at page 5 of Exhibit 1006:



Pet. 18–19 (citing Ex. 1003 ¶ 84; Ex. 1004, 2; Ex. 1006, 5). The screenshot above depicts the following conversation:

User: Hello

Bot: Hi, at this moment you can only use me to create a new Cronos signature.

User: I want a new signature

Bot: What is your name?

User: Vincent De Bie

Bot: What is your role?

User: AI Engineer

Bot: What is your email address?

User: vincent.debie@cronos.be

Bot: What is your cell phone number?

With reference to the above screenshot, Petitioner argues that “[t]he chatbot receives user input in response to questions . . . , and the collected

information is used as part of the automation process of generating an email signature.” *Id.* at 19 (citing Ex. 1003 ¶¶ 85–86; Ex. 1006, 5).

- v. *1[d]: “implement the automation process by interacting with a Graphical User Interface (GUI) of the web-based target system and simulating user input to the GUI of the web-based target system,”*

For limitation 1[d], Petitioner relies on Symons as teaching implementation of an “automat[ion] process of creating an email signature,” where “[t]he RPA bot automatically opens browser and enters details,” “mimic[ing] the users actions.” Pet. 19 (alterations in original) (quoting Ex. 1004, 2) (citing Ex. 1003 ¶ 87). Petitioner argues that “[t]he RPA simulates the user inputs of the name, job role, email address, and mobile number into text input fields of the GUI . . . and simulates clicking on GUI buttons.” *Id.* at 19–20 (citing Ex. 1003 ¶¶ 88–89; Ex. 1006, 10, 12). Petitioner further contends that it would have been obvious to combine Symons and Williams for reasons set forth for limitation 1[b] and that “the combination renders obvious implementing the automation process on a web-based target system.” *Id.* at 20 (citing Ex. 1003 ¶ 90).

- vi. *1[e]: “wherein the automation process is performed with respect to third-party web-based target system and”*

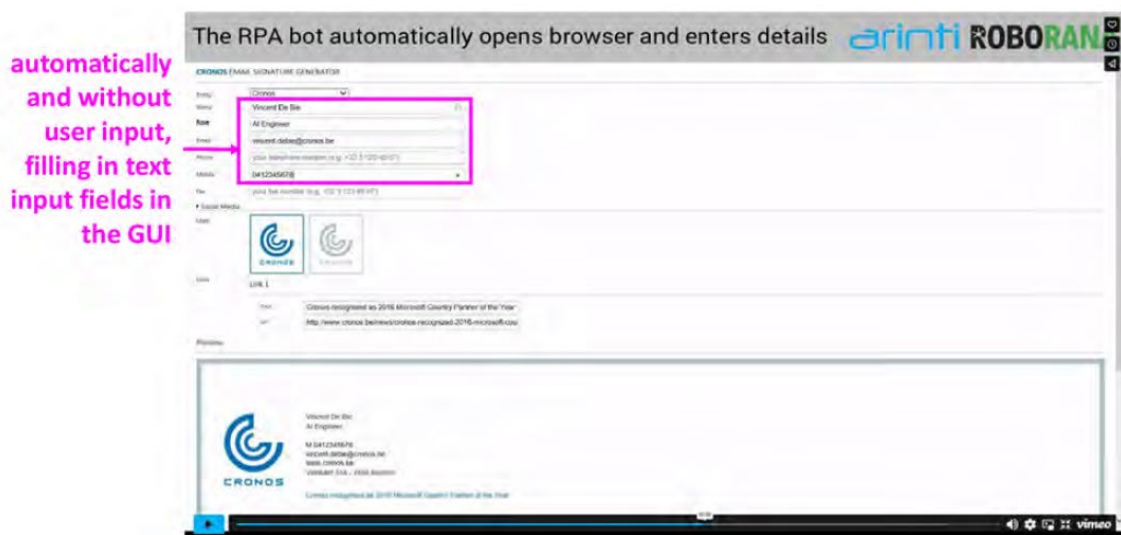
For limitation 1[e], Petitioner contends that “Symons’ automation process ‘automate[s] the process of creating an email signature,’” while “Williams discloses RPA bots that ‘work through systems’ graphical interfaces, including **web browsers** and Citrix terminal sessions.” Pet. 21 (alteration in original) (quoting Ex. 1004; Ex. 1011, 2 (emphasis added)) (citing Ex. 1003 ¶ 91).

- vii. *1[f]: “without relying on an Application Programming Interface (API) exposed by the web-based target system,”*

Petitioner asserts that Symons implements its automation process without relying on an API, and to the extent that it does not, Petitioner contends, Williams discloses that robots can be configured to work through web browsers and terminal sessions rather than through APIs and recommends the former as “an attractive way to drive operational cost reduction.” Pet. 21–22 (quoting Ex. 1011, 2) (citing Ex. 1003 ¶¶ 93, 95–97).

- viii. *1[g]: “wherein the implementation of the automatic process comprises: automatically and without user input, filling in a text input field in the GUI of the web-based target system; and”*

For limitation 1[g], Petitioner argues that “Symons’ ‘RPA bot automatically opens browser and enters details,’ without user input.” Pet. 22 (citing Ex. 1006, 11). In support, Petitioner provides the following annotated version of the screenshot from the Symons Video depicted at page 12 of Exhibit 1006:

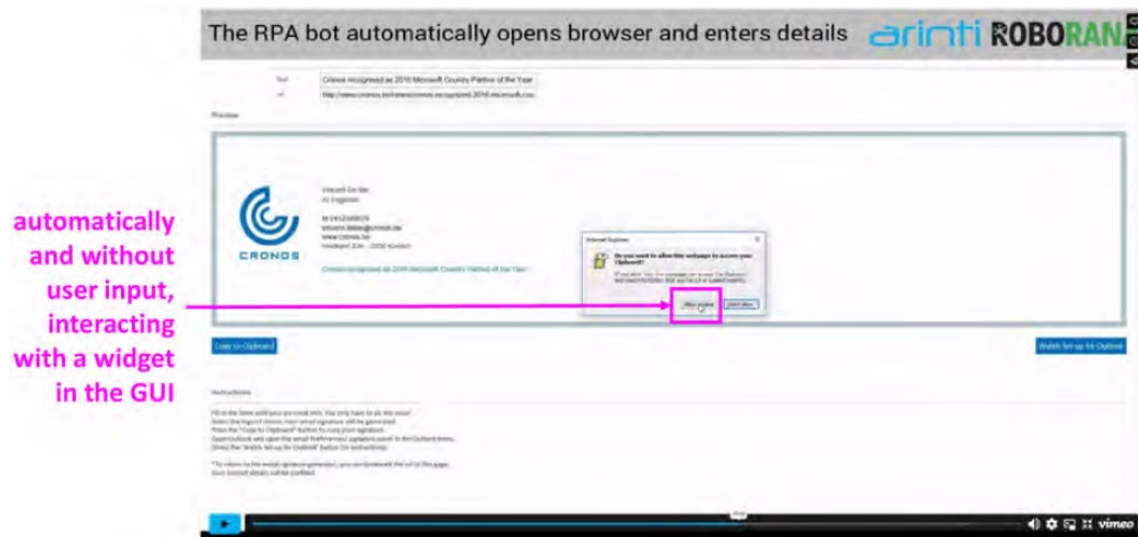


Id. at 23. The annotated screenshot above depicts a user interface labeled as “Cronos Email Signature Generator,” with the values “Cronos,” “Vincent De Bie,” “AI Engineer,” “vincent.debie@cronos.be,” and “0412345678” in input fields labeled as “Entity,” “Name,” “Role,” “Email,” and “Mobile,” respectively. Petitioner has annotated the screenshot with (1) a pink box around a grouping of those field labels and the corresponding values; (2) the textual annotation “automatically and without user input, filling in text input fields in the GUI”; and (3) a pink arrow pointing from the textual annotation to the pink box. With reference to that annotated screenshot, Petitioner contends that “[t]he interaction of the RPA bot comprises filling in a text input field in the GUI target system (annotated below): filling in ‘Vincent De Bie,’ ‘AI Engineer,’ ‘vincent.debie@cronos.be,’ and ‘0412345678’ in the name, job role, email, and phone text input fields.” *Id.* at 22 (citing Ex. 1003 ¶ 98; Ex. 1006, 12). Further, Petitioner contends, “[i]n combination with Williams, the GUI is of the web-based target system.” *Id.* (citing Ex. 1003 ¶ 99).

ix. 1[h]: “automatically and without user input, interacting with a widget in the GUI to cause the web-based target system to perform a predefined functionality.”

