

Patent No. 10,819,664
Petition For *Inter Partes* Review

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

Whatfix Inc.
Petitioner,

v.

WalkMe Ltd.
Patent Owner.

Patent No. 10,819,664

Inter Partes Review No. IPR2023-01368

**PETITION FOR *INTER PARTES* REVIEW
UNDER 35 U.S.C. §§ 311-319 AND 37 C.F.R. § 42.100 *et seq.***

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P. Bornet, “Intelligent automation is about creating synergies between RPA, cognitive, chatbots and AI,” https://www.linkedin.com/pulse/from-robotic-process-automation-rpa-artificial-ai-journey-bornet , LinkedIn (Apr. 22, 2017)	1030
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Petitioner Whatfix Inc. petitions for *inter partes* review of claims 1-9, 12-16, 18-23, 25, 26, 28-31, and 33 (“challenged claims”) of U.S. Patent No. 10,819,664 (“the ’664 patent” (EX1001)) in accordance with 35 U.S.C. §§ 311-319 and 37 C.F.R. § 42.100 *et seq.*

I. INTRODUCTION

The ’664 patent claims are directed to a method and system that involves a natural language conversation with the user, and then automatically executes a process that simulates interactions with a displayed user interface (UI). For example, the ’664’s system includes a chatbot that collects information from the user for buying stocks, and automatically fills out the online stock purchase form using the collected information. (EX1001, 8:17-23.)

Collecting information using a chatbot and performing an automation process using the collected information was well known before the ’664 patent’s 2017 filing date. Discussed in more detail below, Symons discloses a chatbot that collects the user’s name, job role, email address, etc., and automatically creates an email signature using the collected information. Allen likewise discloses teaching (by a non-programmer user) and executing a bot that collects book information from the user and then automatically buying a book online using the collected information. Similarly, Krishnan discloses a chatbot, and Radhakrishnan discloses a robotic process automation (RPA) bot that performs an automation process

without using an application programming interface (API). Like the '664 patent, the automation processes in Symons, Allen, and Radhakrishnan simulate interactions with a displayed user interface (UI).

Petitioner submits that the challenged claims are unpatentable for the reasons set forth in this Petition, as supported by Dr. Homayoon Beigi (EX1003).

II. BACKGROUND OF NATURAL LANGUAGE PROCESSING AND PROCESS AUTOMATION

Natural language processing (NLP) refers to the interaction between a computer and a human using human “natural” language, where human users are able to converse with the chatbots using every day, natural language (instead of using programming code). (EX1003, ¶17.) For example, some businesses have replaced customer service agents with chatbots. (EX1026, 2; EX1027; EX1003, ¶17.)

Process automation refers to automation of certain tasks. (EX1003, ¶18.) For example, transactional, repetitive tasks may be automated using RPA bots. (*Id.*, ¶¶18-19.) RPA bots are being used to process insurance claims, conduct credit checks, etc. (EX1026, 2; EX1003, ¶19.)

Both NLP and process automation offer lower operational costs, high volume processing, and faster turnaround time. (EX1003, ¶20.) In 2017, a chatbot could have an intelligent conversation with a human, but may only have been able

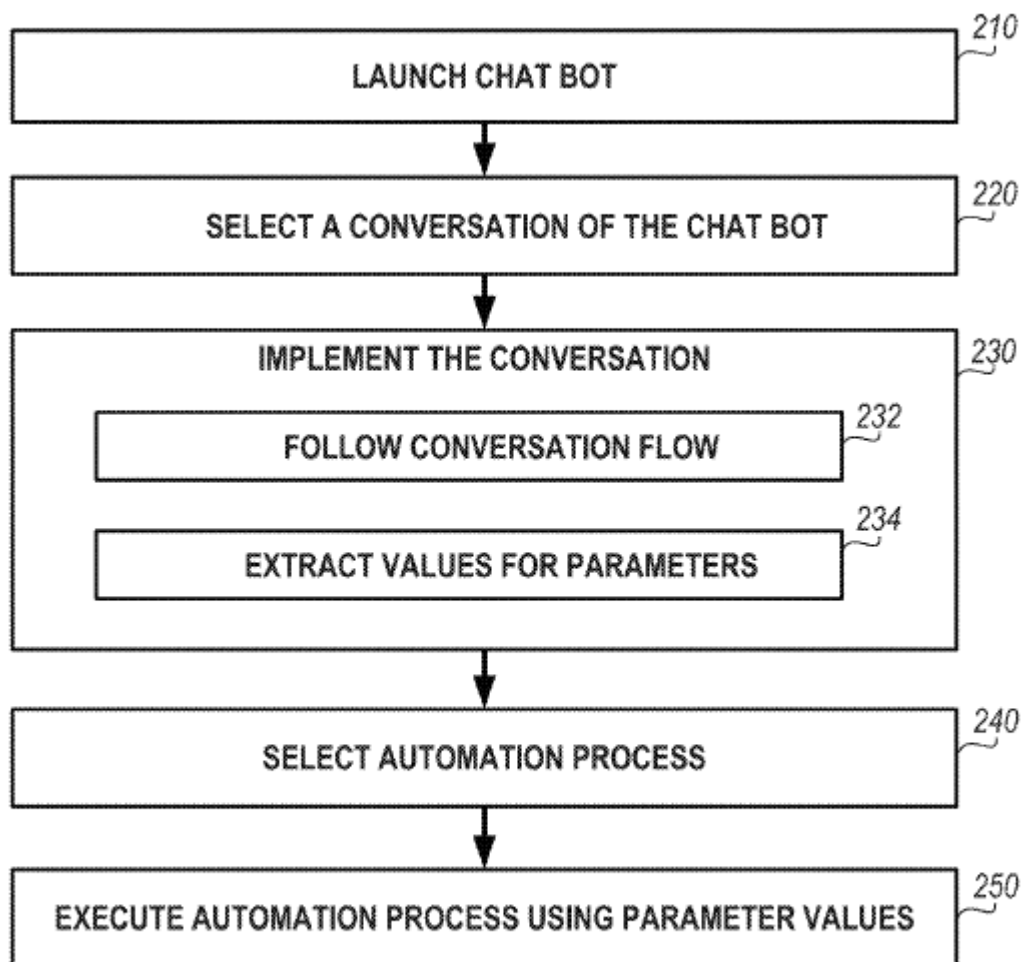
to provide, *e.g.*, answers from a search engine, while an RPA bot may have been able to automatically perform more complex tasks that require, *e.g.*, analysis or executing actions. (*Id.*) Combining the two not only exploited the benefits that both had to offer, but also expanded the capabilities that each may not have had alone. (*Id.*)

The idea of combining NLP and process automation and the associated benefits were known by at least November 5, 2017 (earliest priority date for the '664 patent). (EX1030, 6-7; EX1031, 4; EX1003, ¶21.) “[T]his harmonious alliance [of a chatbot-RPA bot combination] is revolutionizing business operations, enhancing customer experiences, and driving efficiency gains.” (EX1026, 1.) “[E]ndless possibilities [] arise when chatbots and RPA come together.” (EX1026, 1-2.)

III. SUMMARY OF THE '664 PATENT

The '664 patent discloses “[a] method, apparatus and product for chat-based application interface for automation.” (EX1001, Abstract.) The chatbot is an allegedly user-friendly way to converse with a user for, *e.g.*, collecting information. (*Id.*, 7:62-64, 9:44-47; EX1003, ¶23.) An automation process is executed, based on the conversation, including simulating a sequence of user interactions with a UI (*e.g.*, filling out an online form using the collected information) that is displayed. (*Id.*, 9:44-47, 10:8-10; 14:12-17.)

Fig. 2A (below) shows the chatbot is launched (step 210), and a conversation between the chatbot and user is selected and implemented (steps 220, 230). (*Id.*, 13:24-58; EX1003, ¶24.) Values are extracted (collected) from the conversation (step 234), and an automation process is selected and executed (steps 240, 250) using the collected values. (EX1001, 13:58-14:17.)

**FIG. 2A**

A. Effective Filing Date

The '664 patent was filed on March 19, 2019, issued on October 27, 2020, and claims priority to a provisional application filed on November 5, 2017. For purposes of this Petition only, Petitioner relies on November 5, 2017 as the earliest effective filing date. (EX1003, ¶22.)

B. Prosecution History

During prosecution, the Examiner identified Corbett (EX1019), Chang (EX1020), White (EX1021), Owen (EX1022), and Gallopyn (EX1023) as the closest art to the substance of the independent claims. (EX1002, 208, 242, 243, 245, 283 285; EX1003, ¶¶30-38.)

Applicant amended the claims to recite: a natural language conversation (elements 1[a], 1[b] (below)); determining an automation process that simulates user interactions with a displayed UI using inputs from the natural language conversation (element 1[c]-1[e] (below)); and executing the automation process (element 1[f] (below)). (EX1002, 242, 243, 245, 304; EX1003, ¶¶30-38.)

Without stating the reasons for the allowance, the Examiner issued a Notice of Allowance. (EX1002, 367; EX1003, ¶39.)

C. Level of Ordinary Skill in the Art

A person of ordinary skill in the art (“POSITA”) in the field of the '664 patent would have a bachelor’s degree in engineering or computer science and two

years of experience working on NLP and automation processes. Alternatively, a POSITA would have five to six years of experience working on NLP and automation processes. (EX1003, ¶¶50-52.)

IV. CLAIM CONSTRUCTION

For purposes of this Petition only, Petitioner does not believe any terms require a formal construction. Each of the terms carries its “ordinary and customary meaning” (“the meaning that the term would have to a person of ordinary skill in the art in question” at the time of the invention). *In re Translogic Tech., Inc.*, 504 F.3d 1249, 1257 (Fed. Cir. 2007) (citation omitted); (EX1003, ¶¶53-54).

V. PRECISE REASONS FOR RELIEF REQUESTED

Pursuant to 37 C.F.R. § 42.104(b), Petitioner requests cancellation of the challenged claims based on the following references (EX1003, ¶¶25-29, 55-62):

Prior Art Reference	Abbreviation (Exhibit No.)
S. Symons, “When Chatbots meet RPA bots,” Medium, (2017)	“Symons Article” (EX1004)
English Translation of Screenshots of S. Symons, “RPA meets chatbot: Automatically generate e-mail signature,” Vimeo, (2017)	“Symons Video” (EX1006)
D. Williams et al., “Using artificial intelligence to optimize the value of robotic process automation,” IBM White paper, (2017)	“Williams” (EX1011)

Prior Art Reference	Abbreviation (Exhibit No.)
U.S. Patent No. 7,983,997	“Allen” (EX1014)
U.S. Patent No. 10,838,699	“Dayanandan” (EX1015)
U.S. Patent No. 10,839,798	“Krishnan” (EX1016)
U.S. Patent No. 10,503,627	“Radhakrishnan” (EX1018)

The statutory grounds for the challenge of each claim are set forth below.

All of the statutory citations are AIA.

Ground	35 U.S.C. §	Claim(s)	Prior Art Reference(s)
1	103	1-8, 12, 13, 16, 19-23, 26, 29, 31	Symons (Article and Video), Williams
2	103	1-8, 12-16, 18-23, 25, 26, 28-31, 33	Allen
3	103	9	Allen, Dayanandan
4	103	1-8, 12-14, 16, 18-23, 26, 28, 29, 31, 33	Krishnan, Radhakrishnan

Below, Petitioner discusses why the challenged claims are unpatentable under the statutory grounds raised, including how and where the prior art satisfies each element of each challenged claim, as required by 37 C.F.R. § 42.104(b)(4). Petitioner’s showing establishes a reasonable likelihood that it will prevail on each ground of unpatentability to each challenged claim.

A. Ground 1 – Symons and Williams Render Obvious Claims 1-8, 12, 13, 16, 19-23, 26, 29, and 31

1. Summary of Symons

The Symons Article and the Symons Video (collectively “Symons”) were publicly available on Medium and Vimeo by at least October 19, 2017. (EX1008.) The Medium page indicates that the Symons Article was posted on October 19, 2017. (EX1004.) The text of the Symons Article accords with the contents of the Symons Video. (EX1004; EX1006; EX1008; EX1003, ¶¶63-65.)

The Symons Article indicates that it was posted by Senne Symons, an employee of RoboRana, who verified the authenticity of the Symons Article and the Symons Video. (EX1008.) Mr. Symons also verified that the Symons Article and the Symons Video were made publicly available by at least October 19, 2017. (*Id.*) Mr. Symons was one of the names appearing in the Symons Video. (EX1006, 18.)

The Baetens Article includes a link to the Symons Article and Symons Video. (EX1009.) The Baetens Article was publicly available on Medium by at least October 20, 2017. (*Id.*) The Medium page indicates that the Baetens Article was posted on October 20, 2017. (*Id.*) The text of the Baetens Article accords with the contents of the Symons Article and the Symons Video. (EX1009; EX1006; EX1010; EX1003, ¶66.)

The Baetens Article indicates that it was posted by Wouter Baetens, a

previous employee of Arinti, who verified the authenticity of the Baetens Article and Symons Video and public availability by at least October 20, 2017. (EX1010.) Mr. Symons and Mr. Baetens verified that they worked together on development of the chatbot-RPA bot system discussed in the Symons Article, Symons Video, and Baetens Article. (EX1008; EX1010.)

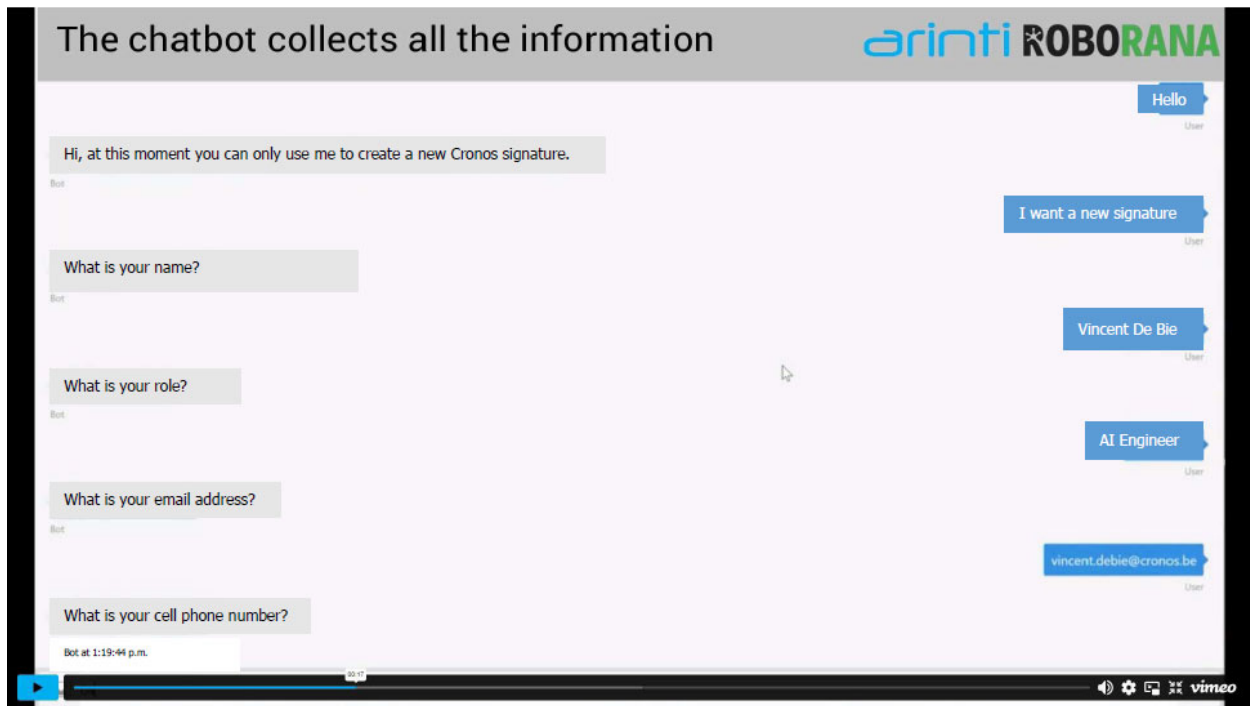
Medium and Vimeo are mainstream Internet-based platforms that companies like RoboRana and Arinti use to disseminate information about products to interested members of the public, including POSITAs. (EX1003, ¶¶63, 66.) These platforms were well-known, public (*e.g.*, no access restrictions), searchable, and intended to reach a wide audience. *Hulu, LLC v. Sound View Innovations, LLC*, IPR2018-01039, Paper 29 at 18 (PTAB Dec. 20, 2019) (precedential); (EX1003, ¶63). Given that Medium and Vimeo are known in the industry for spreading ideas and discussing technologies of interest, a POSITA would have readily located information that RoboRana and Arinti posted on these platforms with reasonable diligence. (EX1003, ¶63.) Moreover, videos can constitute printed publications in IPR proceedings under § 311. *London Luxury LLC v. E&E Co., Ltd.*, PGR20201-00083, Paper 10 at *18-19 (PTAB Nov. 15, 2021).

Based on this evidence taken as a whole, the Symons was publicly available by at least October 20, 2017, and is prior art to the '664 patent at least under § 102(a)(1) as a printed publication or as being otherwise available to the public.

The Examiner never found, and Applicant never cited, Symons during prosecution.

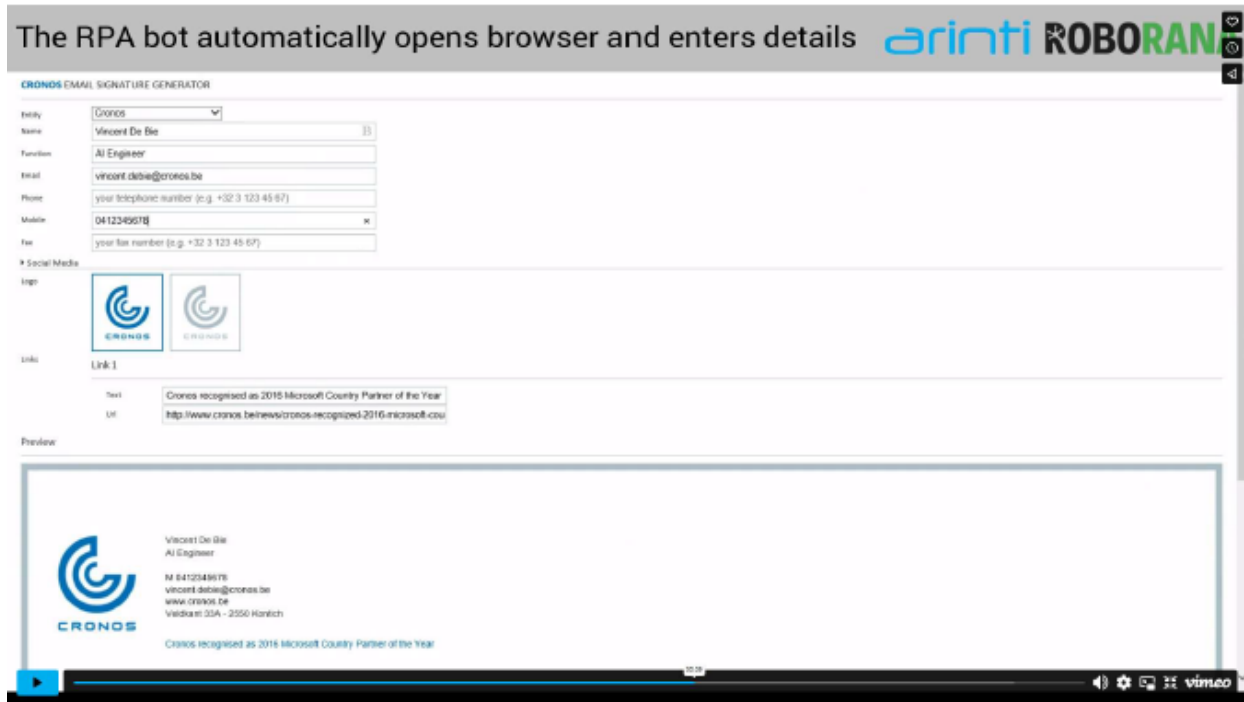
Symons discloses a computer system and computer program that “automate the process of creating an email signature.” (EX1004, 2; EX1003, ¶67.) “First, the chatbot collects all the information in a friendly, interactive manner. This information gets passed on to the RPA robot, which will then automatically generate the signature, save it, and email it back to the requester.” (EX1004, 2.) The “RPA bot can mimic the users’ actions and thus enables organizations to automate repetitive tasks.” (*Id.*)

The chatbot asks questions to collect the user’s name, job role, email address, and phone number. (EX1006, 2-6; EX1003, ¶67.)



The chatbot then triggers the RPA bot, which automatically inputs the collected

information in input fields to generate the email signature, and clicks on UI buttons to email the signature to the user. (EX1006, 10-17; EX1003, ¶¶68-69.)



2. Summary of Williams

Williams is a white paper that was publicly available on IBM's website by at least September 2017. (EX1012.) The September 2017 date time stamps on the first and last pages of the document means that it was freely available to the public no later than that date. One of the authors is Ira Allen, an employee of IBM during that time, who verified the authenticity of Williams its publicly availability on IBM's website by at least September 16, 2017. (EX1012.)

