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11 **UNITED STATES DISTRICT COURT**  
12 **NORTHERN DISTRICT OF CALIFORNIA**  
13 **SAN FRANCISCO DIVISION**

14 DIALECT, LLC,  
15 Plaintiff,  
16 v.  
17 GOOGLE, LLC,  
18 Defendant.

Case No.: 3:24-CV-04388-JSC  
**PLAINTIFF'S SECOND AMENDED  
COMPLAINT**

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**SECOND AMENDED COMPLAINT FOR PATENT INFRINGEMENT AND DAMAGES  
AND DEMAND FOR JURY TRIAL**

Plaintiff Dialect, LLC (“Dialect” or “Plaintiff”) files this Second Amended Complaint for Patent Infringement and Damages against Google LLC ( “Google” or “Defendant”) and alleges as follows:

**INTRODUCTION**

1. The novel inventions disclosed in U.S. Patent Nos. 7,398,209 (the “’209 Patent”); 7,502,738 (the “’738 Patent”); 7,640,160 (the “’160 Patent”); 7,693,720 (the “’720 Patent”); 8,015,006 (the “’006 Patent”); 8,447,607 (the “’607 Patent”); and 8,849,652 (the “’652 Patent”) (collectively, the “Asserted Patents”) in this matter were invented by VoiceBox Technologies (“VoiceBox”). VoiceBox was a key pioneer in the fields of voice recognition technology and natural language understanding (“NLU”). These technologies power a wide variety of consumer electronics and provide key functionality for smart phones, tablets, TVs, and Internet of Things (“IoT”) devices. VoiceBox spent more than a decade developing and building key early NLU inventions producing one of the most valuable portfolios of technology according to the Institute of Electrical and Electronics Engineers (“IEEE”), including the Asserted Patents. The Asserted Patents in this case are the result of this substantial investment and research.

2. Over the years, the inventions claimed in the Asserted Patents have been licensed to key companies in the industry.

3. Despite opportunities to do so and its knowledge of the Asserted Patents, Google has never licensed the Asserted Patents. VoiceBox’s opportunities to promote and build a business based on these patents were thwarted when Google introduced the infringing products.

**THE PARTIES**

1  
2 4. Plaintiff is a Texas limited liability company with its principal place of business located  
3 at 133 E. Tyler St., Longview, TX 75601-7216.

4 5. Plaintiff is the current owner and assignee of the Asserted Patents.

5  
6 6. Defendant Google LLC (“Google”) is a limited liability company organized and  
7 existing under the laws of Delaware. Google LLC’s registered agent for service of process is  
8 Corporation Service Company, 251 Little Falls Drive, Wilmington, Delaware 19808.

9  
**JURISDICTION**

10 7. This civil action arises under the Patent Laws of the United States, 35 U.S.C. §§ 1 *et*  
11 *seq.*, as amended.

12  
13 8. This Court has subject matter jurisdiction to hear this action under 28 U.S.C. §§ 1331  
14 and 1338(a).

15 9. This District has personal jurisdiction to hear this action for at least the reasons that the  
16 Defendant is domiciled in Delaware and maintains an agent for service of process in Delaware.

17 10. Venue is proper in this District for at least the reason that the Defendant is domiciled  
18 in this District and therefore resides in this District.

19  
**BACKGROUND**

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21 11. In 2001, three brothers, Mike, Rich, and Bob Kennewick founded VoiceBox to bring  
22 NLU to a wide array of computer applications. They recognized that the typical computer speech-  
23 recognition systems forced human operators to adhere to a limited number of rigid speech prompts,  
24 typically through verbal menus of a so-called “Command and Control” system. These rigid prompts  
25 limited how systems were used and inhibited the widespread adoption of speech-recognition systems  
26 to enable people to naturally and effectively interact with computer speech systems.  
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1           12. From its inception, VoiceBox engaged in intense research efforts to develop its NLU  
2 technology. As part of these efforts, VoiceBox Technologies achieved a significant milestone when  
3 it developed an early prototype called “Cybermind.” As demonstrated on Seattle-area television  
4 news<sup>1</sup>, Cybermind was a voice controlled speaker that could provide whether, recipes, sports scores,  
5 calendar updates, or play a song.  
6



18           13. On information and belief, consumer focus groups being introduced to VoiceBox  
19 conversational voice technology described it as “cool,” “unbelievable,” “so fast,” “it makes you feel  
20 like you’re in the future already,” and “I feel like I’m in the Jetsons.”<sup>2</sup>  
21