For limitation 1[h], Petitioner contends that “Symons’ RPA bot interacts with a widget in the GUI automatically and without user input.”

Pet. 23. In support, Petitioner provides the following annotated version of the screenshot from the Symons Video depicted at page 13 of Exhibit 1006:



Id. at 24. The annotated screenshot above depicts a preview image of an email message having a Cronos signature block, with an Internet Explorer modal dialog box asking “Do you want to allow this webpage to access your Clipboard?” and having buttons labeled as “Allow access” and “Don’t allow.” Petitioner has annotated the screenshot with (1) a pink box around the “Allow access” button; (2) the textual annotation “automatically and without user input, interacting with a widget in the GUI”; and (3) a pink arrow pointing from the textual annotation to the pink box. *Id.* With reference to that annotated screenshot, Petitioner contends that “[t]he interactions with the widget is via GUI button clicks . . . that performs a predefined functionality: simulated interaction via GUI button clicks that cause copying of the email signature onto the clipboard, for example.” *Id.* at 23 (citing Ex. 1003 ¶¶ 100–101; Ex. 1006, 13).

b. Patent Owner's Contentions

In response to Petitioner's contentions, Patent Owner argues, *inter alia*,¹¹ that the Petition "fails to specifically identify what it contends is the 'third-party web-based target system' in Symons, but points to two different GUIs for two different system[s]: (1) the Cronos email signature generator GUI for 'filling in' a text input field," when discussing limitations 1[d] and 1[g], "and (2) the 'Allowed access' modal 'widget' generated by 'Internet Explorer' as the widget of GUI of the web-based target system," when discussing limitations 1[d] and 1[h]. PO Resp. 36 (citing Pet. 20–24; Ex. 1003 ¶¶ 88, 89, 91, 92, 98, 100).

Citing 37 C.F.R. § 42.22(a)(2), Patent Owner contends that "[t]hese incomplete and inconsistent assertions are insufficient to meet Petitioner's burden to provide a 'detailed explanation of the significance of the evidence including material facts.'" *Id.* More particularly, Patent Owner contends that "Ground 1 utilizes both of these 'GUIs' from different systems in an effort to comply with 'the' GUI of the 'web-based target system' meeting both [limitation 1][g]'s filling in a field and [limitation 1][h]'s 'widget' requirements," as "Petitioners apparently recognize that both 'GUIs' are necessary to complete meet the 'fill in' and 'widget' requirements of the claims." *Id.* at 38. But "[Petitioner's] efforts fail," Patent Owner argues, because "[t]hese are two different GUIs in two different systems," whereas claim 1 requires that "'the' GUI of 'the' third-party web-based target system utilized by the automation process executed in [limitations 1][g] [and 1][h], grammatically, and under the law of antecedent basis, must be the **same**

¹¹ Because we conclude that the arguments discussed below are dispositive with respect to this ground, we do not summarize Patent Owner's remaining arguments.

‘GUI’ of the **same** ‘web-based target system’, in [limitations 1][d] [and 1][e].” *Id.* at 38–39 (citing Ex. 2002 ¶¶ 157, 162–163; *Tech. Consumer Prods. v. Lighting Sci. Grp. Corp.*, 955 F.3d 16, 22 (Fed. Cir. 2020); *In re Lemay*, 660 F. App’x 919 (Fed. Cir. 2016)). Further, according to Patent Owner, “[n]o matter which single GUI of which single system Petitioner tries to pivot to, Ground 1 fails,” because “Ground 1 has identified no ‘widget’ [h] for the Cronos email signature generator system, and no ‘fill in’ input field [g] for Internet Explorer.” *Id.* at 39. Moreover, Patent Owner argues, Williams is not offered to fill the gap with respect to these limitations, and Ground 1 accordingly fails. *Id.* (citing Ex. 2002 ¶ 163).

c. Analysis

Having considered the parties’ respective arguments and the evidence of record, we agree with Patent Owner that Petitioner has not shown that the combination of Symons and Williams teaches or suggests

[d] implement[ing] [an] automation process by interacting with a Graphical User Interface (GUI) of [a] web-based target system . . . , [g] wherein the implementation of the automati[on] process comprises:
automatically and without user input, filling in a text input field in the GUI of the web-based target system; and
[h] automatically and without user input, interacting with a widget in the GUI to cause the web-based target system to perform a predefined functionality

as recited in claim 1.

In its Reply, Petitioner acknowledges Patent Owner’s argument that the text input field and widget shown in Symons “are in two different GUIs of two different target systems,” but Petitioner contends that “the Petition pointed to one GUI (screens shown in EX1006) and one target system (Symons’ RPA software)” and that “[Patent Owner] should not be allowed

to rewrite the Petition.” Reply 9 (citing PO Resp. 7, 30, 38; Pet. 22; Ex. 1042 ¶¶ 35–37). Further, Petitioner asserts, “the Petition relies on Williams, not Symons, for its teachings of a ‘web-based’ target system.” *Id.* (citing Pet. 40). Petitioner does not, however, address Patent Owner’s main point, i.e., that the Petition relies on Symons’s illustration of its RPA bot purportedly filling in a text input field in the GUI of the Cronos Email Signature Generator for limitation 1[g] but relies on Symons’s illustration of its RPA bot interacting with a widget in Internet Explorer for limitation 1[h], despite the recitation in limitation 1[h] of “interacting with a widget in *the* GUI.” *See, e.g.*, PO Resp. 38. Dr. Beigi acknowledges that, “[a]ccording to the ’317 patent, a widget is a GUI element,” and he concludes, with reference to Petitioner’s annotated version of the screenshot from page 13 of Exhibit 1006 reproduced above, that “Symon[s]’s GUI button is a widget in *a* GUI.” Ex. 1003 ¶ 100 (emphasis added) (citing Ex. 1001, 10:19–21). But neither the Petition, nor the Reply, nor Dr. Beigi’s testimony persuasively explains how a dialog box *in Internet Explorer* teaches or suggests a widget *in the Cronos GUI*. The Reply’s contention that “the Petition relies on Williams . . . for its teachings of a ‘web-based’ target system” is unavailing, because the issue is not whether either the Cronos program or Internet Explorer is “web-based”¹² but whether Petitioner has identified a teaching or suggestion of an implementation of an automation process that fills in a text input field in a GUI of a web-based target system and interacts with a widget *in the same* GUI.