White papers are often made available on a company's website to disseminate information to interested members of the public, including POSITAs.

(EX1003, ¶¶70.) IBM's website was well-known, public (*e.g.*, no access restrictions), searchable, and intended to reach a wide audience. *Hulu, LLC v. Sound View Innovations, LLC*, IPR2018-01039, Paper 29 at 18 (PTAB Dec. 20, 2019) (precedential); (EX1003, ¶¶70). IBM is a known trailblazer in the field and publishes white papers to disseminate, promote, or highlight information to POSITAs about its products. A POSITA would have readily located Williams on IBM's website with reasonable diligence. (EX1003, ¶¶70-71.)

Williams was also publicly available on IT World Canada's website by at least September 16, 2017. (EX1012.) The IT World Canada post indicates that Williams was posted on September 16, 2017. (EX1013.) Ira Allen verified the authenticity of the post and verified that it was publicly available by at least September 16, 2017. (EX1012.)

IT World Canada is an online website that was known, public (*e.g.*, no access restrictions), searchable, and intended to reach a wide audience. *Hulu, LLC v. Sound View Innovations, LLC*, IPR2018-01039, Paper 29 at 18 (PTAB Dec. 20, 2019) (precedential); (EX1003, ¶¶72-73). Companies like IBM use IT World Canada to disseminate information to interested members of the public, including POSITAs. (*Id.*) Accordingly, a POSITA would have readily located Williams on this website with reasonable diligence. (*Id.*)

Based on this evidence taken as a whole, Williams was publicly available by

at least September 16, 2017, and is prior art to the '664 patent at least under § 102(a)(1) as a printed publication or as being otherwise available to the public. (EX1011.) The Examiner never found, and Applicant never cited, Williams during prosecution.

Williams discloses a system and method that combines artificial intelligence and RPA. (EX1011, 1; EX1003, ¶74.) RPA offers a significant reduction in operational costs, but can have deployment challenges, so Williams proposes using cognitive computing to address these challenges. (EX1011, 2; EX1003, ¶74.)

Williams' intelligent automation system comprises chatbots that engage in natural language dialog with a user to determine the user's intent and collects information from the user. (EX1011, 3; EX1003, ¶75.) The chatbot then triggers an RPA bot, passes the collected information to the RPA bot, and the RPA bot completes the request. (EX1011, 3; EX1003, ¶76.)

Fig. 1 (below) shows Williams' intelligent automation continuum. A robot is taught to drive applications like a human does through a GUI. (EX1011, Fig. 1; EX1003, ¶77.) The robot conducts complex calculations, performs actions, and triggers downstream activities and/or interacts with humans using, *e.g.*, NLP. (EX1011, Fig. 1; EX1003, ¶77.)

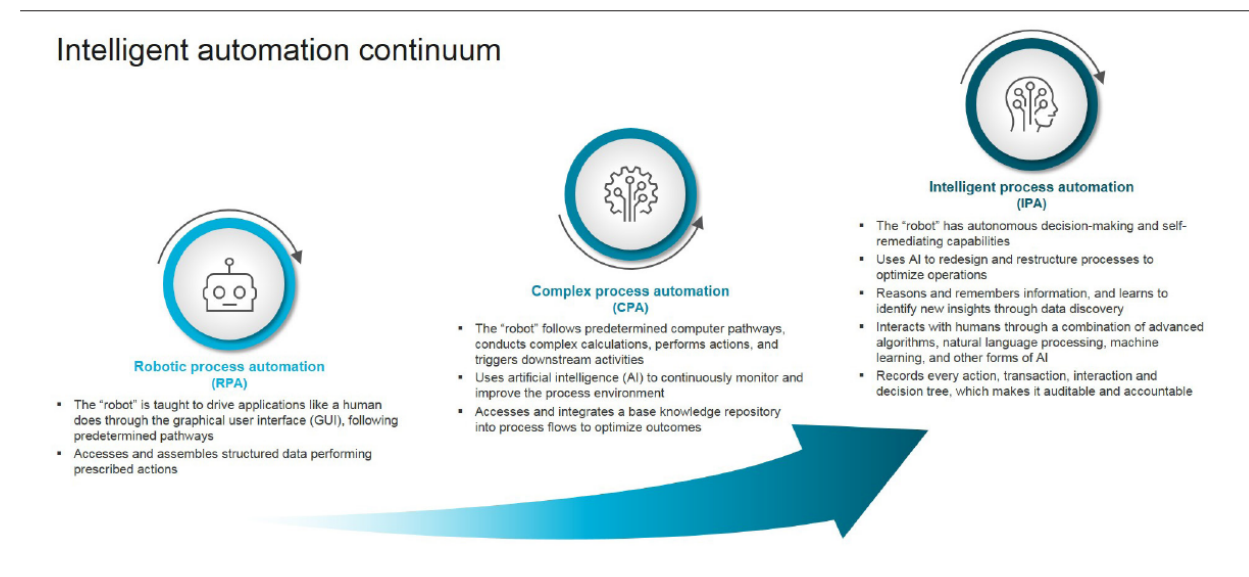


Figure 1. This diagram shows IBM's intelligent automation continuum.

3. Claim 1

a. Preamble: "A method comprising:"

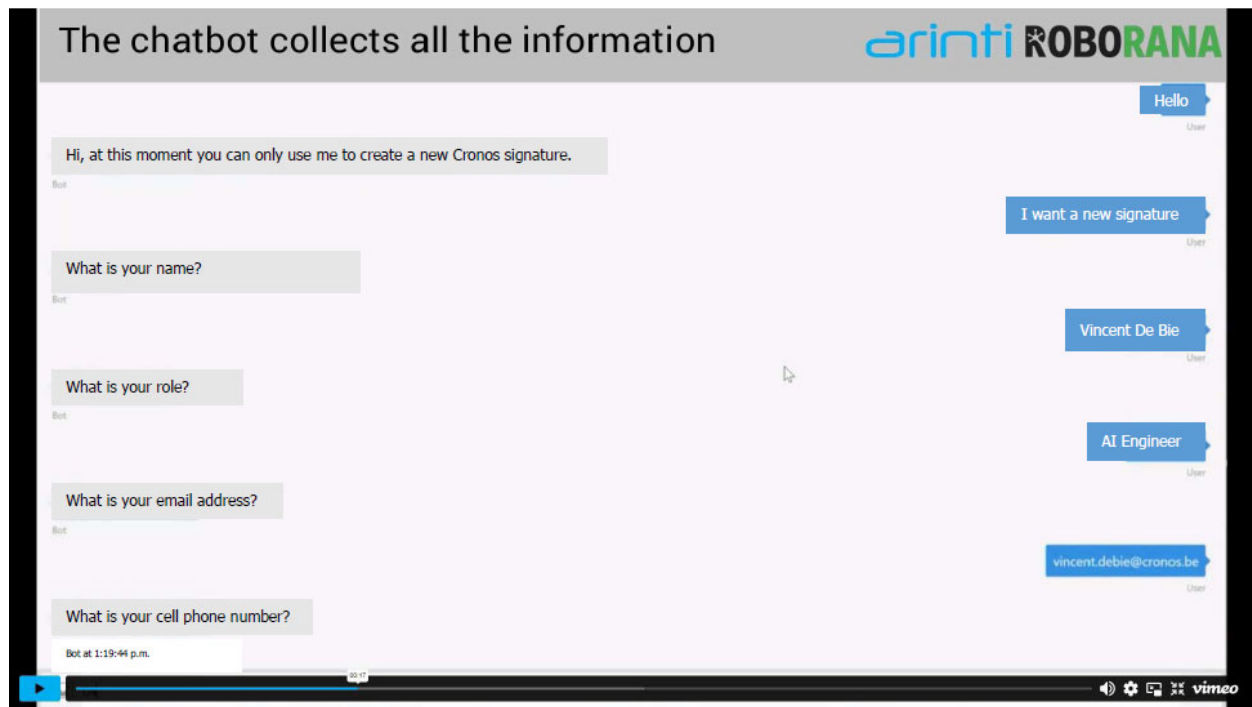
To the extent the preamble is limiting (which Petitioner does not concede), Symons discloses the preamble.

Symons discloses a method that "automate[s] the process of creating an email signature." (EX1004, 2; EX1003, ¶78.)

b. 1[a]: "using a natural language interface, receiving input from a user as part of a natural language conversation between the natural language interface and the user,"

Symons discloses using chatbots as "a more intuitive, natural way to interact with [] customers." (EX1004, 2.) "First, the chatbot collects all the information in a *friendly, interactive manner*." (EX1004, 2 (emphasis added).) The chatbot uses a natural language interface (below), where "[t]he chatbot collects all the

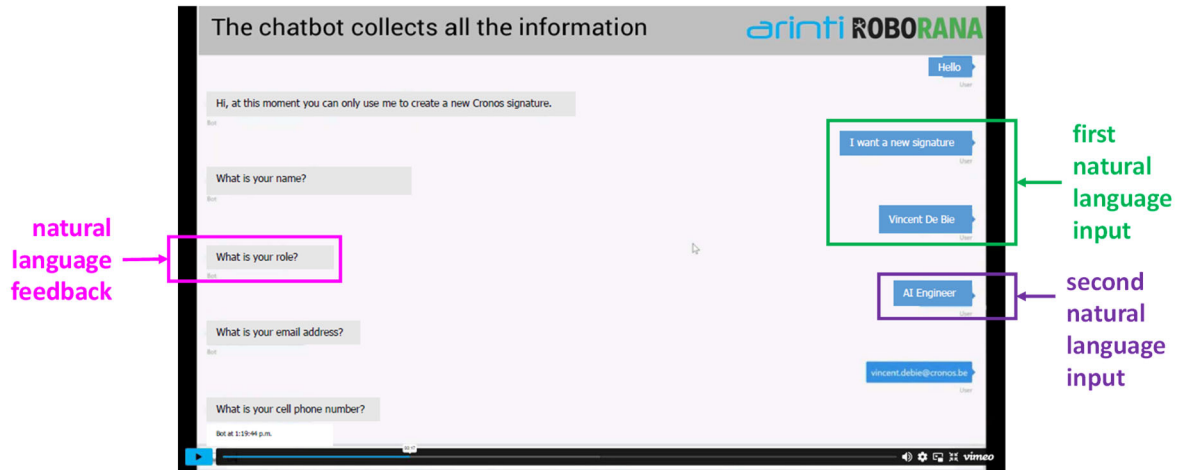
information.” (EX1006, 5; EX1003, ¶¶79-81.)



The chatbot receives input from a user: asking the user for a name (“What is your name?”), job role (“What is your role?”), email address (“What is your email address?”), etc. (screen above), and the user responds. (EX1006, 5; EX1003, ¶¶82-83.) The chatbot’s questions and the user’s responses are displayed on a GUI, and resembles language spoken by a human, and are part of a natural language conversation between the natural language interface and the user. (EX1003, ¶83.)

- c. **1[b]: “wherein the natural language conversation comprises a first natural language input from the user, a natural language feedback on the first natural language input from the natural language interface, and a second natural language input from the user in response to the natural language feedback:”**

The natural language conversation between Symons’ chatbot and the user comprises a first natural language input from the user (annotated below), *e.g.*, the user inputs “I want a new signature” in response to the chatbot’s welcome message. (EX1006, 5; EX1003, ¶¶84-88.) The user also inputs “Vincent De Bie” when the chatbot asks a first question: “What is your name?” (EX1006, 5; EX1003, ¶¶84-88.) Since the user responded to the chatbot’s question message and answered the first question, the chatbot continues the conversation with a second question (“What is your job role?”). (EX1006, 5; EX1003, ¶¶84-88.) This continuation of the conversation is a natural language feedback (*e.g.*, that the chatbot received a suitable answer to the question) on the first natural language input from the natural language interface. (EX1003, ¶87.)



In response to the second question (natural language feedback), the user responds (“Engineer”) (above), which is a second natural language input from the user. (EX1006, 5; EX1003, ¶88.)

- d. **1[c]: “determining, based on the first and second natural language inputs from the user, an automation process configured to perform an automation of a sequence of interactions with a displayed user interface of a computer program and to simulate user interactions with the displayed user interface of the computer program,”**

In Symons, the first and second natural language inputs from the user comprise the welcome-message response, name “Vincent De Bie,” and job role “Engineer.” (See element 1[b]; EX1003, ¶89.) Based on the welcome-message response, name, and job role (first and second natural language inputs from the user), Symons *determines* an automation process that “*automate[s] the process* of creating an email signature.” (EX1004, 2 (emphasis added); EX1003, ¶90.)

It would have been obvious for Symons to determine an automation process

that waits for the user to respond, or an automation process that receives collected information from the chatbot. (EX1004, 2; EX1003, ¶¶91-92.) “The chatbot triggers the RPA bot.” (EX1006, 10.)

Symons’ RPA bot performs an automation of a sequence of interactions with a displayed UI of a computer program (annotated below), “mimic[ing] the users actions.” (EX004, 2; EX1003, ¶93.) “The RPA bot automatically opens browser and enters details,” entering “Vincent De Bie” and “Engineer” in the name and job role input fields (annotated below). (EX1006, 10-11; EX1003, ¶93.)

simulate
sequence of
interactions
with the
displayed UI
of the
computer
program

The RPA bot automatically opens browser and enters details **arinti ROBORAN**

CRONOS EMAIL SIGNATURE GENERATOR

From:

Name:

Role:

Email:

Phone:

Mobile:

Fax:

Social Media

Logo:  

Links

Link 1

Text:

Url:

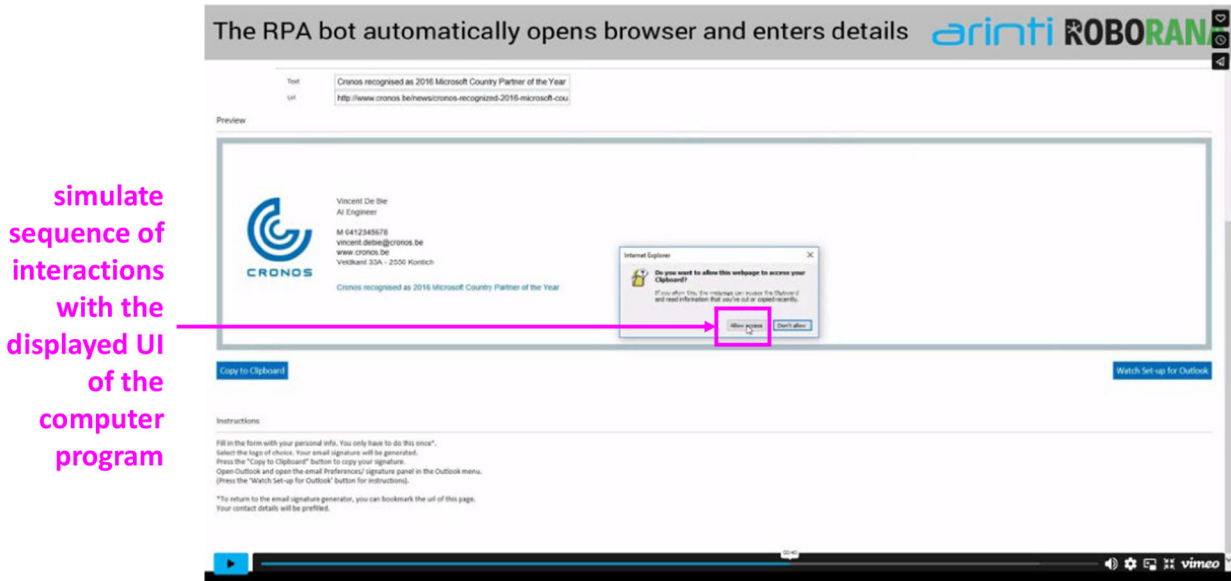
Preview

 Vincent De Bie
AI Engineer
M 0412345678
vincent.debie@cronos.be
www.cronos.be
Vordam 33A - 2550 Kordich
Cronos recognised as 2016 Microsoft Country Partner of the Year

10:38

vimco

The RPA bot also simulates user interactions via GUI button clicks (annotated below). (EX1006, 13; EX1003, ¶94.)



To the extent that Symons does not determine an automation process, it would have been obvious in view of Williams. (EX1003, ¶¶95.) 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.” (EX1011, 3 (emphasis added).)

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. (EX1003, ¶¶95-96.) 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. (*Id.*, ¶¶97-99.) The

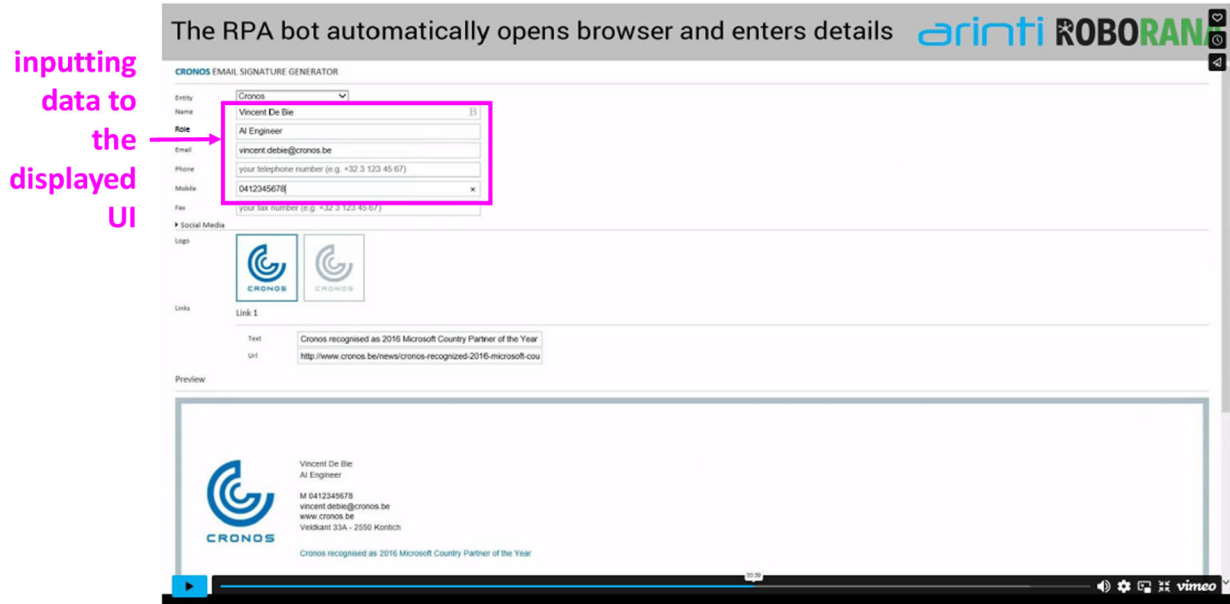
Symons-Williams combination results in a chatbot-RPA bot system capable of handling a user request for automated email signature generation along with other requests, such as automated generation of an electronic letterhead or an electronic invoice. (*Id.*, ¶98.) The ability to handle multiple requests would expand the capabilities and flexibilities of the chatbot-RPA bot without requiring much effort and with a reasonable expectation of success. (*Id.*, ¶99.)

- e. **1[d]: “wherein the user interface of the computer program is configured to be displayed on a screen,”**

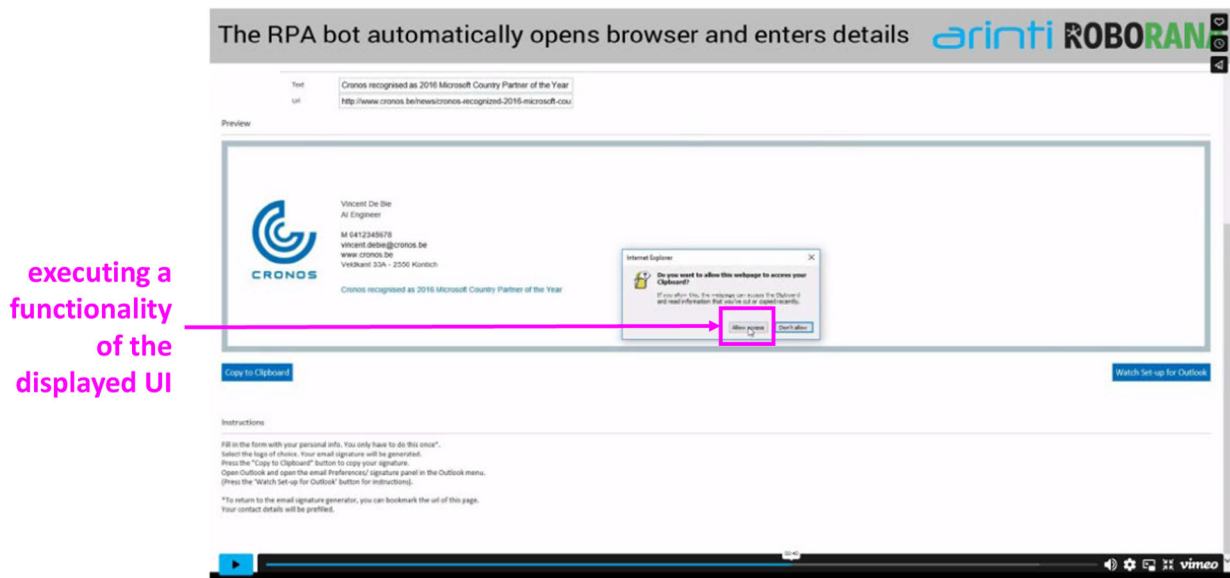
Symons’ UI of the computer program is displayed on a screen, here, a computer screen. (*See* element 1[c]; EX1003, ¶100.)