¹² In this regard, we credit Mr. Zatkovich’s statement that Internet Explorer is local to and resident on the user’s computer. Ex. 2002 ¶¶ 161–162; *cf.* Ex. 2003, 219:24–220:5 (Dr. Beigi testifying that he is “not sure where this Windows software is running”).

Accordingly, we determine that Petitioner has not shown by a preponderance of the evidence that claim 1 is unpatentable over the combination of Symons and Williams.

2. Independent Claims 9 and 16

Independent claim 9 recites “[a] method comprising” steps essentially identical to limitations 1[a]–1[h]—i.e., the steps that the program instructions recited in claim 1 cause the processor of claim 1 to execute. Ex. 1001, 26:12–3. Independent claim 16 recites “[a] computer apparatus comprising a processor and coupled memory, the processor being adapted to perform” the same steps as recited in claim 9. *Id.* at 26:57–27:12. Petitioner relies on essentially the same contentions as set forth for claim 1 in arguing that claims 9 and 16 are obvious over Symons and Williams. Pet. 30–32, 34–36.

For the reasons stated in the above discussion of claim 1, we likewise determine that Petitioner has not shown by a preponderance of the evidence that claims 9 and 16 are unpatentable over Symons and Williams. *See supra* § III.E.1.

3. Dependent Claims 2–8, 10–15, and 17–20

Claims 2–8 depend directly or indirectly from claim 1; claims 10–15 depend directly or indirectly from claim 9; and claims 17–20 depend from claim 16. For the reasons stated in the above discussion of claims 1, 9, and 16, we likewise determine that Petitioner has not shown by a preponderance of the evidence that any of claims 2–8, 10–15, and 17–20 are unpatentable over Symons and Williams. *See supra* §§ III.E.1, III.E.2.

F. Ground 2: Obviousness over Allen

Petitioner alleges claims 1–20 of the ’317 patent would have been obvious over Allen. Pet. 37–58; Reply 15–18. Patent Owner opposes. PO

Resp. 7–17, 46–63; Sur-reply 15–21. For the reasons explained below, we determine that Petitioner has not shown by a preponderance of the evidence that any of the challenged claims are unpatentable on this ground.

1. Petitioner's Contentions

Petitioner contends that Allen teaches the limitations of independent claim 1. Pet. 37–45. In support, Petitioner identifies certain passages and figures in the reference and explains their significance with respect to the corresponding claim limitations, with additional support from Dr. Beigi's Declaration, as detailed below. *Id.*

- a. "A chat-bot program product, wherein the chat-bot program product comprises non-transitory computer readable medium retaining program instructions, which program instructions when read by a processor, cause the processor to:"*

Petitioner argues that, "[t]o the extent that the preamble^[13] is limiting (which Petitioner does not concede), Allen discloses the preamble." Pet. 39. In support of that contention, Petitioner quotes recitation in claim 1 of Allen of a computer system running software that "includes a natural dialog-based interface whereby said user can communicate with said software using natural dialog-based language." *Id.* (quoting Ex. 1014, claim 1). Citing Dr. Beigi's testimony, Petitioner further contends that "[a] computer system comprises a non-transitory computer readable medium retaining program instructions (of the computer program)." *Id.* (citing Ex. 1003 ¶¶ 162–165).

¹³ See *supra* note 10.

b. 1[a]: “receive a user instruction from a user using a natural language interface;”

With respect to limitation 1[a], Petitioner again points to the recitation in Allen’s claim 1 of “software [that] includes a ***natural dialog-based interface*** whereby said ***user can communicate with said software*** using natural dialog-based language.” Pet. 39 (quoting Ex. 1014, claim 1 (emphasis added)) (citing Ex. 1003 ¶ 166). Petitioner further identifies speech interface display 20, user speech 24, and system speech 26 in Allen’s Figure 3, along with disclosure in Allen of its system executing steps previously learned based on user instruction, as teaching this limitation. *Id.* at 39–40 (citing Ex. 1014, Fig. 3, 3:44–46, 12:64–65; Ex. 1003 ¶¶ 166–168).

c. 1[b]: “determine to implement an automation process on a web-based target system in response to the user instruction;”

Petitioner argues that Allen discloses various user instructions, in response to which its system determines to implement an automation process on a web-based target system, as recited in limitation 1[b]. Pet. 40 (citing Ex. 1003 ¶ 169). In support, Petitioner cites the example cited in the above overview of Allen in which a user instructs “I want to buy a book”; the PLOW system then asks, “What is the title of the book?”; and once the requested information is provided, the system performs the steps it was previously taught to complete the transaction. Pet. 40–41 (citing Ex. 1014, 12:64–13:1; Ex. 1003 ¶ 169); *see also id.* at 41 (citing Ex. 1014, 12:31–37, Fig. 7; Ex. 1003 ¶ 170). Petitioner further contends that Allen provides another example, using a different automation process, in which the user searches on the mapquest.com website for “hotels near the address ‘1018 E. De Soto St. Pensacola, Fla. 32501-3362’” and the system executes steps it

previously learned. *Id.* at 41 (quoting Ex. 1014, 16:33–40) (citing Ex. 1014, 3:44–46; Ex. 1003 ¶ 171).

d. 1[c]: “collect information to be used as part of the automation process; and”

With respect to limitation 1[c], Petitioner argues that “Allen’s system collects information to be used as part of the automation process,” such as by collecting the title of a book from a user in response to the query “What is the title of the book?” Pet. 42 (citing Ex. 1014, 12:65–66). Petitioner asserts that “[t]he title (collected information) is used for buying the book.” *Id.* (citing Ex. 1003 ¶¶ 172–173).

e. 1[d]: “implement the automation process by interacting with a Graphical User Interface (GUI) of the web-based target system and simulating user input to the GUI of the web-based target system, ”

With respect to limitation 1[d], Petitioner argues that Allen’s system “observes the user’s actions and ‘then perform[s] the steps it was previously taught and complete[s] the transaction,’” citing Allen’s disclosure that a user may “instruct[] the system to ‘Enter the title here’ (referring to a book title to be entered in title entry box 30),” after which “[t]he ‘system will utilize the processes previously described to search . . . HTML codes and identify the text object corresponding to the book’s title . . . [and] then submit[] the title as entered by the user.’” Pet. 42–43 (quoting Ex. 1014, 12:12–14, 12:19–25, 12:66–13:1) (citing Ex. 1014, 6:61–65; Ex. 1003 ¶ 174). Petitioner argues that Figure 3 of Allen (*see supra* § III.D.3) “illustrates the user input to the GUI of a web-based target system (www.widgico.com) for a book buying task (automation process),” wherein:

The system observes user input to the GUI, such as the user inputting the title in the title entry box 30, navigating to an online vendor site, pulling down and selecting the “Books”

category, picking and inputting data in the text entry box 58, actuating the “GO” button, opening a specific book page, identifying the book price, and entering the book price on the purchase form. (EX1014, 12:11-61; EX1003, ¶¶175-176.) The system then performs the steps it was previously taught, so it simulates user input to GUI. (*Id.*, ¶¶176-177.)

Pet. 43.

Still further, Petitioner contends, “[t]o the extent that Allen does not disclose performing an automation of a sequence of interactions with a displayed UI of the computer program and simulating user interactions with the displayed UI, it would have been obvious,” citing disclosure in Allen that a GUI “is preferably provided so that the *user can easily monitor [the system’s] actions.*” Pet. 43 (quoting Ex. 1014, 4:66-5:1 (emphasis added)). According to Petitioner, “[i]t would have been obvious that in order for the user to easily monitor the system’s actions, the system’s actions have to be displayed and involve interaction with a GUI.” *Id.* (citing Ex. 1003 ¶¶ 178–179).

f. 1[e]: “wherein the automation process is performed with respect to third-party web-based target system and”

Regarding limitation 1[e], Petitioner contends that, “[i]n Allen, an automation process ‘involv[ing] web-based operations . . . can be configured to run within a web browser,’ and ‘Allen discusses example web-based target systems that are third-party web-based target systems: www.widgico.com, www.amazon.com, www.mapquest.com.’” Pet. 44 (quoting Ex. 1014, 4:61–63) (citing Ex. 1014, 6:6–10, 6:14–16, 6:24–26, 11:44–50, 12:31–33, 16:35–38, Figs. 3, 7, 12; Ex. 1003 ¶¶ 180, 181).

g. 1[f]: “*without relying on an Application Programming Interface (API) exposed by the web-based target system*”

Regarding limitation 1[f], Petitioner contends “Allen’s system ‘function[s] in a ***web-based environment*** in which ***information is transferred using HTML, XHTML, CSS, and/or scripts.***” Pet. 44 (quoting Ex. 1014, 3:26–31 (emphasis added))(citing Ex. 1003 ¶ 182). Petitioner points out that Allen discloses that “[t]he ‘user “teaches” task steps by inputting natural language and demonstrating actions with the GUI,” which, according to Petitioner, “means the automation process is defined to perform any functionality that a non-programmer user can perform in the GUI.” *Id.* (quoting Ex. 1014, code (57); Ex. 1003 ¶ 182). Thus, Petitioner argues, “the executing is performed without utilizing an API of the computer program and without requiring the user provide any line of code.” *Id.* (citing Ex. 1003 ¶ 182).

h. 1[g]: “*wherein the implementation of the automatic process comprises: automatically and without user input, filling in a text input field in the GUI of the web-based target system; and*”

Regarding limitation 1[g], Petitioner contends “Allen’s system is taught how to execute actions with a GUI, including typing into an input field,” where “[e]ach interaction comprises filling in a text input field of the GUI automatically and without user input.” Pet. 45 (citing Ex. 1014, 7:43–45; Ex. 1003 ¶ 183).

- i. 1[h]: “*automatically and without user input, interacting with a widget in the GUI to cause the web-based target system to perform a predefined-functionality.*”

Regarding limitation 1[h], Petitioner contends “Allen’s system is taught how to execute actions with a GUI, including clicking a GUI button using a mouse, moving a mouse cursor, pulling down a drop-down box, typing into an input field, and waiting for a web page to load,” where “[e]ach interaction comprises interacting with a GUI element (widget) automatically and without user input.” Pet. 45 (citing Ex. 1014, code (57), 6:5–7, 6:10–11, 6:20–22, 7:43–45, 12:38–41, 12:45–46; Ex. 1003 ¶¶ 186–188).

2. Patent Owner’s Contentions

Patent Owner argues, *inter alia*,¹⁴ that Allen does not disclose performing an “‘automation process’ by ‘interacting with a Graphical User Interface (GUI) of [a] web-based target system and simulating user input to the GUI of the web-based target system,’” as recited in limitation 1[d], “nor by ‘filling in a text input field in the GUI,’” as recited in limitation 1[g], “nor by ‘interacting with a widget in the GUI to cause the web-based target system to perform a predefined functionality,’” as recited in limitation 1[h]. PO Resp. 46. Patent Owner contends,

As set forth in Dr. Beigi’s analysis of [d], the crux of Dr. Beigi’s argument is that because Allen’s system can be taught via a GUI, it must necessarily interact with the GUI in execution. (Ex1003, ¶178, cited in Petition, 42-42 [sic]; ID 20-21). Specifically, Dr. Beigi explains that “[t]he system learns by ‘observing the user’s actions.’ ([Ex1014], 6:61-65)” before

¹⁴ Because we conclude that the arguments discussed below are dispositive with respect to this ground, we do not summarize Patent Owner’s remaining arguments.

asserting, without citation to any support, in Allen or otherwise, that, “[a]s a result, the system performing the steps it was previously taught means it simulates user input to the GUI of the web-based target system”, thereby interacting with the GUI. (Ex1003, ¶177).

As Mr. Zatkovich explains, this argument is flawed “since PLOW is expressly designed to take advantage of the open nature of HTML code in websites, and not merely on the visuals.” (Ex2002, ¶225; quoting Ex1014, 2:46-63). As Allen teaches “the open nature of the code used to transmit information over the Internet **allows for functionality far beyond simply recording and repeating a sequence of user inputs**. A much more sophisticated level of automation is possible.” (Ex1014, 2:59-63). Allen confirms that it “uses all the code” including the “non-displayed” code “in learning a step in the task”. (Ex2002, ¶226, quoting Ex1014, 3:33-35). PLOW “understand the step of filling the title as **more than simply mimicking the user’s actions**” (Ex1014, 8:55-63), and thus using the HTML code, PLOW is able to “automatically execute the task”, even “in new situations” (Ex1014, Abstract). (See also Ex2002, ¶¶ 225-226).

Id. at 54–55. Further, Patent Owner argues, “[r]ather than ‘simulate the user’s interaction with the GUI’ as Dr. Beigi asserts, Allen instead teaches ‘[o]nce the client computer is asked to submit the interactive response, another ASCII transmission is sent from the client computer back to the hosting server.’” *Id.* at 55 (quoting Ex. 1014, 2:22–24).

Citing Mr. Zatkovich, Patent Owner argues that a person of ordinary skill in the art as of November 5, 2017, would have understood from Allen’s disclosure that PLOW does not necessarily interact with a GUI in execution. PO Resp. 55 (Ex. 2002 ¶ 228). Instead, Patent Owner argues, “Mr. Zatkovich provided the following examples a POSITA would draw from Allen”:

- Instead of “filling in the title” by simply “mimicking the users interactions” (Ex1014, 8:55-9:3), “Allen could

interface directly with the HTML code, which it already accesses and uses during the learning process” (Ex2002, ¶228, citing Ex1014, 12:19-25 (PLOW “search[es] the HTML code” to identify the text object corresponding to the book’s title” before “submitting the title”)).

- PLOW could have “modified the values using HTML code accessible to PLOW”, instead of necessarily interacting with an “input field” or “widget” in the GUI itself. For example, PLOW teaches it could return values using HTLM [sic] by, e.g sending “another ASCII transmission ... from the client computer back to the host server. (Ex2002, ¶228, citing Ex1014, 2:22-24).

Id. at 56. For at least these reasons, Patent Owner contends, the Petition does not establish that Allen expressly or inherently discloses limitations 1[d], 1[g], and 1[h]. *Id.*

Still further, Patent Owner argues, Allen’s teaching to “monitor” interactions during training, upon which Petitioner’s alternative argument that “[i]t would have been obvious that in order for the user to easily monitor the system’s actions, the system’s actions have to be displayed and involve interaction with a GUI” (Pet. 43) is based, does not render obvious interacting with a GUI of a target system once the system is trained and tested. PO Resp. 57. Patent Owner argues that Dr. Beigi’s analysis relied upon by Petitioner in support of that argument fundamentally ignores how task monitoring is used in Allen. *Id.* at 58. Quoting Mr. Zatkovich, Patent Owner contends, for example, that “[r]ather than monitor task execution, as Allen explains, and a POSITA would understand, the task log 16 and speech interface 20 ‘allow the user to monitor his or her interaction with PLOW’ which enables the user to understand ‘whether PLOW has correctly understood the present objective’ being learned” and, if necessary, “to take ‘corrective action’ while teaching PLOW.” *Id.* (quoting Ex. 2002 ¶231

(quoting Ex. 1014, 5:60–62, 7:51–8:5, 15:19–20)). According to Patent Owner, “Allen’s teachings regarding monitoring during training [d]o not extend to simulating the GUI interactions during executing on a task once it is learned and tested.” *Id.* at 59 (citing Ex. 2002 ¶ 231¹⁵).