- f. **1[e]: “wherein each interaction of the sequence of interactions comprises an action selected from a group consisting of inputting data to the displayed user interface and executing a functionality of the displayed user interface; and”**

Symons’ “RPA bot automatically opens browser and enters details.” (EX1006, 11.) Each interaction of the RPA bot comprises inputting data to the displayed UI (annotated below): inputting “Vincent De Bie,” “AI Engineer,” “vincent.debie@cronos.be,” and “0412345678” in the name, job role, email, and phone input fields. (EX1006, 12; EX1003, ¶101.)



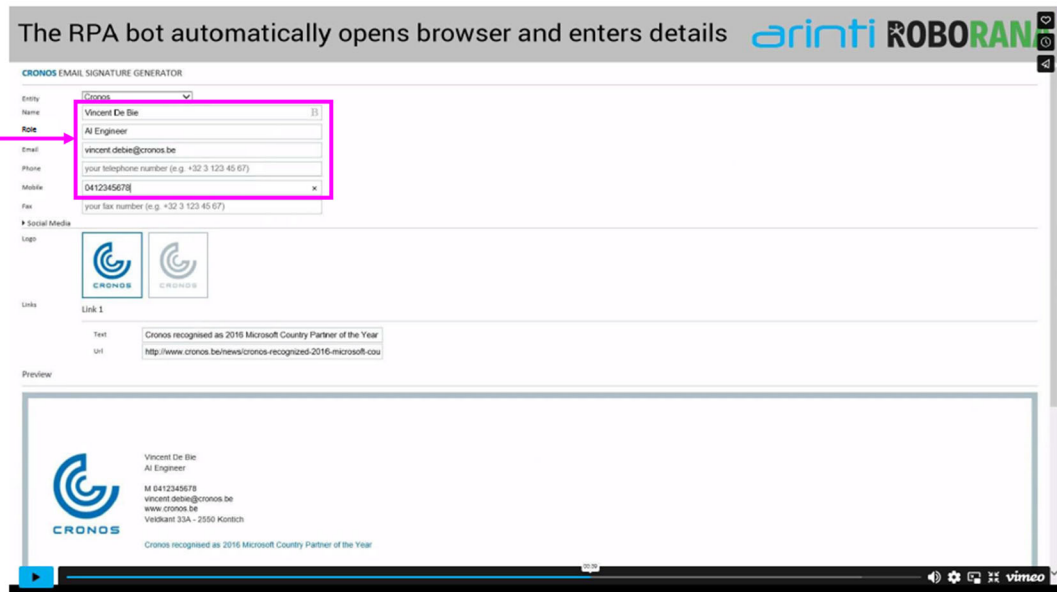
The sequence of interactions also includes executing a functionality of the displayed UI (annotated below): copying the email signature onto the clipboard by simulating GUI button clicks. (EX1006, 13; EX1003, ¶102.)

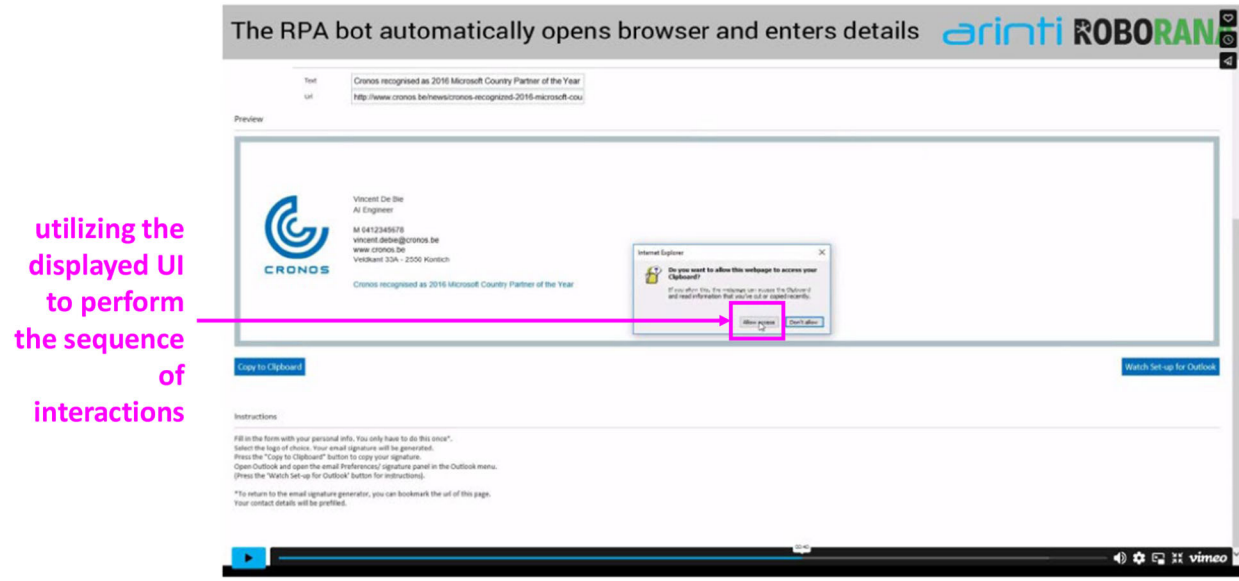


- g. 1[f]: “executing the automation process, wherein said executing comprises utilizing the displayed user interface of the computer program to perform the sequence of interactions.”**

Symons’ “chatbot triggers the RPA bot,” which executes an “automate[d] [] process of creating an email signature.” (EX1006, 10, 12; EX1003, ¶103.) The executing comprises inputting data in data fields and clicking on GUI buttons, utilizing the displayed UI of the computer program to perform the sequence of interactions (annotated below). (EX1003, ¶103.)

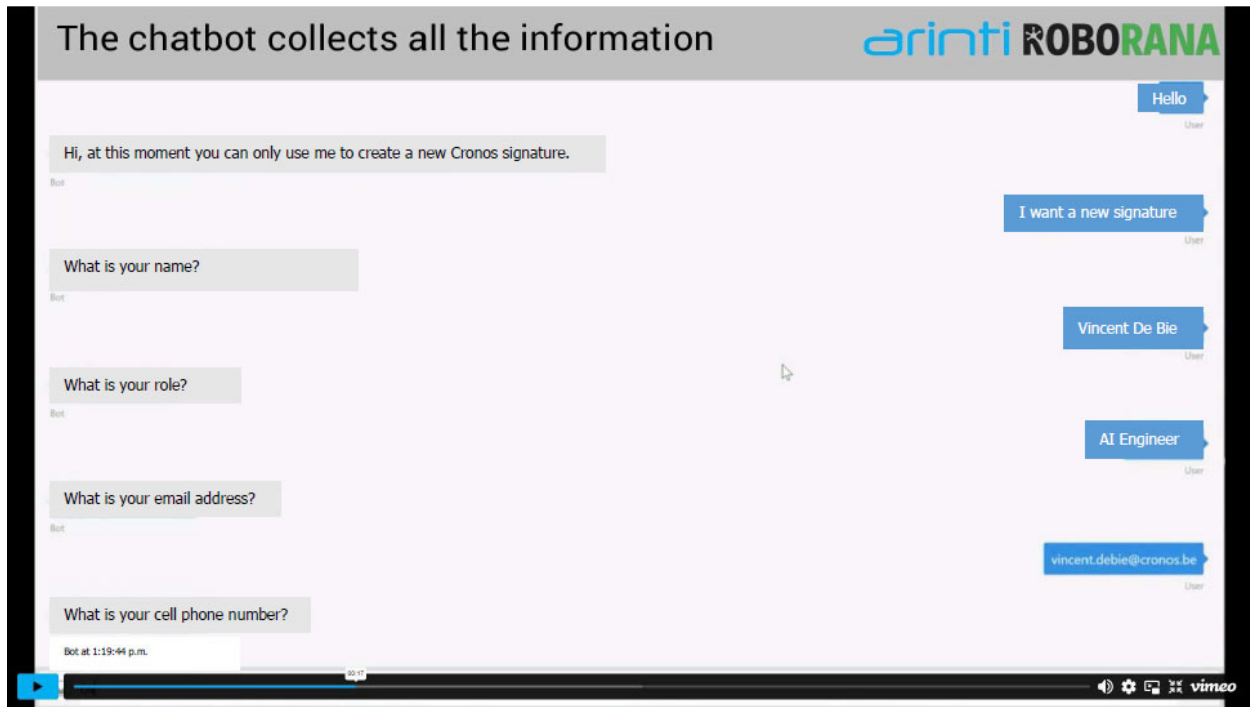
utilizing the
displayed
UI to
perform
the
sequence
of
interactions





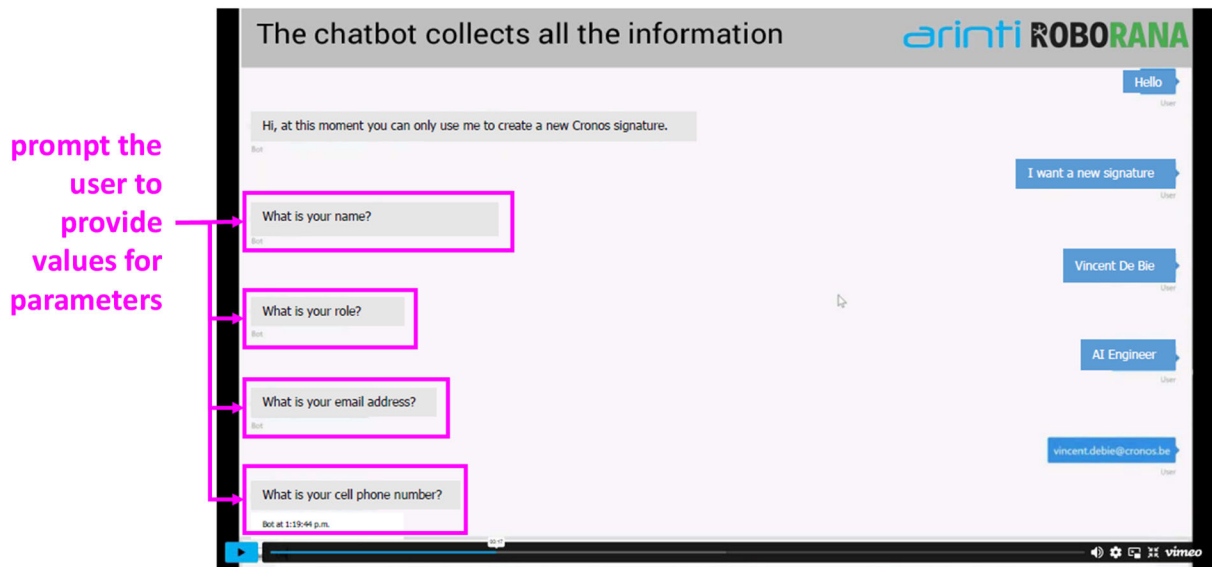
4. Claim 2: “The method of claim 1, wherein the natural language interface is a chat bot service operable to converse with the user in natural language.”

Symons’ natural language interface (screen below) is a chatbot service operable to converse with the user in natural language. (See element 1[a]; EX1006, 5; EX1003, ¶¶104-105.)



5. **Claim 3: “The method of claim 2, wherein the automation process is a parameterized automation process having a parameter, wherein the chat bot service is configured to prompt the user to provide a value for the parameter, wherein said executing comprises utilizing the value of the parameter.”**

Symons’ “chatbot collects all the information,” prompting the user with questions to provide values for parameters (annotated below): name, job role, email address, phone number. (EX1006, 5, 6; EX1003, ¶106.)

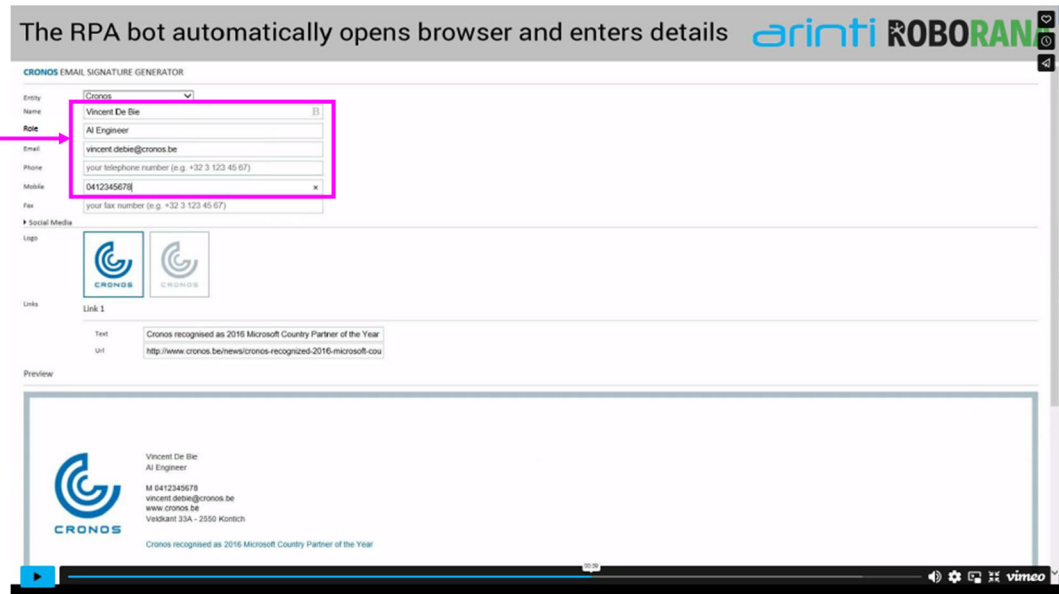


The collected values for the parameters are utilized in the automation process of creating an email signature. (See element 1[c]; (EX1003, ¶107.) Symons’ automation process is a parameterized automation process having a parameter. (EX1003, ¶107.)

6. **Claim 4: “The method of claim 1, wherein the displayed user interface is a Graphical User Interface (GUI) comprising one or more input fields, wherein said utilizing the displayed user interface comprises inputting data received by the natural language interface to the one or more input fields.”**

The displayed UI is a GUI comprising inputs fields: name, job role, email, and phone number input fields. (EX1006, 12; EX1003, ¶108.) The chatbot receives data from the user’s input by the natural language interface and utilizes the displayed UI to input the received data to these input fields (annotated below). (See elements 1[a], 1[c]; EX1003, ¶108.)

inputting
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received by
the natural
language
interface to
one or
more input
fields

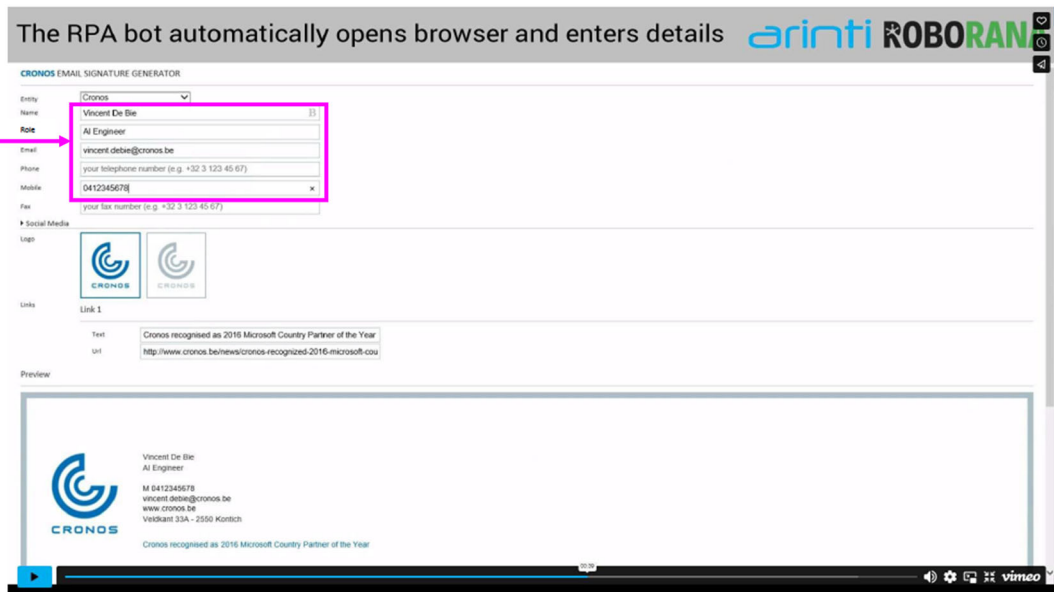


7. **Claim 5: “The method of claim 1, wherein the displayed user interface is a Graphical User Interface (GUI) comprising one or more interactable GUI elements, wherein said utilizing the displayed user interface comprises performing interface interaction with the one or more interactable GUI elements.”**

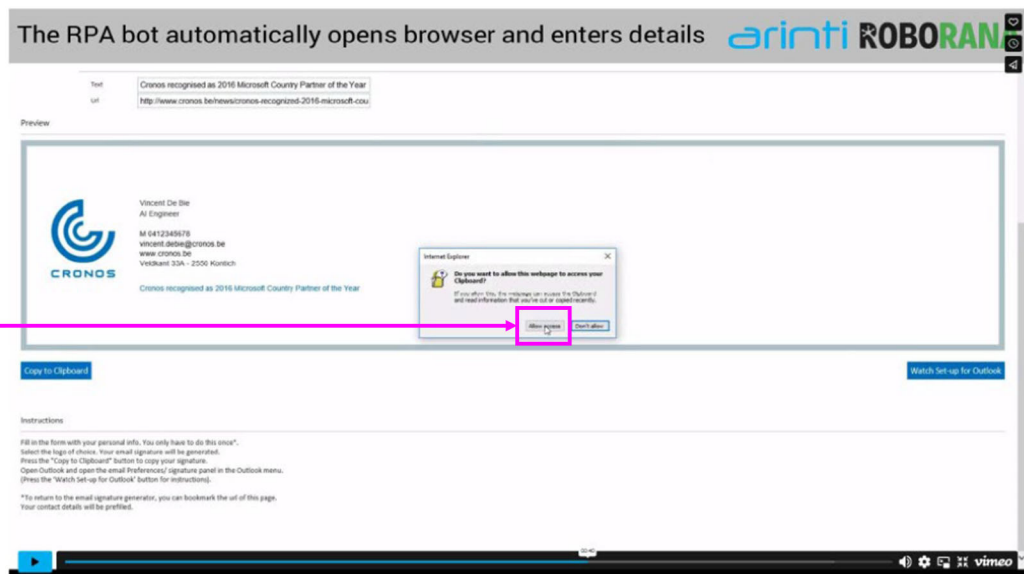
Symons’ RPA bot utilizes the displayed UI by automatically inputting data in input fields and clicking on GUI buttons. (See element 1[e]; EX1003, ¶109.)

The input fields and GUI buttons are interactable GUI elements, where the RPA bot inputting data and clicking on GUI buttons comprises performing interface interaction with the interactable GUI elements (annotated below). (EX1003, ¶109.)

performing
interface
interaction
with one or
more
interactable
GUI
elements



performing
interface
interaction
with one or
more
interactable
GUI elements



8. Claim 6: “The method of claim 1, wherein said executing is performed without utilizing an Application Programming Interface (API) of the computer program.”

Symons’ executing is performed without utilizing an API. (EX1003, ¶¶110-111.) To the extent that Symons does not disclose executing without utilizing an API, Williams discloses “RPA enlists software robots . . . that cut

across multiple applications and *interact with these systems without the need to build complex and rigid system-to-system interfaces. Although 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.*" (EX1011, 2 (emphasis added).) Williams recommends execution without utilizing an API because it is "an attractive way to drive operational cost reduction." (*Id.*) Without utilizing an API, "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.*)

It would have been obvious to combine Symons and Williams. Symons interfaces with multiple platforms: email signature platform, Microsoft Word, and Microsoft Outlook. (EX1003, ¶¶112-113.) A POSITA would be motivated to reduce the costs, time, and efforts needed to interface with the multiple platforms, since traditional IT programming efforts are not needed, and the prior art has demonstrated a reasonable expectation of success. (*Id.*)

9. **Claim 7: “The method of claim 1, wherein the sequence of interactions comprises a sequence of steps, wherein each step is selected from a group consisting of: a page redirect step; a click element step; a hovering over element step; a set focus to element step; a select value from list step; a fill input field with value step; a prompt user step; a time-wait step; and a condition-wait step.”**

Symons’ RPA bot automatically creates an email signature with steps that, *e.g.*, fill in values received (during a natural language conversation between the chatbot and the user) in input fields, and clicking GUI buttons. (*See* element 1[e]; EX1003, ¶¶114-116.)