3. Analysis

We determine that Petitioner has not established by a preponderance of the evidence that claim 1 is obvious over Allen. For essentially the reasons argued by Patent Owner as set forth above, we find that Allen’s disclosure does not support Petitioner’s contentions and testimonial evidence with respect to at least limitation 1[d].

As an initial matter, as set forth above, Allen’s disclosure is primarily directed to explaining how PLOW is trained to perform an automated process using GUI 10 of Figures 1–3, 7–9, and 12. Allen describes that “[a] graphical user interface (‘GUI’) is preferably provided so that the user can easily monitor PLOW’s actions . . . FIG. 1 shows a representative graphical user interface 10.” Ex. 1014, 4:66–5:6. Further description of Figure 1 confirms that it is the GUI for the training or learning session.¹⁶ For example, Figure 1 shows task log 16, “on the right side of the display,” which is described as “show[ing] the tasks that have been learned so far in the learning session.” Ex. 1014, 5:14–16. Figure 3, which “shows the graphical user interface of FIG. 1, after the user has entered some information to be transmitted back to [a] host-server,” likewise shows graphical user interface 10 in the context of Allen’s training process. *Id.* at 4:3–5, 5:23–24 (“FIGS. 2 and 3 illustrate how PLOW can learn to order a

¹⁵ Patent Owner appears to have intended to cite to paragraph 232.

¹⁶ Allen refers to training, learning, and teaching sessions interchangeably.

book.”); *see also id.* at 12:10–12 (“The reader will recall that [in Figures 2 and 3] the user is teaching the system how to buy a book.”).

In its analysis of claim 1, Petitioner and Dr. Beigi shift back and forth between reliance on Allen’s training and execution processes, including in the analysis of limitation 1[d], for which Petitioner relies both on Figure 3 of Allen and accompanying text at Ex. 1014, 6:61–65, describing the training process, and on Allen’s execution process described at Ex. 1014, 12:66–13:1. Pet. 42–43. But in contrast with its robust description of the training process, Allen describes the execution process only as follows:

Once the complete task is learned, the user can employ PLOW’s task database the next time he or she wishes to order a book. The user would only need to say something like “I want to buy a book.” The system would then ask, “What is the title of the book?” Once that information is provided, PLOW would then perform the steps it was previously taught and complete the transaction.

Ex. 1014, 12:62–13:1; *see also id.* at code (57) (“After a complete task has been taught, the system is able to automatically execute the task in new situations”), 6:63–65 (“[t]he system then learns to automatically execute steps by observing the user’s actions and analyzing the verbal instructions the user provides”). Petitioner relies on this disclosure repeatedly, including with respect to limitation 1[d]. *See* Pet. 42. And indeed, we agree that Allen’s execution process is germane to limitation 1[d]’s recitation of “implement[ing] the automation process.” But aside from the brief description reproduced above, Allen does not provide any detail about the execution process, including whether it entails simulating user input to a GUI.

Compounding these issues, Petitioner improperly relies on Dr. Beigi to fill in the gaps in Allen’s disclosure. Petitioner’s only citation in support

of its assertion that Allen’s “system . . . simulates user input to GUI” is to paragraphs 176 and 177 of Dr. Beigi’s testimony, which in turn mix the user’s actions in Allen’s training process and the automation system’s actions in Allen’s execution process in a way not expressly supported by Allen. *See, e.g.*, Ex. 1003 ¶ 176 (citing Ex. 1014, 12:38–46, relating to Allen’s training process, and stating that “[t]he system also learns how to ‘pull[] down and select[] the “Books” category in search category box 56,’ ‘picking text entry box 58,’ and ‘actuat[ing] the ‘GO’ button’”). As explained in our Consolidated Trial Practice Guide¹⁷ (Nov. 2019) at 36:

Expert testimony, however, cannot take the place of a disclosure in a prior art reference, when that disclosure is required as part of the unpatentability analysis Furthermore, because an *inter partes* review may only be requested “on the basis of prior art consisting of patents or printed publications,” 35 U.S.C. § 311(b), expert testimony cannot take the place of disclosure from patents or printed publications. In other words, expert testimony may explain “patents and printed publications,” but is not a substitute for disclosure in a prior art reference itself.

In sum, Petitioner’s and Dr. Beigi’s shifting back and forth between the training and execution process when addressing the same claim limitation, along with the lack of specificity in Allen’s description of the execution process, does not persuade us that claim 1 would have been obvious over Allen.

Further, Petitioner does not respond to Patent Owner’s assertion that an inherency argument is being made (*see generally* Reply), and to the extent that Petitioner’s assertions are premised on inherency, we find Petitioner and Dr. Beigi’s showing insufficient to meet the high standard of

¹⁷ Available at <https://www.uspto.gov/sites/default/files/documents/tpgnov.pdf>.

inherency. *See, e.g., Continental Can Co. v. Monsanto Co.*, 948 F.2d 1264, 1268 (Fed. Cir. 1991) (stating that “when a reference is silent about an asserted inherent characteristic, it must be clear that the missing descriptive matter is necessarily present in the thing described in the reference, and that it would be so recognized by persons of ordinary skill”); *see PAR Pharm.*, 773 F.3d at 1196; *Oelrich*, 666 F.2d at 581. In this regard, we are persuaded, for example, by Patent Owner’s argument, supported by Mr. Zatkovich’s testimony, that Allen’s automation process would not necessarily mimic (or “simulate”) user interactions during execution but could instead “interface directly with the HTML code, which it already accesses and uses during the learning process.” PO Resp. 56 (citing Ex. 1014, 12:19–25; Ex. 2002 ¶ 228).

In its Reply, Petitioner contends that Patent Owner “is wrong that Allen’s automation process is not displayed when executed,” quoting recitation in claim 1 of Allen of a “method for learning and **executing executable tasks** using language . . . comprising: . . . providing software running on said computational device and supported **GUI-based interaction with said user**; . . . wherein said software includes a **natural dialog-based interface** whereby said user can communicate with said software using natural dialog-based language.” Reply 15–16 (alterations in original) (quoting Ex. 1014, 18:38–49). Read in the context of the full claim, however, we find that the quoted claim language, which is excerpted from only the preamble and two of the first four of twenty limitations in Allen’s claim 1, reflects GUI-based interaction during Allen’s “training” process but does not teach or suggest interaction with and simulation of user input to a GUI during the execution process. *See* Ex. 1001, 18:38–19:23. Although Petitioner argues that “several other disclosures support the same,” we find

that they similarly relate to a user's interactions with a GUI during Allen's training process rather than any alleged interaction with a GUI in the execution process. *See* Reply 16 (citing Ex. 1001, code (57), 1:50–52, 15:24–40).

Finally, we are not persuaded by Petitioner's further argument with regard to limitation 1[d] that, "[t]o the extent that Allen does not disclose performing an automation of a sequence of interactions with a displayed UI of the computer program and simulating user interactions with the displayed UI, it would have been obvious." Pet. 43. As set forth above, Petitioner cites Allen's disclosure that a "graphical user interface ('GUI') is preferably provided so that the user can easily monitor [the system's] actions" in support of this argument and asserts that "[i]t would have been obvious that in order for the user to easily monitor the system's actions, the system's actions have to be displayed and involve interaction with a GUI." *Id.* (citing Ex. 1014, 4:66–5:1; Ex. 1003 ¶¶ 178–179). As Patent Owner points out, however, Allen merely explains that task log 16 and speech interface display 20 of Allen's GUI "allow the user to monitor his or her interaction with PLOW," enabling the user to understand "whether PLOW has correctly understood the present objective," and there is no indication that they have any relevance to the execution process. PO Resp. 58 (citing Ex. 1014, 5:60–62, 15:19–20; Ex. 2002 ¶¶ 231). In this regard, we additionally credit Mr. Zatkovich's testimony that "Allen's disclosure on monitoring does not teach monitoring interactions with a GUI during execution, but instead interactions between the user and PLOW during training" and that "a POSITA as of November 5, 2017 would understand that once the task is learned and tested, it is no longer necessary or useful to have the user monitor PLOW's interactions." Ex. 2002 ¶ 232; *see also id.* ("Dr. Beigi's

suggested modification to continue monitoring after a task is learned and tested, makes no sense, and does not find support in Allen.”).

Accordingly, we determine that Petitioner has not shown by a preponderance of the evidence that claim 1 is unpatentable over Allen. We find Petitioner’s contentions undermined by the lack of specificity as to Allen’s execution process, as well as Petitioner’s shifting between reliance on Allen’s training process and execution. We agree with Mr. Zatkovich that “while Allen teaches that the system can ‘perform the steps it was previously taught,’ it provides little detail on how the system executes such steps,” including, as noted above, whether it entails simulating user input to a GUI. Ex. 2002 ¶ 219 (citing Ex. 1014, 12:66–13:1). We, therefore, do not find sufficient support in Allen, or from Dr. Beigi’s testimony regarding Allen’s disclosure, that a person of ordinary skill in the art would have understood Allen’s execution process to teach limitation 1[d].

Accordingly, we are not persuaded that Petitioner has shown by a preponderance of the evidence that claim 1 is unpatentable over Allen. For the same reasons, we conclude that Petitioner has not established that independent claims 9 and 16, which include substantially the same limitations, or dependent claims 2–8, 10–15, and 17–20, would have been obvious over Allen.

G. Ground 3: Obviousness over Krishnan and Radhakrishnan

Petitioner contends claims 1–4, 6, 7, 9–12, 14, 16–18 are unpatentable under 35 U.S.C. § 103 over Krishnan and Radhakrishnan. Pet. 61–77; Reply 18–23. Patent Owner opposes. PO Resp. 63–77; Sur-reply 21–25. For the reasons explained below, we determine that Petitioner has not shown by a preponderance of the evidence that any of the challenged claims are unpatentable on this ground.

For claim 1, Petitioner relies on the combination of Krishnan and Radhakrishnan to teach the preamble and limitations 1[d] and 1[f]–1[h]; and Krishnan to teach limitations 1[a]–1[c] and 1[e]. Pet. 61–69. With respect to the preamble, for example, Petitioner contends that Krishnan “discloses ‘a chat bot . . . configured to interact and interface with customers or consumers who are looking for answers to frequently asked questions’” and “also discloses a ‘non-transitory computer usable or readable medium having control logic (software) stored thereon,’” where “[s]uch control logic, when executed by one or more data processing devices . . . operate as described herein.” *Id.* at 62 (quoting Ex. 1016, 2:27–29, 12:43–45) (citing Ex. 1003 ¶ 242). Petitioner cites Radhakrishnan as “similarly disclos[ing] a non-transitory computer readable medium.” *Id.* (citing Ex. 1003 ¶ 243; Ex. 1008, 13:44–64).

With respect to limitation 1[d], Petitioner contends that Krishnan discloses implementing an automation process as well as a GUI of a web-based target system. *Id.* at 64. Petitioner cites disclosure in Krishnan that “[a] ***user may visit or log into a website*** and have customer service requests fulfilled by a chat bot.” *Id.* at 64–65 (quoting Ex. 1016, 2:10–12 (emphasis added)) (citing Ex. 1003 ¶ 254). Petitioner concedes that “Krishnan is silent regarding whether or not its automation process interacts with and simulates user input to the GUI,” but contends that “Radhakrishnan discloses ‘leverag[ing] the unique interactions of a robotic process automation module with a UI of an application to ***simulate user operations with the user device*** to generate an operation record for automatically generating and transmitting a diagnosis and correction request to a workstation,’” where “[t]he RPA modules are ‘trained to ***mimic user activity directly with a UI*** of the device’ and “[t]he simulated operations generated by the RPA module may

act as a mirror of the actual user operations and be used as an accurate, complete operation record which details the user operations in their entirety.” *Id.* at 64–65 (quoting Ex. 1018, code (57) (emphasis added), 5:49–50 (emphasis added), 11:32–36 (emphasis added)) (citing Ex. 1003 ¶¶ 255–256). Petitioner contends that “[m]irroring user operations with a displayed UI means the automation process simulates user interactions with the displayed UI.” *Id.* at 65 (citing Ex. 1003 ¶ 256).

According to Petitioner, “[i]t would have been obvious to combine Krishnan and Radhakrishnan” because “Krishnan discloses using a chatbot to ‘provide customer service to users,’” “Radhakrishnan discloses an RPA bot that helps diagnose computer software-related errors . . . that are typical when using ‘computer systems . . . to complete various tasks and increase user and/or process efficiency,’” and “[b]oth aim for better user convenience, lower operational costs, and increased user and/or process efficiency.” Pet. 65–66 (quoting Ex. 1016, 2:5–11; Ex. 1018, 1:7–12) (citing Ex. 1003 ¶ 257; Ex. 1016, 2:5–11; Ex. 1018, 6:21–34); *see also* Reply 21–22 (citing, *e.g.*, Ex. 1018, 6:21–29, 6:38–42; Ex. 1042 ¶¶ 103–106). Petitioner contends “Krishnan teaches achieving these objectives by using a chatbot as an interface between the user and, *e.g.*, a back-end system,” while “Radhakrishnan teaches using an RPA bot to automatically execute processes, such as a back-end process, at the presentation layer of the computing system (without an API).” Pet. 66 (citing Ex. 1003 ¶ 258; Ex. 1016, 2:33–35; Ex. 1018, 5:21–23, 5:49–52). Further, according to Petitioner:

Krishnan provides one example for its chatbot: “a user may visit or log into a website and have customer service requests fulfilled by a chat bot.” (EX1016, 2:10-12; EX1003, ¶259.) A POSITA would have been motivated to fulfill these

customer service requests by an RPA bot, particularly when the customer service request involves more complicated tasks. (EX1018, 5:32-35; EX1003, ¶259.) Diagnosing and rectifying computer software-related errors is a complicated task, requiring a dedicated and specialized IT support staff. (EX1018, 1:9-18; EX1003, ¶259.) The RPA bot automatically and efficiently diagnoses and rectifies program crashes, file corruption, and operating errors, thereby lowering operational costs, and increasing user and/or process efficiency. (EX1018, 1:9-18; EX1003, ¶¶259.)

Id.