10. Claim 8

- a. **8[a]: “The method of claim 1, wherein said determining comprises selecting the automation process from a database retaining a plurality of user-defined automation processes;”**

Symons is silent on whether it selects the automation process from a database, but Williams’ system “allows business process owners to draft, create and amend rules and policy changes outside of the RPA product using normal conversation text. The robot then interacts with WPML to look up and apply rules related to automated process.” (EX1011, 4.) The business process owner’s ability to draft, create, and amend rules and policy changes means the automation process is a user-defined automation process. (EX1003, ¶¶117-118.) The robot looking up rules means that there is a database retaining a plurality of user-defined automation

process. (*Id.*)

It would have been obvious to combine Symons and Williams. (*See* element 1[c]; EX1003, ¶119.)

- b. **8[b]: “wherein the database is updatable by one or more users via a Graphical User Interface (GUI) capable of defining new automation processes and updating existing automation processes retained therein.”**

Williams discusses one of the technical limitations with the prior art being the “[a]bility to accommodate for changing rules or business logic with relative ease.” (EX1011, 3.) Williams’ system “allows business process owners to draft, create and amend rules and policy changes outside of the RPA product using normal conversation text” (*e.g.*, via a GUI), so the database is updatable to add new automation processes and update existing automation processes retained therein. (EX1011, 4; EX1003, ¶120.)

In Williams’ system, the “*‘robot’ is taught* [(by user(s))] to drive applications like a human does through the *graphical user interface (GUI)*” (Fig. 1 (annotated below)). (EX1003, ¶¶121-122.)

Intelligent automation continuum

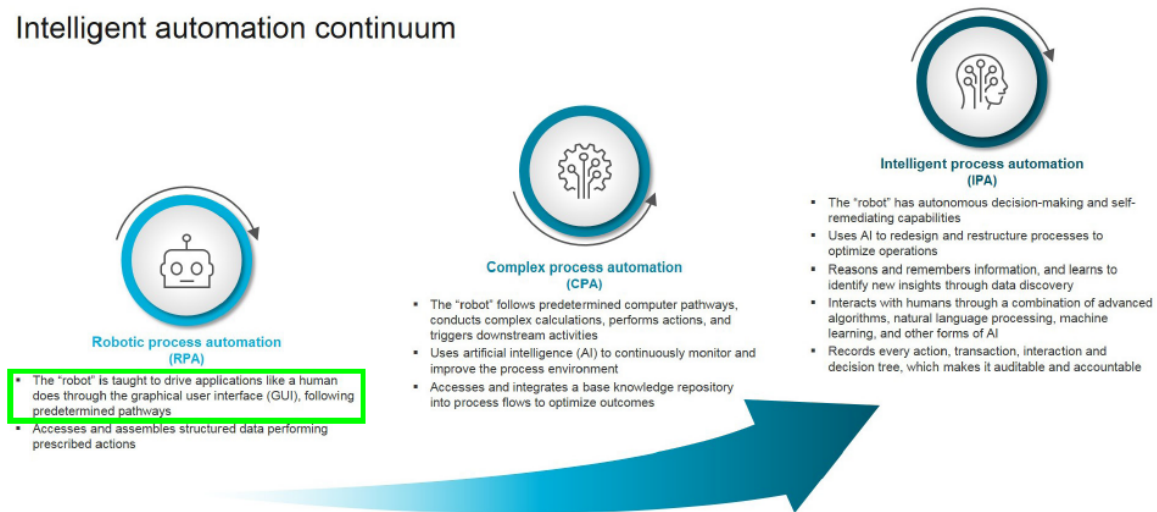
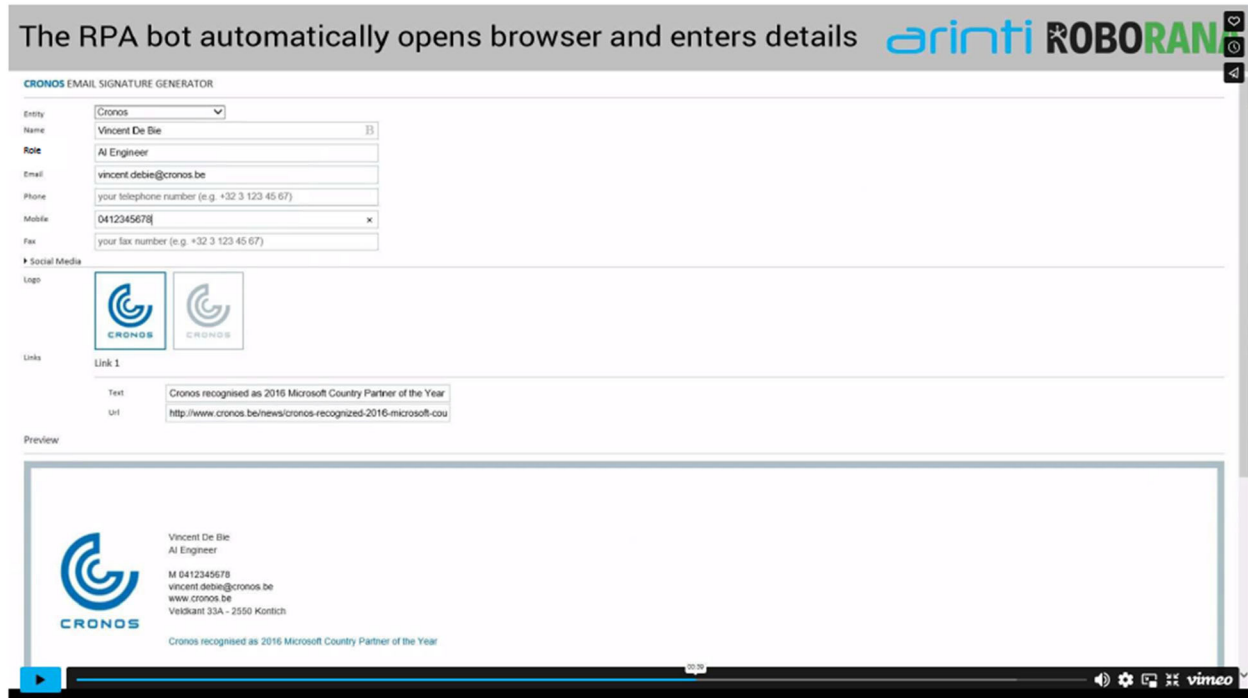


Figure 1. This diagram shows IBM's intelligent automation continuum.

11. Claim 12: "The method of claim 1, wherein said executing is performed on a client device of the user."

Symons' RPA bot executes the automated process of creating an email signature on a personal computer (below): "RPA bot automatically opens browser and enters details." (EX1006, 11.) A personal computer is a client device of the user. (EX1003, ¶123.)



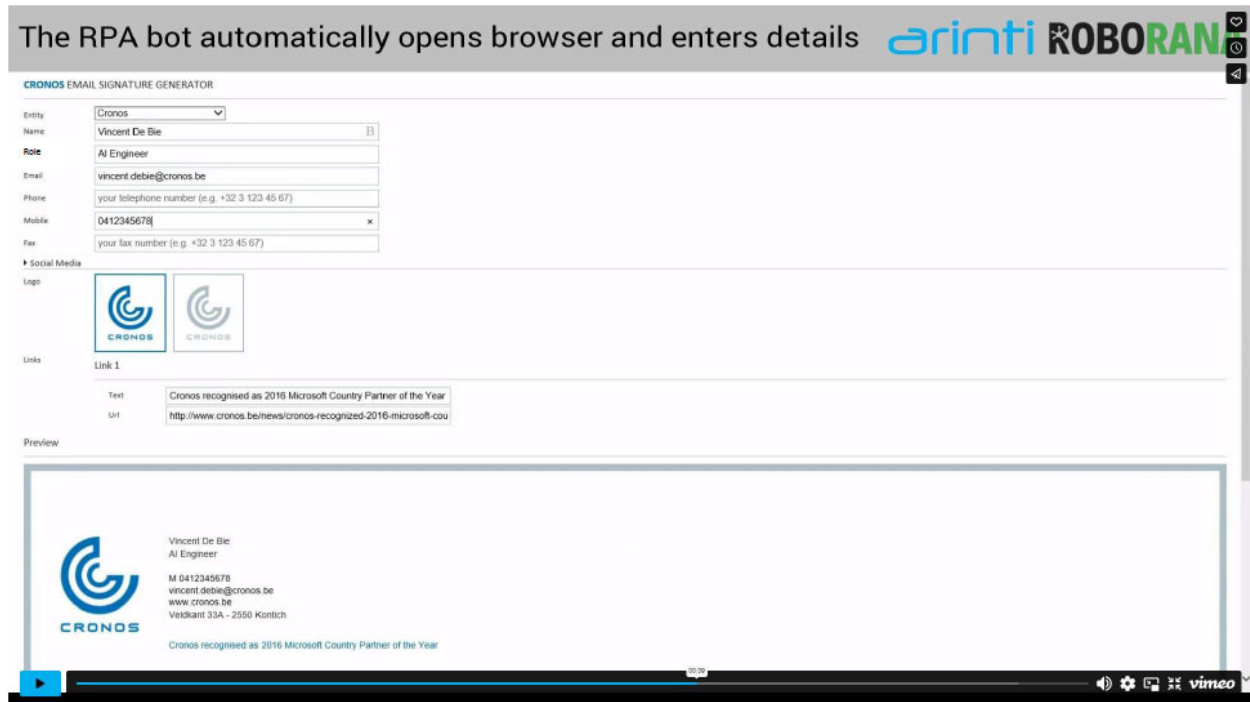
12. Claim 13: “The method of claim 1, wherein the natural language interface is a voice-based service, wherein the voice-based service is configured to receive vocal commands from a human user.”

The natural language conversation between the natural language interface and the user begins with the user typing “Hello” (below). (EX1006, 2.) .

(EX1003, ¶124.) Symons’ system is executed on a personal computer. (See claim 12; EX1003, ¶124.) In 2017, personal computers typically had microphones and received vocal commands. (EX1003, ¶124.) It would have been obvious to receive the user’s inputs using vocal commands, as Williams teaches (EX1011,3), because it is a convenient way for the user to converse with the natural language interface. (*Id.*)

13. Claim 16: “The method of claim 1, wherein the displayed user interface of the computer program is presented to the user.”

Symons’ natural language interface (below) is a displayed UI of a computer program presented to the user. (EX1006, 11; EX1003, ¶125.)



14. Claim 19

- a. Preamble: “A non-transitory computer readable medium retaining program instructions, which program instructions when read by a processor, cause the processor to perform:”**

To the extent the preamble is limiting (which Petitioner does not concede), Symons discloses the preamble.

Symons’ chatbot-RPA system is a computer program that executes an automated email signature process on a personal computer. (See claim 1; EX1003,

¶126.) A personal computer comprises a non-transitory computer readable medium retaining program instructions, which when read by a processor, cause the processor to perform steps. (EX1003, ¶126.)

b. Elements 19[a]-19[f]

Elements 19[a]-19[f] mirror elements 1[a]-1[f], which Symons discloses alone, or in combination with Williams. (EX1003, ¶¶ 127-132.)

15. Claim 20: “The non-transitory computer readable medium of claim 19, wherein the automation process is a parameterized automation process having a parameter, wherein the natural language interface is configured to prompt the user to provide a value for the parameter, wherein said executing comprises utilizing the value of the parameter.”

Claim 20 recites limitations similar to claim 3, but requires the “natural language interface” prompt the user. (EX1003, ¶133.) Symons’ chatbot is a natural language interface. (See claim 3; EX1003, ¶134.)

16. Claims 21-23, 26

Claims 21-23 and 26 mirror claims 4-6 and 16, which Symons discloses alone, or in combination with Williams. (EX1003, ¶¶135-138.)

17. Claim 29

a. Preamble: “A system comprising:”

To the extent the preamble is limiting (which Petitioner does not concede), Symons discloses the preamble.

Symons discloses a chatbot and an RPA bot. (EX1004, 2; EX1003, ¶139.)

b. 29[a]: “a processor and coupled memory,”

Symons discloses a computer system, which comprises a processor and coupled memory. (*See* preamble of claim 1; EX1003, ¶141.)

c. 29[b]: “wherein the processor is configured to perform: using a natural language interface, receiving input from a user as part of a natural language conversation between the natural language interface and the user,”

Symons discloses element 1[a]. Element 29[b] recites limitations similar to element 1[a], but requires “the processor be configured to perform” the claimed receiving step. Symons’ computer program, the steps that a processor performs, uses a natural language interface is a computer program. (EX1003, ¶¶142-143.)

d. Elements 29[c]-29[g] Claim 31

Elements 29[c]-29[g] mirror elements 1[b]-1[f], which Symons discloses alone, or in combination with Williams. (EX1003, ¶¶144-148.)

18. Claim 31

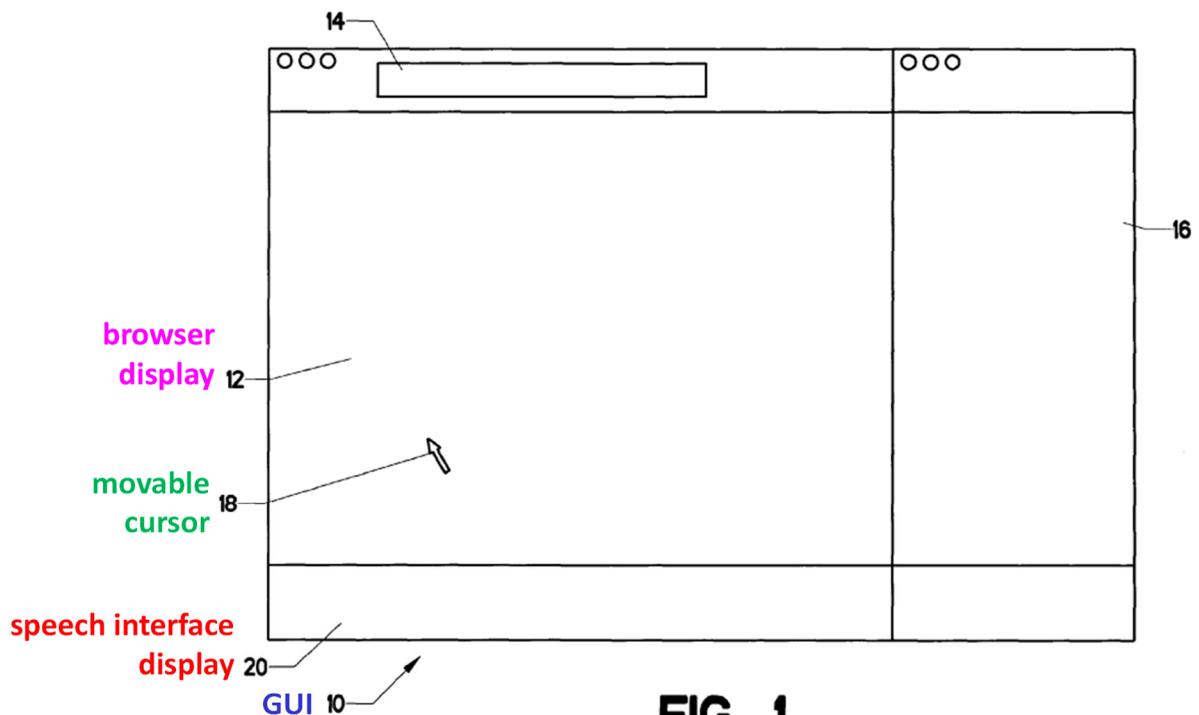
Claim 31 mirrors claim 6, which Symons discloses. (EX1003, ¶149.)

B. Ground 2 – Allen Renders Obvious Claims 1-8, 12-16, 18-23, 25, 26, 28-31, and 33

1. Summary of Allen

Allen published on July 19, 2011, qualifying as prior art to the ’664 patent at least under § 102(a)(1). (EX1014.) The Examiner never found, and Applicant never cited, Allen during prosecution.

Allen discloses a system that allows a user to teach it how to perform complex, repetitive tasks that a user would perform using a GUI. (EX1014, Abstract; EX1003, ¶150.) The user teaches the system the task steps by inputting natural language (displayed in speech interface display 20) and demonstrating actions with the browser display 12 and movable cursor of the GUI 10 (Fig. 1 (annotated below)). (EX1014, Abstract; EX1003, ¶¶151-152.) After the task has been taught, the user instructs the system to perform the task, and the system automatically executes it. (*Id.*)

**FIG. 1**

2. Claim 1

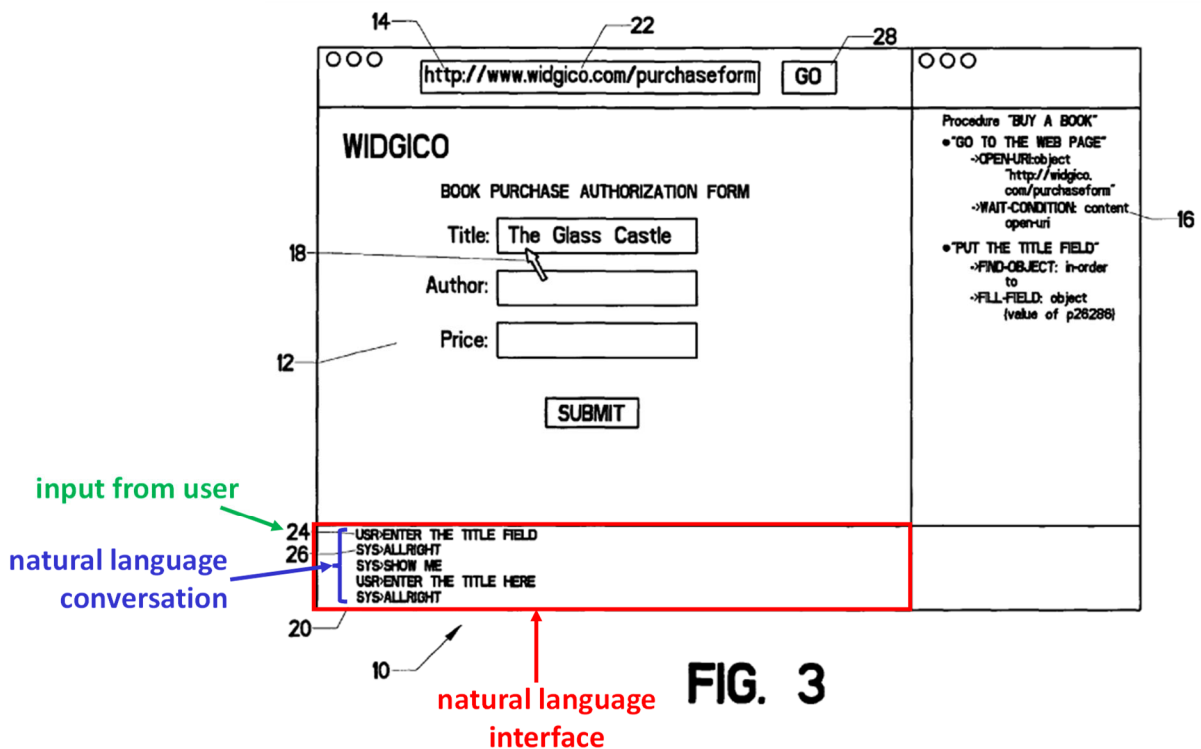
a. Preamble: “A method comprising:”

Allen discloses an “interactive method for learning and executing executable

tasks using [natural] language and demonstration inputs from a user.” (EX1014, 18:38-40; EX1003, ¶153.)

- b. 1[a]: “using a natural language interface, receiving input from a user as part of a natural language conversation between the natural language interface and the user,”

Allen’s “software includes a *natural dialog-based interface* whereby said *user can communicate with said software* using natural dialog-based language.” (EX1014, 18:47-49 (emphases added); EX1003, ¶154.) Fig. 3 (annotated below) shows the user’s speech 24 and the system’s speech 26 (shown in the speech interface display 20 (natural language interface)). (EX1003, ¶154.)



- c. **1[b]: “wherein the natural language conversation comprises a first natural language input from the user, a natural language feedback on the first natural language input from the natural language interface, and a second natural language input from the user in response to the natural language feedback:”**

In Allen, “[o]nce a task has been successfully taught to the system, a user can ask the system to perform that task. The system will then execute the steps it previously learned.” (EX1014, 3:44-46.) For example, the user says, “I want to buy a book” (first natural language input from the user). (EX1014, 12:64-66; EX1003, ¶155.) In response, the system asks, “What is the title of the book?” (natural language feedback on the first natural language input from the natural language interface). (*Id.*) In response, the user provides an answer (second natural language input from the user), namely the title of the book, to the system’s question (natural language feedback). (EX1003, ¶155.)

- d. **1[c]: “determining, based on the first and second natural language inputs from the user, an automation process configured to perform an automation of a sequence of interactions with a displayed user interface of a computer program and to simulate user interactions with the displayed user interface of the computer program,”**

In Allen, the first and second natural language inputs from the user comprise the user’s request to buy a book and its title. (*See* element 1[b]; EX1003, ¶156.) Based on the request and title (first and second natural language inputs from the

user), the system “then perform[s] the steps it was previously taught and complete[s] the transaction.” (EX1014, 12:66-13:1; EX1003, ¶157.) If the user instead requests a search for hotels, the system would perform a different automaton process. (EX1014, 16:33-40; EX1003, ¶158.)

The automation process performs an automation of a sequence of interactions. (*Id.*, ¶159.) “For each step a user teaches the system, the system attempts to recognize the user’s intent. The system then learns to automatically execute steps by observing the user’s actions and analyzing the verbal instructions the user provides.” (EX1014, 6:61-65.)

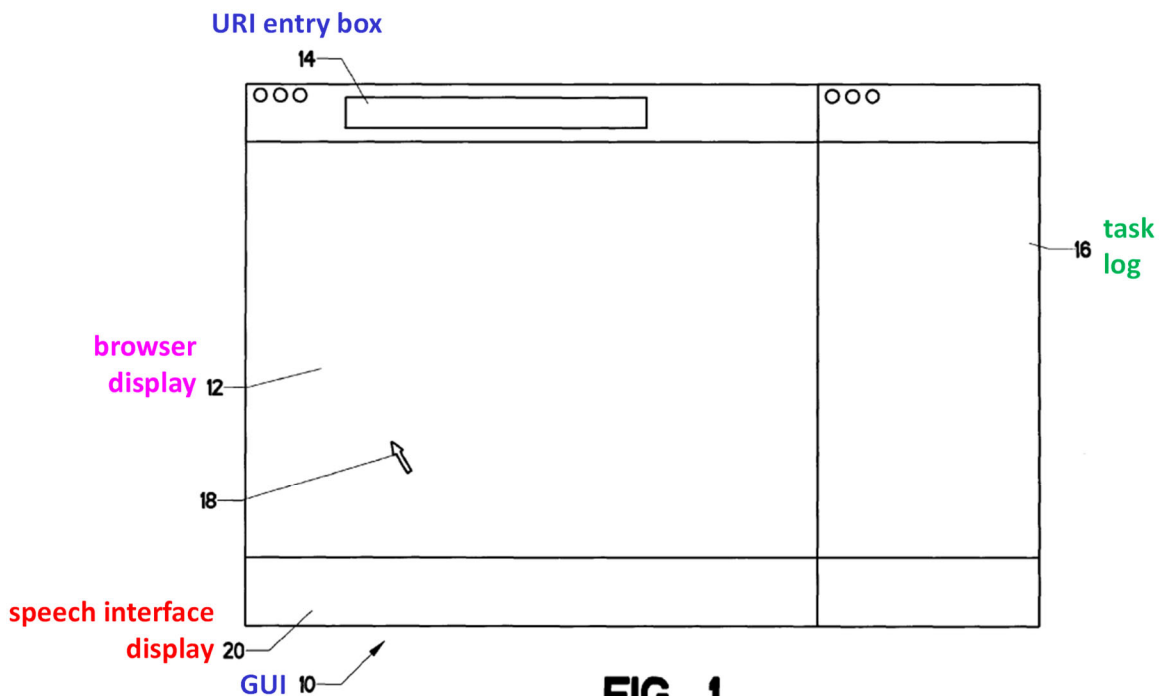
The system learns how to execute the steps of the book buying automation process by observing a sequence of user interactions with a displayed UI of a computer program, such as inputting the title in the title entry box 30, navigating to an online vendor site, pulling down and selecting the “Books” category, 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, ¶¶160-161.) Since the system learns how the user interacts with the displayed UI of the computer program, performing the steps it was previously taught means it simulates user interactions with the displayed UI. (EX1003, ¶¶162-163.)

To the extent that Allen does not disclose performing an automation of a

sequence of interactions with a displayed UI and simulating user interactions with the displayed UI, it would have been obvious. Allen discloses “graphical user interface (‘GUI’) is preferably provided so that the *user can easily monitor [the system’s] actions.*” (EX1014, 4:66-5:1 (emphasis added).) It would have been obvious that in order for the user to easily monitor the system’s actions, the system’s actions would have to be displayed. (EX1003, ¶164.) As a result, the system’s actions (simulated user interactions) would be with a displayed UI. (*Id.*)

e. 1[d]: “wherein the user interface of the computer program is configured to be displayed on a screen,”

Allen’s system “us[es] the device’s graphical user interface” to both teach and automatically execute tasks (EX1014, Abstract; EX1003, ¶165.) Fig. 1 (annotated below) shows a GUI 10 comprising a web browser display 12, web page URI entry box 14, system task log 16, and speech interface display 20 (displays the conversation between the system and user). (EX1014, 5:6-20; EX1003, ¶165.) The device is the user’s computer, so the GUI is displayed on a screen. (EX1014, 4:64; EX1003, ¶165.)



- f. 1[e]: “wherein each interaction of the sequence of interactions comprises an action selected from a group consisting of inputting data to the displayed user interface and executing a functionality of the displayed user interface; and”

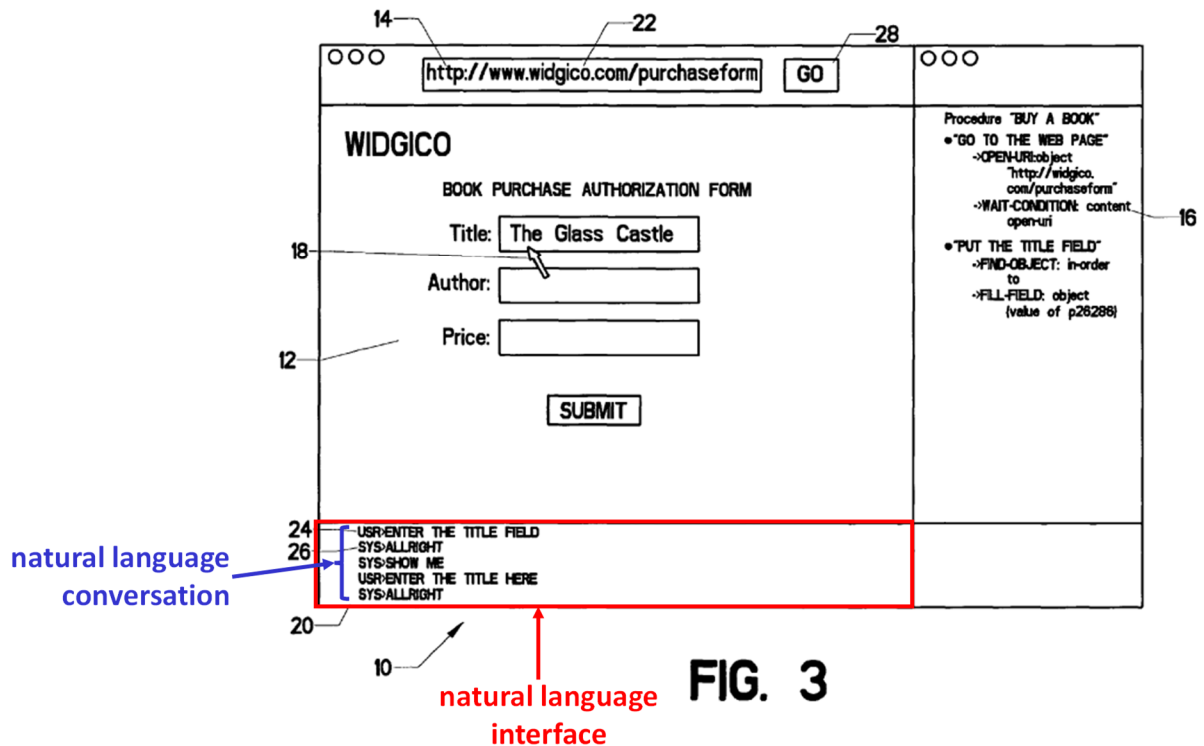
Allen’s system is taught how to execute actions with a GUI, including clicking a GUI button using a mouse, moving a mouse cursor, pulling down a drop-down box, typing into an input field, and waiting for a web page to load. (EX1014, Abstract, 6:5-7, 6:10-11, 6:20-22, 7:43-45, 12:38-41, 12:45-46; EX1003, ¶166.) Each interaction comprises inputting data to the displayed UI or executing a functionality of the displayed UI. (EX1003, ¶166.)

- g. 1[f]: “executing the automation process, wherein said executing comprises utilizing the displayed user interface of the computer program to perform the sequence of interactions.”**

Allen discloses “[a]fter a complete task has been taught, the system is able to automatically execute the task,” where the “user ‘teaches’ task steps by inputting natural language and demonstrating actions with the GUI.” (EX1014, Abstract.) Since the system is taught to perform actions with the GUI for executing a task, its automatic execution of the task must comprise utilizing the displayed UI of the computer program to perform the sequence of interactions. (EX1003, ¶167.)

- 3. Claim 2: “The method of claim 1, wherein the natural language interface is a chat bot service operable to converse with the user in natural language.”**

Allen’s “system communicates with a user in natural dialog-based language” (Fig. 3 (annotated below)). (EX1014, 6:60-61; EX1003, ¶¶168-169.) For example, the user says, “I want to buy a book.” (EX1014, 12:64-65.) In response, the system asks, “What is the title of the book?” (*Id.*, 65-66.) Since Allen’s computer program implements natural to conduct a conversation via auditory or text methods with the user, Allen’s natural language interface is a chatbot service operable to converse with the user in natural language. (EX1003, ¶169.)



4. **Claim 3:** “The method of claim 2, wherein the automation process is a parameterized automation process having a parameter, wherein the chat bot service is configured to prompt the user to provide a value for the parameter, wherein said executing comprises utilizing the value of the parameter.”

Allen’s system “identifies the task input parameters. The system uses three sources to identify the needed parameters: First, it uses the initial task definition of buying a book. The system identifies the object of the exercise as a ‘book.’ The system next identifies ontological properties of a ‘book’ (such as title and author). Second, the system identifies parameters by observing which user actions require the inputting of text (such as ‘Put the title here’). The ‘title’ is thereby recognized as an input parameter. Third, the system identifies input parameters by

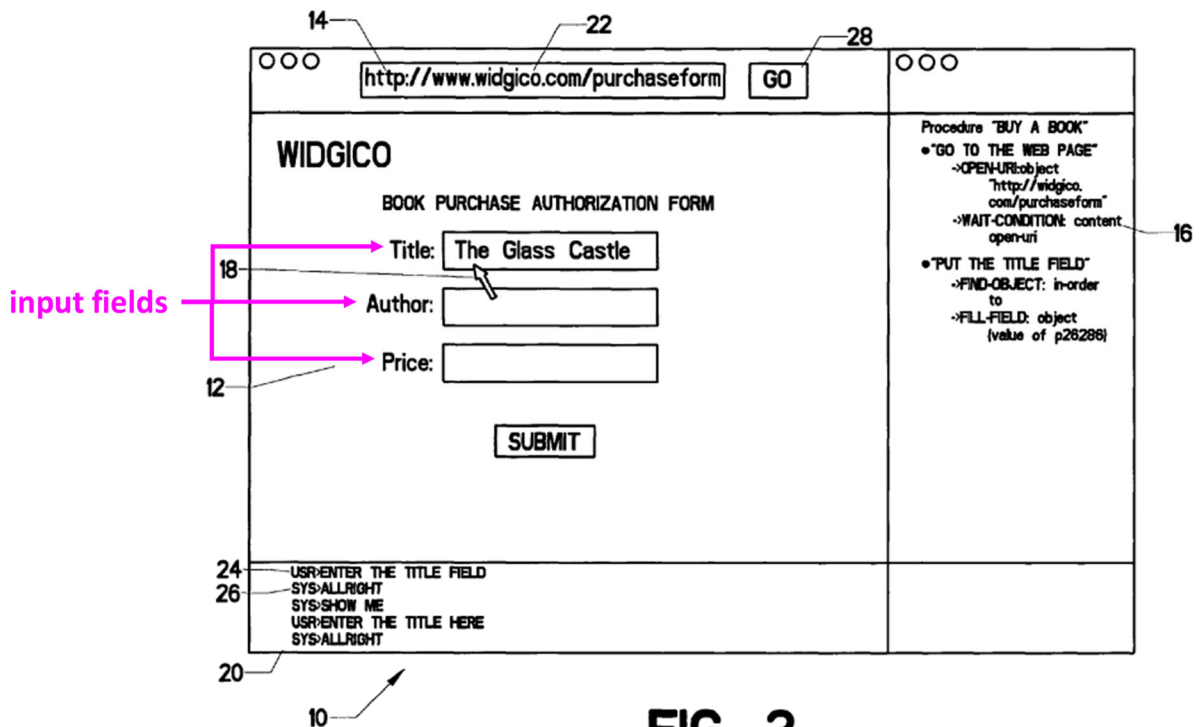
recognizing user statements which require one (such as ‘Get an ISBN’).”

(EX1014, 11:32-42.)

The chatbot service prompts the user to provide a value for the parameter: “[w]hen a user starts a new task, *the system first asks for the values of the task input parameter.*” (EX1014, 17:64-65 (emphasis added).) “Once the values are provided, the system executes the task.” (EX1014, 17:65-18:1.) Thus, executing comprises utilizing the value of the parameter. Allen’s automation process is a parameterized automation process having a parameter. (EX1003, ¶¶170-172.)

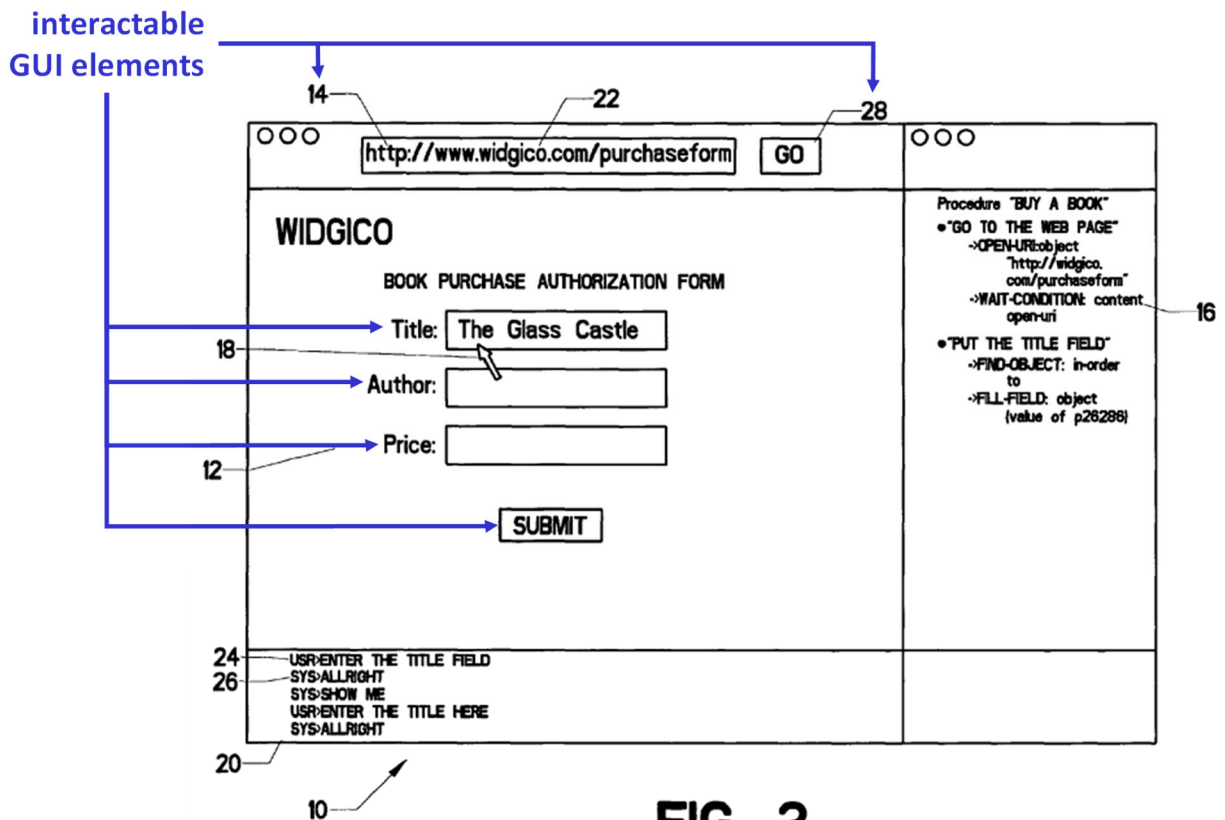
5. Claim 4: “The method of claim 1, wherein the displayed user interface is a Graphical User Interface (GUI) comprising one or more input fields, wherein said utilizing the displayed user interface comprises inputting data received by the natural language interface to the one or more input fields.”

Allen’s system automatically executes the steps that the “user usually would perform using the device’s graphical user interface (GUI).” (EX1014, Abstract.) The GUI comprises input fields: title, author, and price input fields (Fig. 3 (annotated below)). (EX1003, ¶173.) The system inputs data (*e.g.*, title of the book) received by the natural language interface (“[t]he system would then ask, ‘What is the title of the book?’”, and the user provides the information) to the input fields. (EX1014, 12:62-66; EX1003, ¶173.)

**FIG. 3**

6. **Claim 5:** “The method of claim 1, wherein the displayed user interface is a Graphical User Interface (GUI) comprising one or more interactable GUI elements, wherein said utilizing the displayed user interface comprises performing interface interaction with the one or more interactable GUI elements.”

Allen’s displayed UI is a GUI. (See claim 4.) The GUI comprises interactable GUI elements (Fig. 3 (annotated below)): URI entry box 14, input fields, “Submit” UI button, “GO” transmit button 28, where the system inputs data or performs mouse button clicks as performing interface interaction with the interactable GUI elements. (EX1014, 6:5-11, 7:28-30, 8:55-9:1; EX1003, ¶¶174-175.)

**FIG. 3**

7. **Claim 6: “The method of claim 1, wherein said executing is performed without utilizing an Application Programming Interface (API) of the computer program.”**

Allen’s system “function[s] in a web-based environment in which *information is transferred using HTML, XHTML, CSS, and/or scripts.*” (EX1014, 3:26-31 (emphasis added).) The “user ‘teaches’ task steps by inputting natural language and demonstrating actions with the GUI.” (EX1014, Abstract.) This means the automation process is defined to perform any functionality that a non-programmer user can perform in the GUI. Thus, the executing is performed without utilizing an API of the computer program and without requiring the user

provide any line of code. (EX1003, ¶176.)

8. **Claim 7: “The method of claim 1, wherein the sequence of interactions comprises a sequence of steps, wherein each step is selected from a group consisting of: a page redirect step; a click element step; a hovering over element step; a set focus to element step; a select value from list step; a fill input field with value step; a prompt user step; a time-wait step; and a condition-wait step.”**

Allen discloses several different types of steps, such as:

- a click element step (*e.g.*, “mouse button ‘clicks’” (*id.*, 7:30));
- hovering over element step (“the user moves a computer mouse so that movable cursor 18 moves up to the URI entry box 14” (*id.*, 6:5-6));
- a select value from list step (“pulling down and selecting the ‘Books’ category in search category box 56.” (*id.*, 12:38-39));
- a fill input field with value step (*e.g.*, “user moving the mouse to a text input box, . . . and typing in a title” (*id.*, 7:43-45)); and
- a condition-wait step (“the loading of a web page may take several seconds. Accordingly, the system inserts a ‘wait condition’” (*Id.*, 6:20-22)).

(EX1003, ¶¶177-182.)

9. Claim 8

- a. 8[a]: “The method of claim 1, wherein said determining comprises selecting the automation process from a database retaining a plurality of user-defined automation processes;”**

Allen discloses “the *user demonstrates an action* . . . the user moves a computer mouse so that movable cursor 18 moves up to URI entry box 14. The user then types user-typed input 22 using a keyboard to identify the Uniform Resource Identifier (‘URI’) defining the desired website. . . . The user then presses transmit button 28 which causes the web browser to ‘navigate’ to the URI. PLOW monitors the users actions and stores them. . . . 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.*” (EX1014, 6:4-18 (emphases added).) The automation process is a user-defined automation process stored in a database, where the automation process is selected from the database. (EX1003, ¶¶183-184.)

Allen discloses “the system will become more flexible and adaptive as it *stores more tasks in the task database.*” (EX1014, 11:10-12 (emphasis added).) The database retains a plurality of user-defined automation processes. (EX1003, ¶¶185-186.)

- b. **8[b]: “wherein the database is updatable by one or more users via a Graphical User Interface (GUI) capable of defining new automation processes and updating existing automation processes retained therein.”**

Allen discloses the database being updatable by user(s) via a GUI capable of defining new automation processes: “[f]ollowing receiving the initial statement from the user, [the system] *creates a title for the new process it is about to learn . . .*” (EX1014, 5:56-59 (emphasis added); EX1003, ¶187.)

Allen also discloses the “[a]s an example, the intent recognition module may discern the intent to *add a new step to the process of buying a book . . .*” (EX1014, 8:18-20 (emphasis added).) In other words, Allen discloses updating existing automation processes retained in the database. (EX1003, ¶188.)

- 10. Claim 12: “The method of claim 1, wherein said executing is performed on a client device of the user.”**

Allen discloses “[t]he system would then include software running on a user’s computer.” (EX1014, 4:63-65.) The user’s computer is a client device of the user. (EX1003, ¶189.)

- 11. Claim 13: “The method of claim 1, wherein the natural language interface is a voice-based service, wherein the voice-based service is configured to receive vocal commands from a human user.”**

Allen discloses the “user’s computer is equipped with a *microphone to receive the user’s speech*. PLOW uses a language recognition software module to

decipher the sounds created by the user and transform them into text . . .”