Regarding limitation 1[f], Petitioner contends that Radhakrishnan discloses that its automation process is implemented without relying on an API, citing disclosure that Radhakrishnan's RPA module "avoids . . . demanding interaction with any underlying data layer or logic of the underlying system" and "avoid[]s the costly and time consuming process of building a new and complicated API-based system[] from ground up" and that, "[b]y leveraging robotic process automation technology, [Radhakrishnan's] invention reduces the amount of computing resources required to execute tasks when compared with executing the same tasks using a traditional application programming interface (API)." Pet. 76–68 (quoting Ex. 1018, 5:10–15, 6:21–29) (citing Ex. 1003 ¶262). Petitioner further contends, "Krishnan discloses implementing an automation process on a web-based target system, and it would have been obvious to combine Krishnan and Radhakrishnan." *Id.* at 68 (citing Ex. 1003 ¶263).

For both limitations 1[g] and 1[h], Petitioner cites Radhakrishnan as disclosing that a user's operations in a GUI may include "operations such as selecting options (e.g., a check box, drop-down menu), [and] completing a field." Pet. 68–69 (emphasis omitted) (quoting Ex. 1018, 11:17–19) (citing Ex. 1003 ¶264). With respect to limitation 1[g], Petitioner contends,

“[s]ince the RPA module mirrors the user’s operations in the GUI, the RPA module’s interactions comprise automatically and without user input, filling in a text input filed in the GUI.” *Id.* at 68 (citing Ex. 1003 ¶ 264). With respect to limitation 1[h], Petitioner similarly contends as follows:

[s]ince the user’s operations comprise completing a field (inputting data to the displayed UI) and selecting GUI elements (executing a functionality of the displayed UI), and the RPA module mirrors the user’s operations, then the RPA module’s interactions comprise inputting data to the displayed UI and executing a functionality of the displayed UI.

Id. at 69 (citing Ex. 1003 ¶ 266; Ex. 1018, 7:12–17, 11:29–36). Finally, for both limitations 1[g] and 1[h], Petitioner further asserts that “Krishnan discloses implementing an automation process on a web-based target system, and it would have been obvious to combine Krishnan and Radhakrishnan.” *Id.* at 68 (citing Ex. 1003 ¶ 267).

Patent Owner argues, *inter alia*,¹⁸ that Petitioner has not demonstrated that a person of ordinary skill in the art would have been motivated to combine Krishnan and Radhakrishnan. PO Resp. 74–75. We agree.

Petitioner has the burden to show a motivation to combine and a reasonable expectation of success. *See Redline Detection, LLC v. Star Envirotech, Inc.*, 811 F.3d 435, 449 (Fed. Cir. 2015) (“When asserting that a claimed invention would have been obvious, that party ‘must demonstrate ... that a skilled artisan would have had reason to combine the teachings of the prior art references to achieve the claimed invention, and that the skilled artisan would have had a reasonable expectation of success from doing so.’”

¹⁸ Because our determination that Petitioner has not met its burden of establishing a motivation to combine Krishnan and Radhakrishnan is dispositive, we do not address Patent Owner’s remaining arguments.

(quoting *PAR Pharm., Inc. v. TWI Pharms., Inc.*, 773 F.3d 1186, 1193 (Fed. Cir. 2014))); *see also* 35 U.S.C. § 316(e) (“In an inter partes review instituted under this chapter, the petitioner shall have the burden of proving a proposition of unpatentability by a preponderance of the evidence.”). As discussed below, Petitioner has not carried its burden of establishing a motivation to combine the teachings of Krishnan and Radhakrishnan to achieve the claimed invention.

As described above, Petitioner relies on the combination of Krishnan and Radhakrishnan to teach the preamble and limitations 1[d] and 1[f]–1[h] and cites Krishnan to teach limitations 1[a]–1[c] and 1[e]. Specifically, Krishnan is relied upon as receiving a user instruction from a user using a natural language interface, as recited in limitation 1[a], determining to implement an automation process on a web-based target system, as recited in limitation 1[b], collecting information to be used as part of the automation process, as recited in limitation 1[c], and implementing an automation process on a third-party web-based target system, as recited in limitations 1[d]–1[h]; and Radhakrishnan is relied upon as teaching interaction with and simulating user input to a GUI (including filling in a text input field and interacting with a widget therein) in an automation process, without relying on an API, as recited in limitations 1[d] and 1[f]–1[h]. Pet. 62–69. Petitioner asserts that a person of ordinary skill in the art would have been motivated to fulfill Krishnan’s customer service requests by an RPA bot (as disclosed in Radhakrishnan) when the customer service request involves more complicated tasks. Pet. 66 (citing Ex. 1003 ¶ 259; Ex. 1016, 2:10–12; Ex. 1018, 5:32–35); *see* Tr. 46:23–47:1 (Petitioner’s counsel agreeing that the combination is “using an RPA bot in Krishnan to fulfill the customer service requests from Krishnan on a UI”).

Then, Petitioner identifies diagnosing and rectifying computer-software related errors as complicated tasks, and asserts that Radhakrishnan's RPA bot performs these tasks, thereby lowering operational costs and increasing user and/or process efficiency. Pet. 66 (citing Ex. 1003 ¶ 259).

Petitioner's reasoning fails to explain "*how* the combination of the two references was supposed to work." *See Personal Web Techs., LLC v. Apple, Inc.*, 848 F.3d 987, 994 (Fed. Cir. 2017). More specifically, Petitioner fails to explain how or why a person of ordinary skill in the art would be motivated to perform Krishnan's automation process (i.e., fulfilling customer requests) *by implementing an "automation process by interacting with a Graphical User Interface (GUI)" and "simulating user input to the GUI,"* as purportedly taught by Radhakrishnan. Petitioner's arguments are focused toward using Radhakrishnan's RPA bot to perform Krishnan's customer service requests (i.e., automation process) but fail to explain how Radhakrishnan's RPA bot's mirroring of the user's operations (i.e., the simulation on the displayed user interface) as applied in Krishnan would work or provide sufficient reasoning to do so. *See Personal Web*, 848 F.3d at 993–994 ("[I]t does not imply a motivation to pick out . . . two references and combine them to arrive at the claimed invention"); *In re Kahn*, 441 F.3d 977, 986 (Fed. Cir. 2006) ("[M]ere identification in the prior art of each element is insufficient to defeat the patentability of the combined subject matter as a whole").

Krishnan teaches that "[t]he chat bot may serve as an interface between the customer and one or more backend databases or other information processing systems." Ex. 1016, 2:33–35; *see also id.* at 3:46–50 ("Through executing dialogs, a chat bot can provide the user with information retrieved from another system, request information from the

user, and perform actions to fulfill user requests (such as account transfers, refunds, processing payments, booking tickets, etc.”). In its Reply, Petitioner argues that “[t]he obviousness combination does not replace Krishnan’s database or access it with a GUI,” but rather “[i]t is the automation process that is tied to the GUI, and Radhakrishnan teaches the motivation to using RPA and interacting with a GUI.” Reply 21–22 (citing Ex. 1018, 6:21–29, 6:38–42, Ex. 1042 ¶¶ 103–106). However, there is a disconnect in Petitioner’s reasoning, because the user interface described in Krishnan is the chat bot, and the motivation referred to (discussed further below) is directed to use of an RPA bot, not to performing an automation process on a user interface. Although Petitioner summarily states that “other information processing systems” in Krishnan can encompass “non-backend databases,” Petitioner does not expand upon this argument. Reply 19. Moreover, the issue is not whether a backend database (or other information processing system) as in Krishnan and a displayed UI can be used together (*see id.*), but whether Petitioner has carried its burden to explain why they would be in order to achieve the claimed invention.