(EX1014, 5:24-28 (emphasis added).) The user utters statements, such as “[e]nter the title field.” (EX1014, 6:29-30; EX1003, ¶190.)

12. Claim 14

- a. **14[a]: “The method of claim 1, wherein said determining the automation process comprises: selecting the sequence of interactions from a plurality of sequences based on the first natural language input; and”**

In Allen, the system’s “language understanding module does more than simply translate speech into written words, however. It is also able to understand sentence structures, so that it can ultimately determine the user’s intent.”

(EX1014, 5:52-55.) The system determines the user’s intent (based on the first natural language input) and then creates a task description that is internally stored.

(EX1014, 7:52-58; EX1003, ¶191.) The task description is used to define the objectives of the automation process, where the steps to be executed are selected (selecting the sequence of interactions) based on the task description, which in turn is based on the first natural language input. (EX1014, 3:47-56; EX1003, ¶191.)

For example, the user says “I want to buy a book,” the task description may be to buy a book, and the selected steps to be executed comprise entering the title of the book in a title entry box 30, finding the price of the book, and then providing payment and shipping information. (EX1014, 3:37-53; 12:11-65; EX1003, ¶192.)

b. 14[b]: “determining a parameter to be used in an interaction of the sequence of interactions based on the second natural language input.”

Allen discloses determining a parameter to be used in an interaction of the sequence of interactions based on the second natural language input. In the book buying task, the second natural language input was the title of the book. (*See* element 1[b]; EX1003, ¶¶193-194.) Based on the title of the book, the system identifies the text object corresponding to the book’s title and submits the title as entered by the user. (EX1014, 12:19-25; EX1003, ¶194.) This identification of the text object corresponding to the book’s title is a determination of a parameter, and submitting the title is an interaction of the sequence of interactions. (EX1003, ¶194.)

13. Claim 15: “The method of claim 1, wherein the displayed user interface of the computer program is displayed prior to the natural language conversation between the natural language interface and the user.”

The natural language conversation between the natural language interface and the user begins with the user saying, “I want to buy a book.” (EX1014, 12:64-65; EX1003, ¶¶195-196.) The displayed GUI 10 of Allen’s computer program comprises a speech interface display 20 that “allow[s] the user to monitor his or her interaction with” the system. (EX1014, 5:19-20; EX1003, ¶196.) “The language understanding module deciphers the spoken sounds and presents them as user speech 24 in [the] speech interface display 20” so that “the user can see that

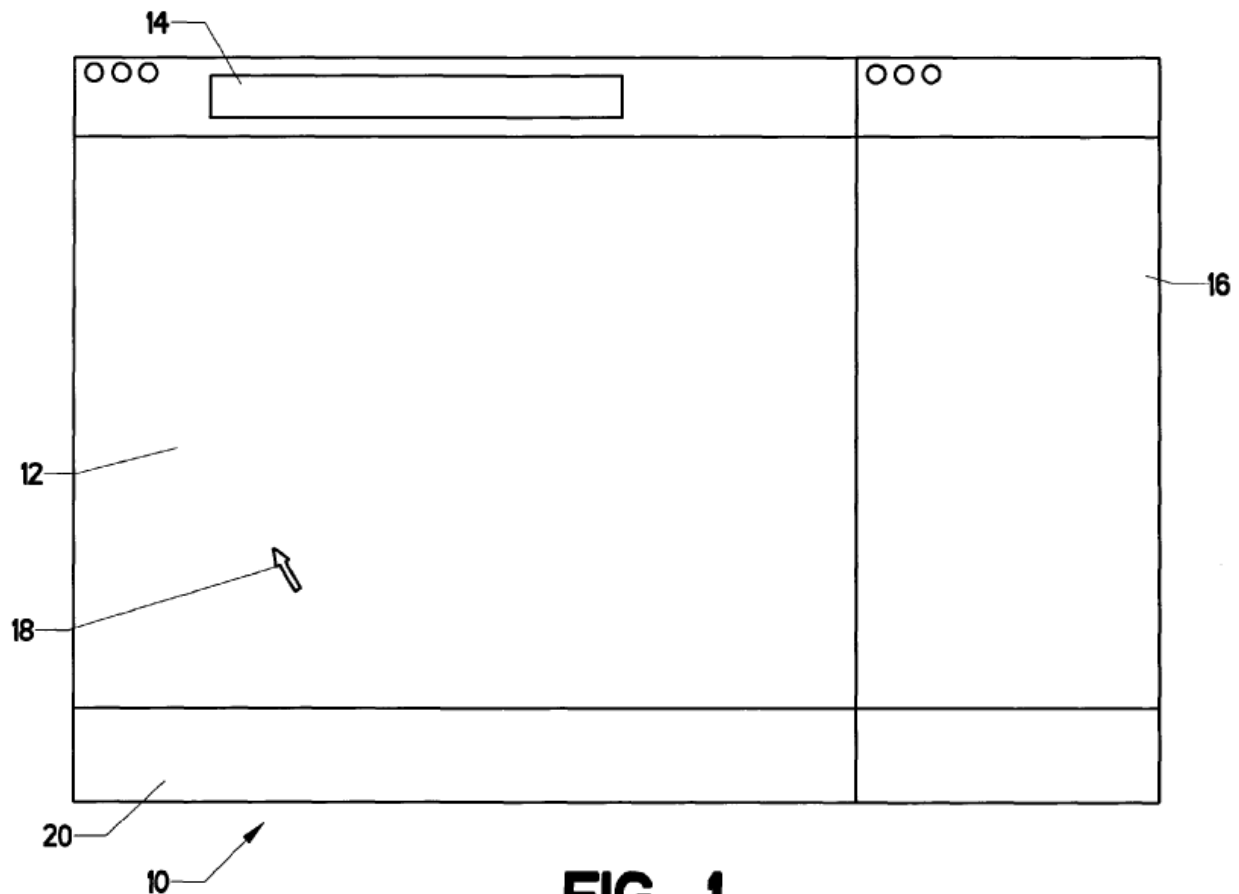
the speech was understood correctly.” (EX1014, 5:32-34; EX1003, ¶¶196-197.)

The GUI 10 is displayed prior to the natural language conversation between the natural language interface and the user. (EX1003, ¶¶196-197.)

14. Claim 16: “The method of claim 1, wherein the displayed user interface of the computer program is presented to the user.”

Fig. 1 shows the GUI 10 that is “shown in the display.” (EX1014, 5:6-11.)

The GUI 10 comprises display areas, such as task log 16 and speech interface display 20, that allow the user to see whether or not the system has been taught properly and/or understood the user’s speech correctly. (EX1014, 5:31-43, 5:61-63; EX1003, ¶198.) That is, a “graphical user interface (‘GUI’) is preferably provided so that the user can easily monitor [the system’s] actions.” (EX1014, 4:66-5:1; EX1003, ¶198.)

**FIG. 1**

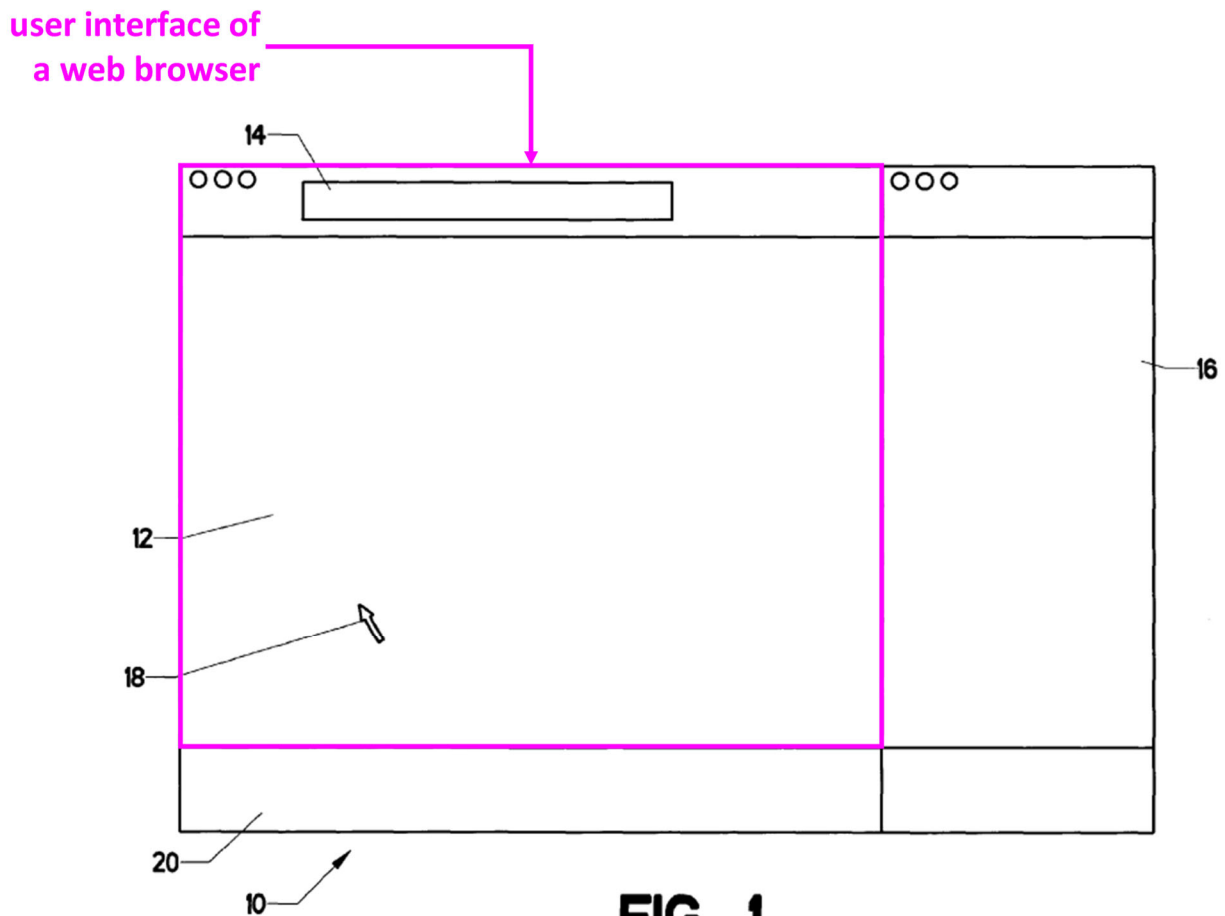
Additionally, the displayed UI is presented to the user so that the user can see the results generated by the system's automation process. (EX1014, 15:17-22, Fig. 10; EX1003, ¶199.)

15. Claim 18

- a. **18[a]: “The method of claim 1, wherein the displayed user interface of the computer program is a user interface of a web browser,”**

Allen's system “run[s] within a web browser.” (EX1014, 4:62-63.) Fig. 1 shows a GUI 10 comprising a browser display 12 that shows a web browser and a URI entry box 14 that shows the corresponding web address. (EX1014, 5:6-14;

EX1003, ¶200.)



- b. 18[b]: “wherein said executing the automation process comprises activating the web browser to cause the displayed user interface to be displayed,”

In Allen’s book buying task, the system’s automation process comprises moving a computer mouse to the URI entry box 14 of the displayed UI, typing in a web address, and then pressing the transmit button 28, “which causes the web browser to ‘navigate’ to the URI.” (EX1014, 6:4-12; EX1003, ¶201.) Thus, executing the automation process comprises activating the web browser to cause

the displayed UI to be the displayed. (EX1003, ¶201.)

- c. **18[c]: “wherein the sequence of interactions is performed with respect to the user interface of the web browser.”**

Allen discloses after a web page being displayed in the browser display 12 (UI of the web browser), the system presents a book purchase form, enters the title field, enters shipping information, and enters payment information. (EX1014, 6:24-54; EX1003, ¶202.) Entering the title field, shipping information, and payment information involve interactions (inputting data into input fields, clicking GUI buttons) performed with respect to the UI of the web browser. (EX1003, ¶202.)

16. Claim 19

- a. **Preamble: “A non-transitory computer readable medium retaining program instructions, which program instructions when read by a processor, cause the processor to perform:”**

Allen discloses “[t]he system includes software running on a user’s computation device.” (EX1014, Abstract.) The software comprises program instructions, and a computation device comprises a non-transitory computer readable medium retaining program instructions and a processor. (EX1003, ¶203.) The processor performs steps according to the program instructions when read by the processor. (*Id.*)

b. Elements 19[a]-19[f]

Elements 19[a]-19[f] mirror elements 1[a]-1[f], which Allen discloses or renders obvious. (EX1003, ¶¶204-209.)

17. Claim 20: “The non-transitory computer readable medium of claim 19, wherein the automation process is a parameterized automation process having a parameter, wherein the natural language interface is configured to prompt the user to provide a value for the parameter, wherein said executing comprises utilizing the value of the parameter.”

Claim 20 recites limitations similar to claim 3, but requires the “natural language interface” prompt the user. (EX1003, ¶210.) Allen’s chatbot is a natural language interface. (See claim 3; EX1003, ¶211.)

18. Claims 21-23, 25, 26, 28

Claims 21-23, 25, 26, and 28 mirror claims 4-6, 15, 16, and 18, which Allen discloses. (EX1003, ¶¶212-217.)

19. Claim 29

a. Preamble: “A system comprising:”

To the extent the preamble is limiting (which Petitioner does not concede), Allen discloses the preamble.

Allen discloses a “system which allows a user to teach a computational device how to perform complex, repetitive tasks that the user initially would perform using the device’s graphical user interface (GUI).” (EX1014, Abstract; EX1003, ¶218.)

b. 29[a]: “a processor and coupled memory,”

Allen’s “system includes software running on a user’s computational device.” (EX1014, Abstract.) A computational device has a processor and coupled memory. (EX1003, ¶219.)

c. 29[b]: “wherein the processor is configured to perform: using a natural language interface, receiving input from a user as part of a natural language conversation between the natural language interface and the user,”

Allen discloses element 1[a]. Element 29[b] recites limitations similar to element 1[a], but requires “the processor be configured to perform” the claimed receiving step. (EX1003, ¶220.) Allen’s system includes software running on a user’s computation device, which comprises a processor. (EX1003, ¶221.)

d. Elements 29[c]-29[g]

Elements 29[c]-29[g] mirror elements 1[b]-1[f], which Allen discloses or renders obvious. (EX1003, ¶¶222-226.)

20. Claims 30, 31

Claims 30 and 31 mirror claims 15 and 16, which Allen discloses. (EX1003, ¶¶227-228.)

- 21. Claim 33: “The system of claim 29, wherein the displayed user interface of the computer program is a user interface of a web browser, wherein said executing the automation process comprises activating the web browser to cause the displayed user interface to be displayed, wherein the sequence of interactions is performed with respect to the user interface of the web browser.”**

Claim 33 mirrors claim 18, which Allen discloses. (EX1003, ¶229.)

C. Ground 3 – Allen and Dayanandan Render Obvious Claim 9

1. Summary of Dayanandan

Dayanandan was filed on November 2, 2017, and published on July 19, 2018, qualifying as prior art to the '664 patent at least under § 102(a)(2). The Examiner never characterized or discussed Dayanandan during prosecution.

Dayanandan discloses automated development of a GUI. (EX1015, Abstract; EX1003, ¶230.) The automated GUI development includes automatically identifying data objects of the GUI by computing a similarity score to represent different aspects (*e.g.*, name, components or fields, relationships, etc.) of the data objects. (EX1015, 22:15-33; EX1003, ¶230.) A data object is selected as the best match by identifying the data object having the similarity score that is the highest and above a threshold similarity score. (EX1015, 22:33-48; EX1003, ¶230.)

2. Claim 9

- a. **9[a]: “The method of claim 1, wherein the automation process defines an operation to be performed with respect to an element in the displayed user interface, wherein the automation process identifies the element based on a plurality of parameters of the element;”**

Allen discloses the system identifying “objects” on the GUI based on variable information (parameters) of the object (UI element). (EX1014, 8:33-58; EX1003, ¶231.) To identify the title input field in the GUI, the “system [] understands the step of filling in the title as more than simply mimicking the user’s actions. It ‘knows’ that the step of filling in the title means reviewing the code transmitted by the host-server and searching for an object having the name ‘title,’ and then inputting text for that object.” (EX1014, 8:54-63.) The operation to be performed in Allen’s book buying task is the step of filling in the title, as defined by the automation process, with respect to the title input field (an element in the displayed UI). (EX1003, ¶231.)

Dayanandan discloses identifying an element based on a plurality of parameters, representing different aspects (parameters) of a data object (UI element) using a multidimensional vector. (EX1015, 22:23-26; EX1003, ¶232.)

It would have been obvious to combine Allen and Dayanandan to compute a similarity score for each UI element. (EX1003, ¶233.) UI elements have multiple parameters, such as actions, names, and concepts. (EX1014, 10:3-12; EX1015,

22:26-33.) The UI elements may not be similar in all aspects, so computing a similarity score better represents overall similarity. (EX1003, ¶234.) For example, two UI elements may have similar actions (“buy” and “purchase”), but may have different book titles (“The Glass Castle” and “Glass Commons”). (*Id.*) A POSITA would understand that the system should not treat the two UI elements as being similar, but would only be able to do so if it considered multiple parameters of the UI elements—by computing similarities scores, as taught by Dayanandan. (EX1014, 12: 47-55; EX1003, ¶¶234-235.)

b. 9[b]: “wherein said executing the automation process comprises identifying the element in the displayed user interface,”

Allen’s system “search[es] for an object having the name ‘title’,” where ‘title’ is a variable. (EX1014, 8:58-63.) If the website is “updated and input format changes, [the system] will still know how to search the new website [] for an object having the name ‘title’ and to provide the appropriate text input.” (EX1014, 8:64-9:1.) Thus, executing the automation process comprises identifying the element in the displayed UI. (EX1003, ¶¶236-237.)

c. 9[c]: “wherein said identifying the element comprises computing a similarity score for each element in the displayed user interface using the plurality of parameters of the element, and”

Allen’s system identifies a UI element in the displayed UI by searching for an object having the same parameter (*e.g.*, the name “title,” the structure of the

object). (EX1014, 8:64-67, 10:6-11; EX1003, ¶238.) The system also identifies UI elements based on synonyms to the object name or concept (similarities to the parameters of the element). (EX1014, 9:59-10:2; EX1003, ¶238.) For example, “purchase, procure, obtain, acquire” UI elements are identified as being similar to a “buy” UI element due to the UI elements having similar actions. (EX1014, 10:3-12; EX1003, ¶238.) As another example, “novel, reference, manual, biography, and treatise” UI elements are similar to a “book” UI element due to having similar concepts. (EX1014, 10:5; EX1003, ¶238.)

Dayanandan discloses representing different aspects (parameters) of a data object (UI element) using a multidimensional vector. (EX1015, 22:23-26.) The data objects are compared “to find a data object vector that is the closest match . . . this may be done by, for each data object vector, finding a *similarity score*.” (EX1015, 22:33-38 (emphasis added); EX1003, ¶239.)

It would have been obvious to combine Allen and Dayanandan. (*See* element 9[a]; EX1003, ¶240.)

- d. **9[d]: “selecting a selected element having a highest similarity score, wherein the highest similarity score is at least above a predetermined threshold.”**

Dayanandan discloses the “data object vector with the *highest similar score* may then be identified as the matching data object vector. . . . A data object vector

has to *have at least the threshold similarity score* in order to be considered a match to the screen vector” (EX1015, 22:3-48 (emphases added); EX1003, ¶241.)

It would have been obvious to combine Allen and Dayanandan. (EX1003, ¶242.)

D. Ground 4 – Krishnan and Radhakrishnan Render Obvious Claims 1-8, 12-14, 16, 18-23, 26, 28, 29, 31, and 33

1. Summary of Krishnan

Krishnan was filed on January 30, 2018, claims priority to a provisional application filed on November 3, 2017, and published on May 9, 2019. The provisional application provides support for at least claim 1 of the Krishnan patent. (EX1017, [0001]-[0004], [0008]-[0015], [0019], [0020], [0021], [0024], [0028]-[0030], [0032], [0045]-[0048], Figs. 2, 3, 6, 7; EX1003, ¶243.) The specific subject matter relied upon as prior art is also supported by the provisional application. (EX1017, [0001]-[0004], [0006], [0009]-[0011], [0014]-[0015], [0018]-[0019], [0021], [0024]-[0025], [0030], [0045]-[0046], [0048]-[0049], [0057], Figs. 1, 9; EX1003, ¶243.) Thus, Krishnan qualifies as prior art to the ’664 patent at least under § 102(a)(2). (*Id.*); *Dynamic Drinkware, LLC v. Nat’l Graphics, Inc.*, 800 F.3d 1375, 1382-83 (Fed. Cir. 2015). The Examiner cited, but never characterized or discussed Krishnan during prosecution.

Krishnan discloses a visual chatbot builder and corresponding chatbot. (EX1016, Abstract; EX1003, ¶244.) The chatbot interfaces with customers via a

conversation where the chatbot responds by retrieving and providing the requested information, requesting additional input or information from the customer, or performing an action and providing the user with status updates about the progress of the action. (EX1016, 2:40-44; EX1003, ¶244.) Fig. 1 (below) shows an example interface and conversation between the chatbot and a customer.

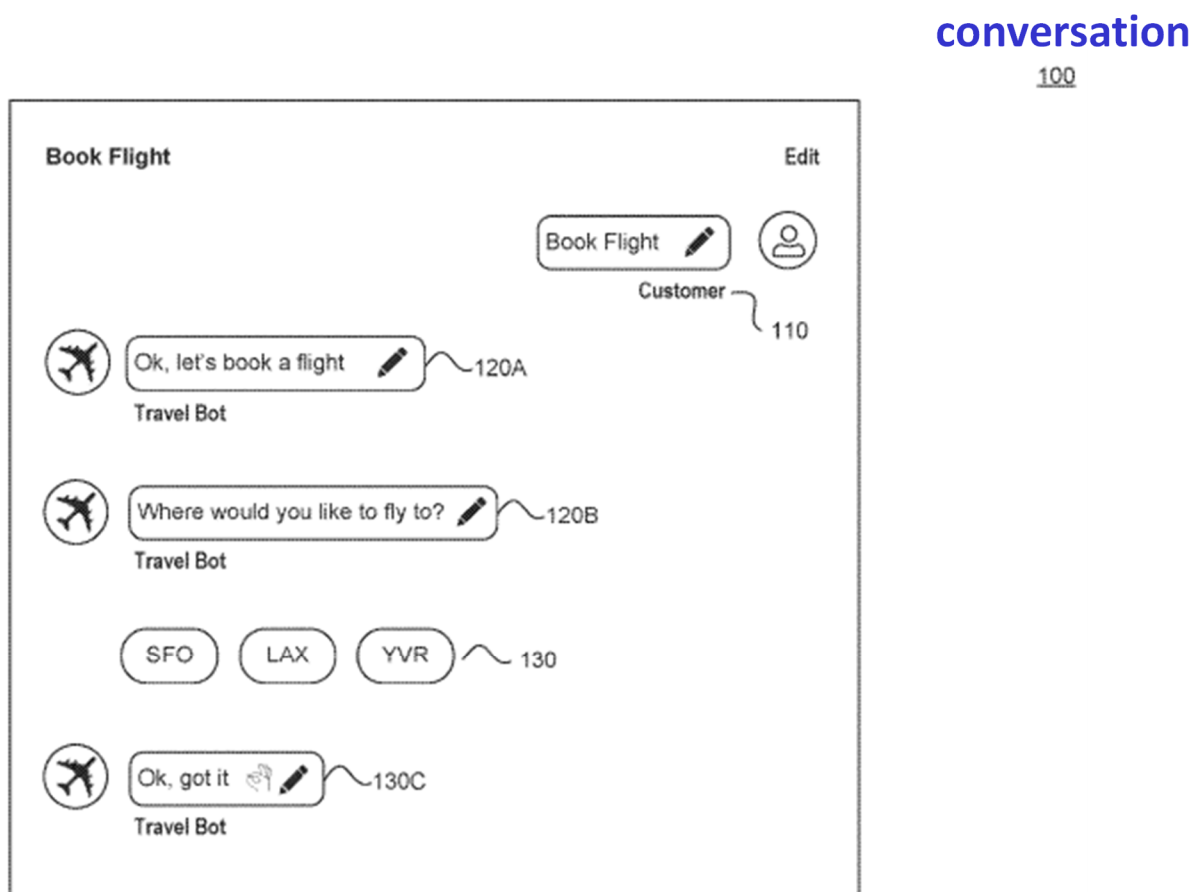


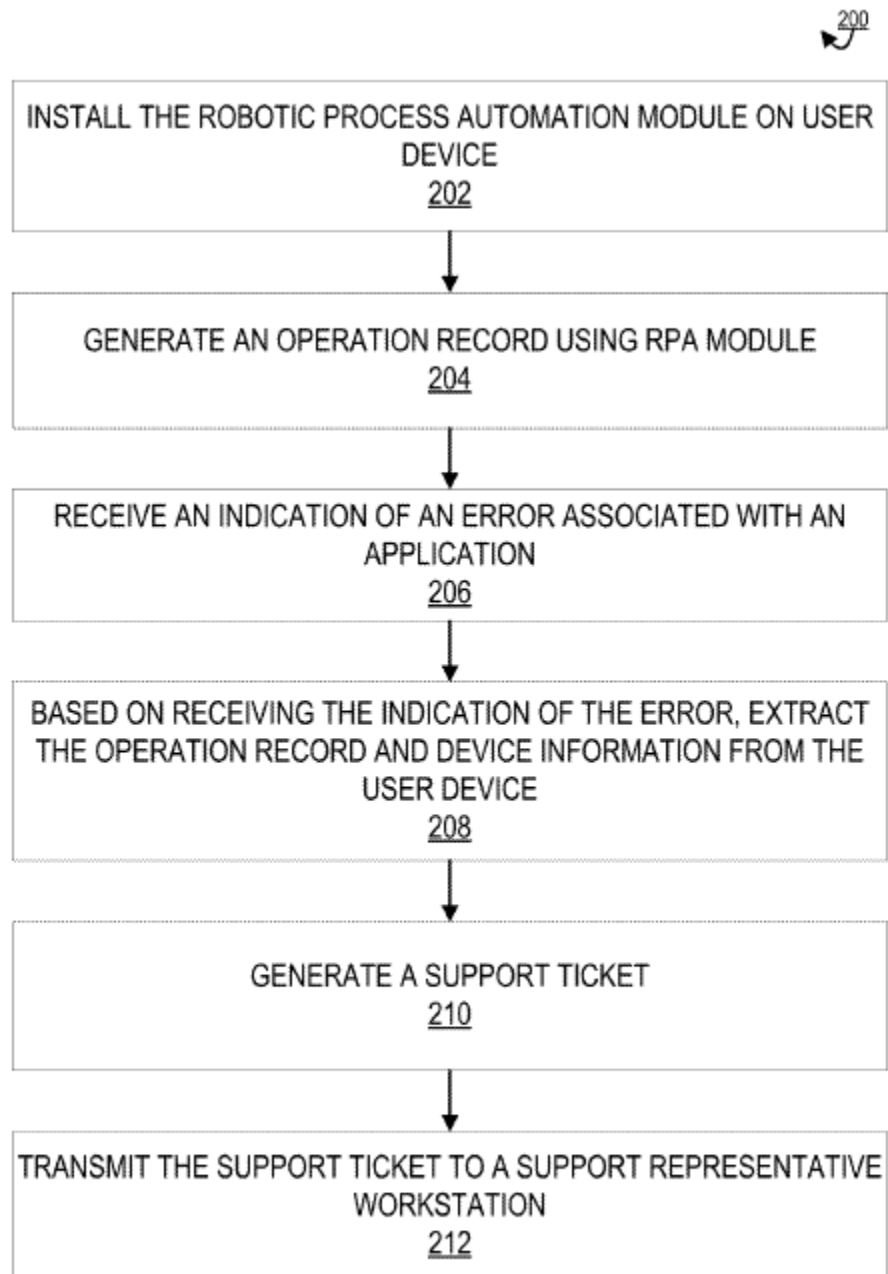
FIG. 1

2. Summary of Radhakrishnan

Radhakrishnan was filed on October 30, 2017, and published on May 2, 2019, qualifying as prior art to the '664 patent at least under § 102(a)(2). The

Examiner never characterized or discussed Krishnan during prosecution.

Radhakrishnan discloses an RPA module that simulates user operations with a GUI for generating and transmitting an operation record when a computer software-related error occurs (*e.g.*, program crash, file corruption, etc.) (Fig. 2 (below)). (EX1018, Abstract; EX1003, ¶245.) The operation record is used for reproducing, diagnosing, and rectifying the error. (EX1018, 1:7-19; EX1003, ¶245.)

**FIG. 2****3. Claim 1****a. Preamble: “A method comprising:”**

To the extent the preamble is limiting (which Petitioner does not concede),

Krishnan discloses the preamble.

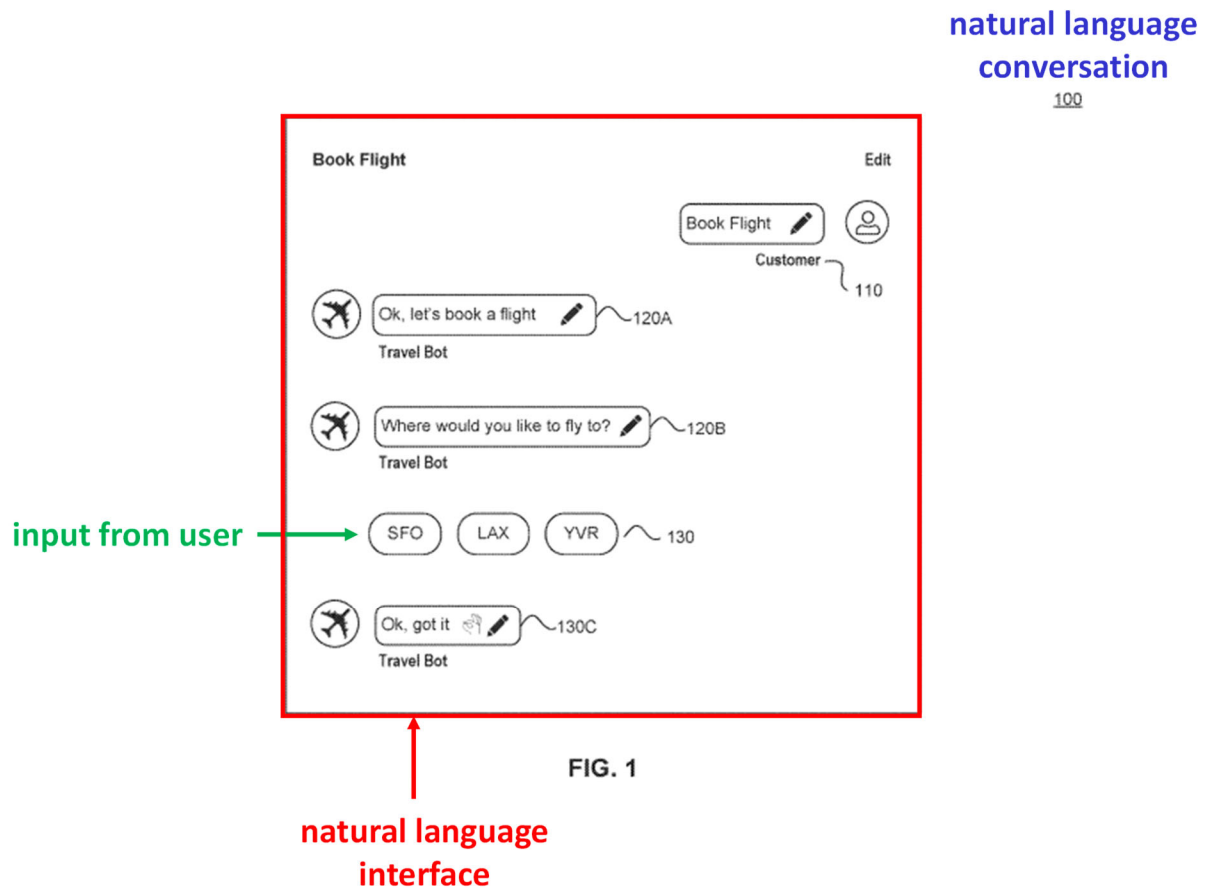
Krishnan discloses a method of “conduct[ing] a conversation with a user and is designed to simulate a human conversational pattern.” (EX1016, 1:17-19; EX1003, ¶246.)

- b. 1[a]: “using a natural language interface, receiving input from a user as part of a natural language conversation between the natural language interface and the user,”**

Krishnan discloses a “chat bot [that] interact[s] and interface[s] with customers or consumers who are looking for answers to frequently asked questions. Some of these questions may include ‘how do I get a refund?’ ‘what is my order status?’ ‘how do I cancel my order?’ ‘What is your return policy?’ ‘What is the cheapest flight to Europe?’” (EX1016, 2:27-33.)

The chatbot receives input from a user. (EX1003, ¶¶247-249.) For example, the chatbot greets the user with a welcome dialog, and then the user requests that the chatbot book a flight, using the natural language interface (Fig. 1 (annotated below)). (EX1016, 2:56-58; EX1003, ¶249.) “The chat bot may respond to customer input by retrieving and providing the 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. This *back-and-forth interaction between a user and chat bot may be referred to as a*

conversation.” (EX1016, 2:40-46 (emphasis added).)



The chatbot may “continue executing the book flight dialog until the use books a flight or cancels the request,” like “asking a question to request information from a user 420B. Asking a question may include displaying a text box, radio-button, or drop-down selection area which the user may use to respond to the question.” (EX1016, 3:7-9, 5:62-67.) The questions from the chatbot and responses from the user resemble language spoken by a human, and hence, are part of a natural language conversation between the natural language interface and the user. (EX1003, ¶250.)

- c. 1[b]: “wherein the natural language conversation comprises a first natural language input from the user, a natural language feedback on the first natural language input from the natural language interface, and a second natural language input from the user in response to the natural language feedback:”

Fig. 1 (annotated below) shows the natural language conversation between a chatbot and user comprises a first natural language input from the user, *e.g.*, “Book Flight” 110, and the chatbot responds by acknowledging the customer’s request with “Ok, let’s book a flight” 120A and asking “Where would you like to fly to?” 120B (natural language feedback on the first natural language input from the natural language interface). (EX1016, 2:63-65; EX1003, ¶251.)

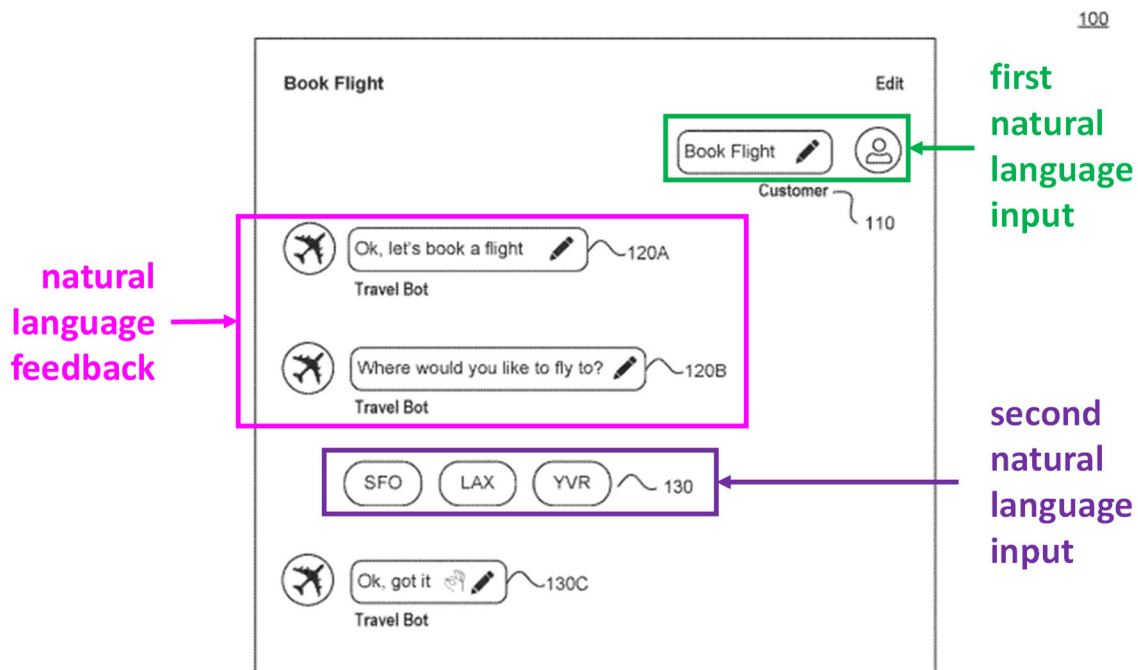


FIG. 1

The chatbot requests additional information 120B (“Where would you like

to fly to”) and user selects an option for the destination 130 (second natural language input from the user in response to the natural language feedback).

(EX1016, 2:65-3:3; EX1003, ¶252.)

- d. **1[c]: “determining, based on the first and second natural language inputs from the user, an automation process configured to perform an automation of a sequence of interactions with a displayed user interface of a computer program and to simulate user interactions with the displayed user interface of the computer program,”**

In Krishnan’s flight booking task, the first and second natural language inputs from the user comprise the flight booking request and the user-selected destination. (See element 1[b]; EX1003, ¶253.) “Through executing dialogs, a chatbot 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.).”

(EX1016, 3:46-50.) The automation process is determined, based on the first and second natural language inputs from the user. (EX1003, ¶254.) Krishnan is silent regarding its automation process performing an automation of a sequence of interactions with a displayed UI. (*Id.*, ¶255.)

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 record to a workstation.” (EX1018, Abstract (emphasis added).) The RPA modules or “bots” are “trained to *mimic user activity directly with a UI*” of the device. (EX1018, 5:49-50 (emphasis added); EX1003, ¶256.) “[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.” (EX1018, 11:32-36 (emphasis added).) Mirroring user operations with a displayed UI means the automation process simulates user interactions with the displayed UI. (EX1003, ¶256.)

It would have been obvious to combine Krishnan and Radhakrishnan. (EX1003, ¶257.) Krishnan discloses using a chatbot to provide customer service to users. (EX1016, 2:5-11; EX1003, ¶257.) Radhakrishnan discloses an RPA bot that helps diagnose computer software-related errors, such as program crashes, file corruption, and operating errors that are typical when using “computer systems . . . to complete various tasks and increase user and/or process efficiency.” (EX1018, 1:8-10; EX1003, ¶257.) Both aim for better user convenience, lower operational costs, and increased user and/or process efficiency. (EX1016, 2:5-11; EX1018, 6:21-34; EX1003, ¶257.) Krishnan teaches achieving these objectives by using a chatbot as an interface between the user and, *e.g.*, a back-end system. (EX1016,

2:33-35; EX1003, ¶258.) 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). (EX1018, 5:21-23, 5:49-51; EX1003, ¶258.)

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.)

e. 1[d]: “wherein the user interface of the computer program is configured to be displayed on a screen,”

Radhakrishnan’s RPA module monitors the operations of the user device, “executed manually by the user via a user interface,” such as a GUI. (EX1018, 7:13-14, 11:13-15; EX1003, ¶260.) Then, “based on detecting the first operation, the system may reproduce the first operation . . . to generate a simulated first

operation. In this way, the *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.”

(EX1018, 11:29-36 (emphasis added).) Since the user’s operations are displayed on a screen and the RPA module mirrors the user’s operations, then the RPA’s operations are displayed on a screen. (EX1018, 7:12-16; EX1003, ¶260.) “The RPA module may typically interacts with a presentation layer of the computer system (i.e., the UI).” (EX1018, 5:9-12; EX1003, ¶¶260-261.)

- f. **1[e]: “wherein each interaction of the sequence of interactions comprises an action selected from a group consisting of inputting data to the displayed user interface and executing a functionality of the displayed user interface; and”**

In Radhakrishnan, the user’s operations include “*selecting options (e.g., a check box, drop-down menu), completing a field . . .*” (EX1018, 11:17-19 (emphasis added); EX1003, ¶¶262-263.) “[T]he simulated operations generated by the RPA module may act as a mirror of the actual user . . .” (EX1018, 11:29-36.) Since 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. (EX1018, 7:12-17; EX1003, ¶¶263-264.)

- g. **1[f]: “executing the automation process, wherein said executing comprises utilizing the displayed user interface of the computer program to perform the sequence of interactions.”**

Radhakrishnan discloses “RPA modules or ‘bots’ [that] . . . automatically execute one or more processes.” (EX1018, 5:21-23; EX1003, ¶265.) The RPA “[b]ots are trained to *mimic user activity directly with a UI*. . . a bot may transmit signals which *simulate mouse and keyboard inputs to execute commands and perform automated tasks*.” (EX1018, 5:49-56 (emphases added); EX1003, ¶¶266-267.)

- 4. **Claim 2: “The method of claim 1, wherein the natural language interface is a chat bot service operable to converse with the user in natural language.”**

Krishnan’s “chat bot execut[es] on a computing device [] . . . to simulate a conversation a user may otherwise have with a human user via text or auditory methods.” (EX1016, 2:1-4.) The questions from the chatbot and responses from the user (Fig. 1 (below)) resemble language spoken by a human. (EX1003, ¶268.) Additionally, an NLP engine is used to determine which dialog to invoke for the chatbot. (EX1016, 7:60-63; EX1003, ¶269.) Thus, Krishnan’s chatbot is a chatbot service operable to converse with the user in natural language. (EX1003, ¶269.)