Indeed, we agree with Patent Owner and Mr. Zatkovich that, notwithstanding Radhakrishnan’s disclosure of “simulat[ing] operations” with an RPA module “as a mirror of the action user operations,” “Radhakrishnan does this simulation in order to ‘generate an operation record for automatically generating and transmitting a diagnosis’ (Ex 1018, Abstract, 11:32–36), not in order to perform an automation process again or to later be invoked based upon an input from a user using a natural language input.” PO Resp. 72 (quoting Ex. 2002 ¶ 306). As Mr. Zatkovich explains, “the end use of [Radhakrishnan’s] recorded operations is for inclusion in a ‘support ticket’” (Ex. 2002 ¶ 306 (citing Ex. 1018, 12:37–46)), and we agree

with Patent Owner that “[s]uch diagnostic purposes as simply not germane” (PO Resp. 72).

Further, even if Radhakrishnan *had* sufficiently taught implementing an automation process by utilizing a GUI as described in the limitations 1[d], 1[g], and 1[h] (e.g., to be invoked based upon an input from a user using a natural language input), Petitioner provides no persuasive explanation as to why a person of ordinary skill in the art would want such functionality in Krishnan. *See Belden Inc. v. Berk-Tek LLC*, 805 F.3d 1064, 1073 (Fed. Cir. 2015) (“[O]bviousness concerns whether a skilled artisan not only *could have made* but *would have been motivated to make* the combinations or modifications of prior art to arrive at the claimed invention.”); *InTouch Techs., Inc. v. VGO Commc’ns, Inc.*, 751 F.3d 1327, 1352 (Fed. Cir. 2014). Petitioner’s purported reasoning for the combination – “better user convenience, lower operational costs, and increased user and/or process efficiency” does not provide sufficient motivation, and only addresses the advantages of RPA bots. *See* Pet. 66 (citing Ex. 1003 ¶ 257); Reply 21–22 (citing Ex. 1018, 6:21–29, 6:38–42, Ex. 1042 ¶¶ 103–106). That is, Petitioner’s reasoning does not explain why a person of ordinary skill in the art would be motivated to provide functionality in Krishnan where the automation process is implemented by interacting with a GUI and simulating user input thereto, as described in limitations 1[d], 1[g], and 1[h].

As Petitioner recognizes, and as described above, Krishnan uses a chatbot as an interface between the user and a back-end or information processing system. Pet. 66 (citing Ex. 1003 ¶ 258; Ex. 1016, 2:33–35). Mr. Zatkovich testifies that a person of ordinary skill in the art would understand that “the chatbot is tied to the backend systems; it either calls, or interacts with a program that calls, the information requested directly from

the databases without needing to interact using a displayed user interface.” Ex. 2002 ¶ 263. Further, Mr. Zatkovich testifies that “since Krishnan has direct access to the backend databases etc., it would make no sense and be less efficient to access such system through a user interface,” and a person of ordinary skill in the art “would understand not only that there would be no reason to use automation processes that involve using the displayed user interface, since data can be manipulated directly in the backend by the chatbot, but it would in fact be undesirable as a more costly and less efficient means to update the database.” *Id.*; *see also id.* ¶ 313 (a person of ordinary skill in the art “would understand that it would be more cost effective, and take fewer computing resources, to simply directly call a database or provide a computer instruction to change a value, rather than simulate a task to be performed on a displayed user interface”). We find Mr. Zatkovich’s testimony persuasive.

Dr. Beigi responds that a person of ordinary skill in the art “would have known about the benefits that RPA has to offer when performing complicated tasks at the presentation layer (GUI)” (Ex. 1042 ¶ 93); however, this does not address *why* a person of ordinary skill in the art would want to perform complicated tasks at the presentation layer. Rather, Dr. Beigi’s testimony, as well as Petitioner’s reasoning for the combination, addresses the advantages of RPA bots in general and does not sufficiently explain why a person of ordinary skill in the art would be motivated to utilize a GUI as described in limitations 1[d], 1[g], and 1[h]. *See* Pet. 65–66.

Accordingly, we are not persuaded that Petitioner has carried its burden of establishing a motivation to combine the teachings of Krishnan and Radhakrishnan to achieve the claimed invention. As such, we are not persuaded that Petitioner has established that independent claim 1 is

unpatentable over the combination of Krishnan and Radhakrishnan. For the same reasons, Petitioner has not established that claims 2–4, 6, 7, 9–12, 14, and 16–18 would have been obvious over the combination of Krishnan and Radhakrishnan.

IV. PETITIONER’S REQUEST TO EXPUNGE EXHIBITS 2014–2018

On December 3, 2024, Petitioner requested to expunge Exhibit 2014 (Supplemental Declaration of Mr. Zatkovich) and accompanying Exhibits 2015–2018. Ex. 3001. According to Petitioner, Patent Owner improperly filed these exhibits in response to Petitioner’s Objection to Evidence Submitted with Patent Owner’s Response (Paper 20). *Id.* Petitioner states that the parties reached an agreement to expunge Exhibit 2018, but could not reach an agreement on Exhibits 2014–2017. *Id.* Patent Owner opposes because Dr. Beigi expressly relied upon these Exhibits in his Reply Declaration. *Id.* The Board requested the parties to address these issues at the hearing on December 18, 2024. *Id.*

Exhibits 2015–2017 are three comments made on the Internet in association with the Symons Article. These comments are also shown in Exhibit 2005. According to our rules, “[s]upplemental evidence is not filed at the time of the objection, but simply served, and is filed only in support of an opposition to a motion to exclude.” CTPG¹⁹ 79 (citing 37 C.F.R. §§ 42.64(a), 42.64(b)(2)). Because no motion to exclude was filed by Petitioner, we agree with Petitioner that Patent Owner improperly filed Exhibits 2014–2017.

¹⁹ PTAB Consolidated Trial Practice Guide, November 2019 (the “CTPG”), available at: <https://www.uspto.gov/sites/default/files/documents/tpgnov.pdf>.

However, as described above, the comments in Exhibit 2015–2017 are already part of the record in Exhibit 2005, and Petitioner has not filed a motion to expunge Exhibit 2005. Therefore, we are not aware of any harm to Petitioner by leaving these Exhibits in the record, as the information is already there. *See* Tr. 100:8–14. Moreover, keeping these Exhibits in the record will avoid confusion in the record and serve the public interest in a full and complete record. Accordingly, we will expunge only Exhibit 2018, as agreed by the parties, and waive the requirements of 37 C.F.R. § 42.64(b)(2) to the extent necessary to retain entry of Exhibits 2014–2017.

V. CONCLUSION

For the foregoing reasons, we conclude that Petitioner has *not* demonstrated by a preponderance of the evidence that any of claims 1–20 of the ’317 patent are unpatentable on the grounds presented.

In summary:

Claim(s)	35 U.S.C. §	Reference(s)/Basis	Claim(s) Shown Unpatentable	Claim(s) Not Shown Unpatentable
1–20	103	Symons (Article and Video), Williams		1–20
1–20	103	Allen		1–20
1–4, 6, 7, 9–12, 14, 16–18	103	Krishnan, Radhakrishnan		1–4, 6, 7, 9–12, 14, 16–18
Overall Outcome				1–20

VI. ORDER

It is hereby:

ORDERED that claims 1–20 of the '317 patent have not been determined to be unpatentable;

FURTHER ORDERED that Exhibit 2018 be expunged from the record; and

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

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