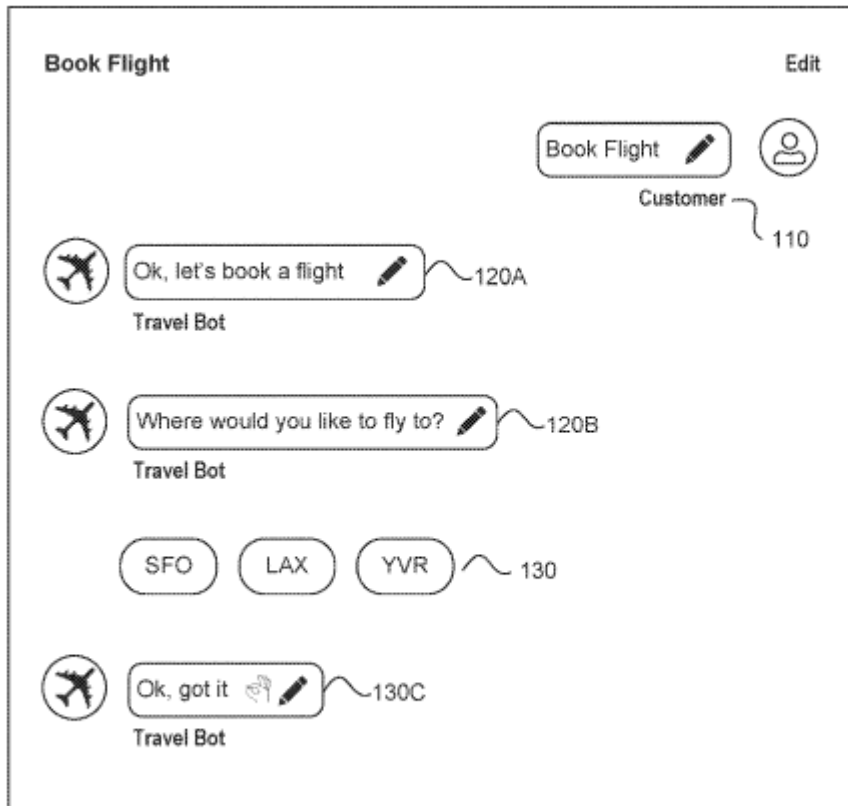


FIG. 1

5. **Claim 3: “The method of claim 2, wherein the automation process is a parameterized automation process having a parameter, wherein the chat bot service is configured to prompt the user to provide a value for the parameter, wherein said executing comprises utilizing the value of the parameter.”**

In Krishnan’s flight booking task, the chatbot service prompts the user by “requesting additional information 120B,” such as a value for the destination parameter (Fig. 1 (annotated below)). (EX1016, 2:65-66, Fig. 1; EX1003, ¶270.) The information requested is “necessary to book the flight, such as locations . . . , and then processes the request to book the flight.” (EX1016, 2:66-3:3; EX1003,

¶270.) After the chatbot collects all the values for the parameters, it utilizes the values in the automation process of booking a flight. (See element 1[c]; EX1003, ¶270.) Hence, Krishnan discloses the executing comprises utilizing the value of the parameter, and its automation process being a parameterized automation process having a parameter. (EX1003, ¶270.)

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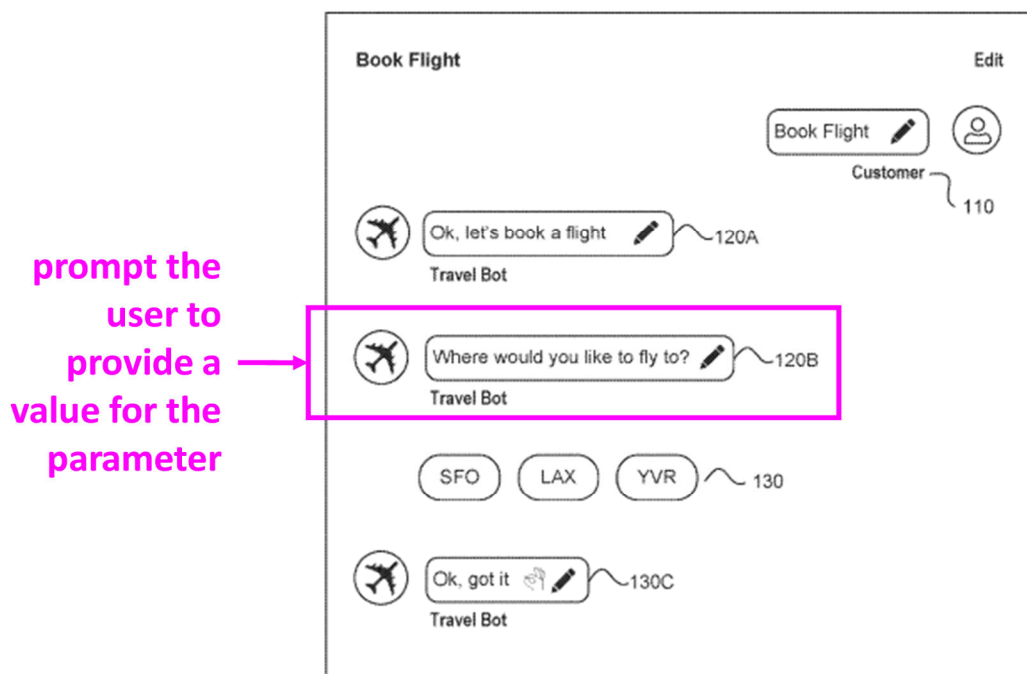


FIG. 1

6. **Claim 4:** “The method of claim 1, wherein the displayed user interface is a Graphical User Interface (GUI) comprising one or more input fields, wherein said utilizing the displayed user interface comprises inputting data received by the natural language interface to the one or more input fields.”

Krishnan discloses utilizing the values of the parameters received by the natural language interface. (See claim 3; EX1003, ¶271.)

Radhakrishnan's RPA bot is "trained to mimic user activity directly with a UI," which may be a GUI. (EX1018, 5:49-50, 7:13-15; EX1003, ¶272.) The user's operations include "complet[ing] fields." (EX1018, 11:4-6; EX1003, ¶¶271-272.) Since the RPA bot mirrors the user's operations on a GUI, the displayed GUI must comprise the input fields. (*Id.*)

As discussed above, it would have been obvious to combine Krishnan and Radhakrishnan. (*See* element 1[c]; EX1003, ¶273.) The combination would receive data by the natural language interface, as taught by Krishnan, and input the received data to input fields of the GUI, as taught by Radhakrishnan. (EX1003, ¶273.)

7. **Claim 5: "The method of claim 1, wherein the displayed user interface is a Graphical User Interface (GUI) comprising one or more interactable GUI elements, wherein said utilizing the displayed user interface comprises performing interface interaction with the one or more interactable GUI elements."**

Radhakrishnan's RPA bot mirrors the user's operations on a GUI, which include "operations such as selecting options (*e.g.*, a check box, drop-down menu), completing a field, altering application or file settings, or the like as previously discussed." (EX1018, 11:17-19; EX1003, ¶274.) Radhakrishnan's RPA bot inputs data into input fields. (*See* claim 4; EX1003, ¶274.) A check box, drop-down menu, and input fields are interactable GUI elements, which the RPA bot performs

interface interaction with. (EX1003, ¶275.) Radhakrishnan's displayed UI is a GUI comprising interactable GUI elements. (EX1003, ¶275.)

8. Claim 6: “The method of claim 1, wherein said executing is performed without utilizing an Application Programming Interface (API) of the computer program.”

Radhakrishnan discloses “[t]he RPA module may typically interact[] with a *presentation layer of the computer system (i.e., the UI)* and avoids more demanding interaction with any underlying data layers or logic of the underlying system in order to instruct operation of the user device, computer system, application, or the like.” (EX1018, 5:10-15 (emphasis added).) Radhakrishnan explains how its without-API RPA module “avoid[s] the costly and time consuming process of building a new and complicated API-based system[] from ground up.” (*Id.*, 6:25-29; EX1003, ¶276.) “By leveraging robotic process automation technology, the present 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).” (EX1018, 6:21-25.) Thus, the executing is performed without utilizing an API of the computer program. (EX1003, ¶276.)

9. **Claim 7: “The method of claim 1, wherein the sequence of interactions comprises a sequence of steps, wherein each step is selected from a group consisting of: a page redirect step; a click element step; a hovering over element step; a set focus to element step; a select value from list step; a fill input field with value step; a prompt user step; a time-wait step; and a condition-wait step.”**

Radhakrishnan’s RPA bot mirrors the user’s operations on a GUI, which include “operations such as selecting options (*e.g.*, a check box, drop-down menu), completing a field” (EX1018, 11:17-19; EX1003, ¶277.) A check box step is a click element step, a drop-down menu step is a select value from list step, and completing a field is a fill input field with value step. (EX1003, ¶¶278-280.)

10. Claim 8

- a. **8[a]: “The method of claim 1, wherein said determining comprises selecting the automation process from a database retaining a plurality of user-defined automation processes;”**

Krishnan discloses “configur[ing] [] the bot [to] respond[] to different user input, by performing different actions, requesting information, or calling various dialogs.” (EX1016, 6:25-28.) In order to perform different actions, the actions would need to be selected from a database retaining the automation processes. (EX1003, ¶281.)

Radhakrishnan discloses “the system *stores the simulated first operation* in the operation record. . . .The RPA module may continue to monitor, detect,

reproduce, and store the actual user operations to further populate the operation record, wherein *subsequent user operations are detected and stored similar to the first operation*” (EX1018, 11:52-58 (emphases added).) Then, “the system extracts the operation record and device information from the user device.” (EX1018, 12:24-26.) Since the operations are user operations, Radhakrishnan discloses a database retaining a plurality of user-defined automation processes. (EX1003, ¶282.)

- b. **8[b]: “wherein the database is updatable by one or more users via a Graphical User Interface (GUI) capable of defining new automation processes and updating existing automation processes retained therein.”**

Radhakrishnan discloses defining new automation processes: “[b]ots typically comprise some form of developer tools for *defining jobs or tasks*.” (EX1018, 5:64-65 (emphasis added); EX1003, ¶283.)

Radhakrishnan also discloses “[b]ots may further comprise a process recorder for *capturing and recording a sequence of user actions for further training or completing tasks*.” (EX1018, 5:64-6:8 (emphasis added).) A POSITA would understand “further training” as updating the existing automation process. (EX1003, ¶284.)

- 11. **Claim 12: “The method of claim 1, wherein said executing is performed on a client device of the user.”**

Radhakrishnan discloses “the RPA system 130 may be part of the user

device 110.” (EX1018, 8:61-63; EX1003, ¶285.)

- 12. Claim 13: “The method of claim 1, wherein the natural language interface is a voice-based service, wherein the voice-based service is configured to receive vocal commands from a human user.”**

Krishnan’s “chat bot execut[es] on a computing device (hereinafter simply ‘chat bot’ or ‘bot’) . . . to simulate a conversation a user may otherwise have with a human user via text or *auditory methods*.” (EX1016, 2:1-4 (emphasis added); EX1003, ¶286.)

13. Claim 14

- a. 14[a]: “The method of claim 1, wherein said determining the automation process comprises: selecting the sequence of interactions from a plurality of sequences based on the first natural language input; and”**

In Krishnan’s flight booking task, the first natural language input from the user comprises a flight booking request. (*See* element 1[b]; EX1003, ¶287.)

Krishnan discloses “[h]ello, how may I help you today?” From there, depending on how the user answers, *different* dialogs, *programs, or other sub-routines* may be called by the bot to interact with user.” (EX1016, 2:57-62 (emphasis added).)

Thus, Krishnan discloses selecting the sequence of interactions from a plurality of sequences based on the first natural language input. (EX1003, ¶287.)

b. 14[b]: “determining a parameter to be used in an interaction of the sequence of interactions based on the second natural language input.”

Krishnan discloses “configur[ing] [] the bot [to] respond[] to *different user input, by performing different actions*, requesting information, or calling various dialogs.” (EX1016, 6:25-28 (emphasis added).) In Krishnan’s flight booking task, the second natural language input from the user comprises a user-selected destination (or an option to select “Promotions”) in response to a flight booking request. (See element 1[b]; EX1016, Fig. 8A; EX1003, ¶¶288-289.)

It would have been obvious that performing different actions require different parameters to be used in the interaction of the sequence of interactions. (EX1003, ¶290.) For example, a user-selected destination of “Europe” would have different parameters (*e.g.*, airline parameter, where some airlines may not fly to Europe) than the user-selected “Promotions” (*e.g.*, party size restrictions, where certain promotions may or may not apply depending on the user’s party size). (EX1003, ¶291.) The user-selected “Promotions” may use the party size restrictions parameters in its interaction, whereas the user-selected “Europe” destination may not. (*Id.*) Thus, Krishnan renders obvious determining a parameter to be used in an interaction of the sequence of interactions based on the second natural language input. (*Id.*, ¶292.)

14. Claim 16: “The method of claim 1, wherein the displayed user interface of the computer program is presented to the user.”

Radhakrishnan discloses “[b]ots are trained to mimic user activity directly with a UI,” *e.g.*, a GUI. (EX1018, 5:49-50, 7:12-16.) Since the RPA bot mirrors the user’s operations on a GUI, the displayed UI is presented to the user.

(EX1003, ¶293.)

15. Claim 18

a. 18[a]: “The method of claim 1, wherein the displayed user interface of the computer program is a user interface of a web browser,”

Radhakrishnan discloses performing operations on a GUI of a user device. Radhakrishnan discloses “[t]he user device may be used by the user to access the system directly or through . . . Internet browser.” (EX1018, 3:51-53.) The operation on a GUI may be on a UI of a web browser. (EX1003, ¶294.)

b. 18[b]: “wherein said executing the automation process comprises activating the web browser to cause the displayed user interface to be displayed,”

Radhakrishnan discloses its displayed UI being a UI of a web browser. (*See* element 18[a].) In order to perform operations on the UI of the web browser, the web browser would need to be activated to cause the displayed UI to be displayed. (EX1003, ¶295.)

- c. **18[c]: “wherein the sequence of interactions is performed with respect to the user interface of the web browser.”**

Radhakrishnan performs operations (sequence of interactions) with respect to the UI of the web browser. (*See* elements 18[a], 18[b]; EX1003, ¶296.)

16. Claim 19

- a. **Preamble: “A non-transitory computer readable medium retaining program instructions, which program instructions when read by a processor, cause the processor to perform:”**

To the extent the preamble is limiting (which Petitioner does not concede), Krishnan-Radhakrishnan renders obvious the preamble.

Krishnan discloses a “non-transitory computer . . . readable medium having control logic (software) stored thereon . . . Such control logic, when executed by one or more data processing device . . . may cause such data processing devices to operate.” (EX1016, 12:43-55.) Radhakrishnan similarly discloses a non-transitory computer readable medium. (EX1018, 13:44-64; EX1003, ¶¶297-299.)

- b. **Elements 19[a]-19[f]**

Elements 19[a]-19[f] mirror elements 1[a]-1[f], which Krishnan-Radhakrishnan renders obvious. (EX1003, ¶¶300-305.)

- 17. Claim 20: “The non-transitory computer readable medium of claim 19, wherein the automation process is a parameterized automation process having a parameter, wherein the natural language interface is configured to prompt the user to provide a value for the parameter, wherein said executing comprises utilizing the value of the parameter.”**

Claim 20 recites limitations similar to claim 3, but requires the “natural language interface” prompt the user. Krishnan’s chatbot is a natural language interface. (See claim 3; EX1003, ¶¶306-307.)

18. Claims 21-23, 26, 28

Claims 21-23, 26, and 28 mirror claims 4-6, 16, and 18, which Krishnan-Radhakrishnan renders obvious. (EX1003, ¶¶308-312.)

19. Claim 29

a. Preamble: “A system comprising:”

To the extent the preamble is limiting (which Petitioner does not concede), Krishnan-Radhakrishnan renders obvious the preamble.

Krishnan discloses a computing device (system). (EX1016, 1:66; EX1003, ¶¶313-314.) Radhakrishnan discloses a user device and system. (EX1018, 3:36-43; Fig. 1.) It would have been obvious to combine Krishnan and Radhakrishnan. (See element 1[c]; EX1003, ¶315.)

b. 29[a]: “a processor and coupled memory,”

Krishnan’s system includes a processor 1104 and coupled memory 1108. (EX1016, 11:13-33.) Radhakrishnan discloses a processor and coupled memory.

(EX1018, 3:36-43; EX1003, ¶¶316-317.) It would have been obvious to combine Krishnan and Radhakrishnan. (*See* element 1[c]; EX1003, ¶318.)

- c. **29[b]: “wherein the processor is configured to perform: using a natural language interface, receiving input from a user as part of a natural language conversation between the natural language interface and the user,”**

Krishnan discloses element 1[a]. Element 29[b] recites limitations similar to element 1[a], but requires “the processor be configured to perform” the claimed receiving step. Krishnan’s system includes a processor 1104. (EX1016, 11:13-14; *see* element 29[a]; EX1003, ¶¶319-320.)

- d. **Elements 29[c]-29[g]**

Elements 29[c]-29[g] mirror elements 1[b]-1[f], which Krishnan-Radhakrishnan renders obvious. (EX1003, ¶¶321-325.)

20. Claims 31, 33

Claims 31 and 33 mirror claims 16 and 18, which Krishnan-Radhakrishnan renders obvious. (EX1003, ¶¶326-328.)

VI. THE BOARD SHOULD NOT DENY INSTITUTION UNDER *FINTIV*

A. A Final Written Decision Will Issue Before Any Trial

A schedule has not yet been issued, and no trial date has been set, in the corresponding district court litigation. A Final Written Decision will issue in February 2025, whereas the trial date for the district court case (which has not been set) will likely be after.

B. Merits of the Petition Support Institution

As discussed above, the prior art teaches every element of the challenged claims, and are unpatentable. Thus, the merits of the petition weigh strongly in favor of institution. *See* USPTO Interim Procedure for Discretionary Denials, 2 (“the PTAB will not rely on the *Fintiv* factors to discretionarily deny institution . . . where a petition presents compelling evidence of unpatentability.”).

C. Stipulation Not to Rely on the Petition’s Grounds in District Court

Petitioner agrees to stipulate that, if this IPR is instituted, Petitioner will not advance the grounds in this Petition in the district court litigation. *Sand Revolution II, LLC v. Cont’l Intermodal Grp. – Trucking LLC*, IPR2019-01393, Paper 24 at 12 (PTAB June 16, 2020) (“Petitioner’s stipulation, however, mitigates to some degree the concerns of duplicative efforts between the district court and the Board, as well as concerns of potentially conflicting decisions.”).

In sum, the *Fintiv* factors in the aggregate weigh against the Board exercising its discretion to deny institution.

VII. THE BOARD SHOULD NOT DENY INSTITUTION UNDER 35 U.S.C. § 325(D)

The Petition does not raise the same or substantially the same art previously presented to the Office, nor does the Petition raise the same or substantially the same arguments previously presented to the Office in the examination of the ’664

patent. *Advanced Bionics, LLC v. MED-EL Elektromedizinische Gerate GmbH*, IPR2019-01469, Paper 6 (PTAB Feb. 13, 2020). The Examiner identified five prior art references during prosecution as the closest art to the substance of the independent claims. (EX1002, 208, 242, 243, 245, 283 285.) However, none of Petition's prior art was characterized or discussed during prosecution. The Petition's prior art teaches the limitations that Applicant needed to overcome the prosecution's prior art, making up for the deficiencies, and thus are not cumulative. (EX1003, ¶¶40-41.) Thus, the Board should not deny institution under 325(d).

VIII. NOTICES AND STATEMENTS

Pursuant to 37 C.F.R. § 42.8(b)(1), Whatfix Inc. and Whatfix Private Limited are the real parties-in-interest for Petitioner.

Pursuant to 37 C.F.R. § 42.8(b)(2), Petitioner identifies the following related matters:

WalkMe Ltd., v. Whatfix Inc., No. 1:23-cv-00227-MN (D. Del.).

Pursuant to 37 C.F.R. § 42.8(b)(3), Petitioner identifies the following counsel (and a power of attorney accompanies this Petition).

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Pursuant to 37 C.F.R. § 42.8(b)(4), service information for lead and back-up counsel is provided above. Petitioner consents to electronic service by email to Whatfix-Walkme-IPR@mofo.com.

Pursuant to 37 C.F.R. § 42.104(a), Petitioners certify that the '664 patent is available for *inter partes* review and that Petitioners are not barred or estopped from requesting an *inter partes* review challenging the patent claims on the grounds identified in this Petition.

The USPTO is authorized to charge any required fees, including the fee as set forth in 37 C.F.R. § 42.15(a) and any excess claim fees, to Deposit Account No. **03-1952** referencing Docket No. **28132-00000.06**.

IPR2023-01368

Dated: August 30, 2023

Respectfully submitted,

By /s/ Alex S. Yap
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Certification of Word Count (37 C.F.R. § 42.24)

I hereby certify that this Petition for *Inter Partes* Review has 13,984 words (as counted by the “Word Count” feature of the Microsoft Word™ word-processing system), exclusive of “a table of contents, a table of authorities, mandatory notices under § 42.8, a certificate of service or word count, or appendix of exhibits or claim listing.”

Dated: August 30, 2023

By /s/ Alex S. Yap

Alex S. Yap

Certificate of Service (37 C.F.R. § 42.6(e)(4) and 42.205(a))

I hereby certify that the attached Petition for *Inter Partes* Review and supporting materials were served as of the below date by UPS, which is a means at least as fast and reliable as U.S. Express Mail, on the Patent Owner at the correspondence address indicated for U.S. Patent No. 10,819,664:

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