22           14. Throughout its research and development efforts, VoiceBox realized that its technology  
23 could be deployed in a wide range of applications from connected home to mobile personal assistants.  
24

25           15. VoiceBox’s groundbreaking work did not go unrecognized. By January 2012,  
26 VoiceBox was a leader in NLU and conversational voice technology. Leading companies throughout  
27

28 <sup>1</sup> <https://www.youtube.com/watch?v=DDcRyPnvWhw>

<sup>2</sup> <https://www.youtube.com/watch?v=WCOGNnH-Bws>

1 the world, including Toyota, Lexus, TomTom, Pioneer, Chrysler, Dodge, and Magellan used  
 2 VoiceBox’s award-winning and patented contextual speech technology. VoiceBox had software  
 3 applications that ran on smart speakers, in-car systems, smartphones, smart TVs, computers, tablets,  
 4 e-readers, and personal navigation devices.

5  
 6 16. On information and belief, in 2013 the Institute of Electrical and Electronics Engineers  
 7 (“IEEE”) ranked VoiceBox number 13 in patent power for the computer software industry, ranking  
 8 between SAP AG and Sony Computer Entertainment, Inc.

## IEEE Patent Power Rankings

Computer Software

Rank	Company / Organization	Country of Headquarters	2012 U.S. Patents	Pipeline Growth Index	Pipeline Impact	Self-Citations (%)	Adjusted Pipeline Impact	Pipeline Generality	Pipeline Originality	Pipeline Power
1	Microsoft Corp.	United States	2665	1.14	1.07	0.22	1.07	1.19	1.01	3909.67
2	VMware Inc.	United States	106	1.89	3.07	0.16	3.07	3.02	1.06	1966.63
3	Citrix Systems Inc.	United States	112	1.56	2.83	0.27	2.83	2.62	1.12	1441.86
4	Symantec Corp.	United States	379	1.34	1.54	0.16	1.54	1.63	1.01	1297.47
5	Digimarc Corp.	United States	94	0.9	5	0.88	2.08	4.8	1.12	944.96
6	Oracle Corp.	United States	913	0.92	1	0.12	1	1.13	0.98	930.36
7	CommVault Systems Inc.	United States	52	1.3	5	0.88	2.1	5	1.22	866.39
8	Cadence Design Systems Inc.	United States	158	1.15	2.45	0.15	2.45	1.76	0.89	699.87
9	Adobe Systems Inc.	United States	332	1.13	1.14	0.18	1.14	1.24	1	526.88
10	Rovi Corp.	United States	97	1.47	1.85	0.25	1.85	1.91	1.02	514.34
11	TeleCommunication Systems Inc.	United States	57	1.36	2.35	0.42	2.06	2.52	1.12	451.72
12	SAP AG	Germany	601	1.1	0.74	0.23	0.74	0.85	1.02	424.91
13	Voicebox Technologies Inc.	United States	11	1.83	5	0.65	3.26	5	1.29	423.56
14	Sony Computer Entertainment Inc.	Japan	220	1.33	1.1	0.36	1.03	1.26	1.08	409.7
15	Bally Technologies Inc.	United States	98	1.78	1.46	0.38	1.35	1.83	0.9	388.27
16	Smith Micro Software Inc.	United States	18	3	2.8	0.17	2.8	2.41	0.97	353.44
17	McAfee Inc.	United States	84	1.33	2.02	0.39	1.85	1.61	1.04	347.02
18	Nuance Communications Inc.	United States	160	1.15	1.19	0.3	1.19	1.56	1.02	345.99
19	Synopsys Inc.	United States	148	0.95	1.61	0.08	1.61	1.17	1.06	280.46
20	Infosys Ltd.	India	29	1.93	2.52	0.04	2.52	1.75	1.02	253.69

Source: IEEE Spectrum Patent Power 2013

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 21 17. After learning about VoiceBox’s technology, Toyota hired it to build a sophisticated  
 22 NLU speech interface for its Lexus automobiles. VoiceBox built the voice and NLU capability for  
 23 Toyota’s award-winning Entune multimedia system. As part of the development effort of an NLU  
 24 interface for Lexus, VoiceBox demonstrated a personal assistant called “Alexus” that showcased the  
 25 power of its Conversational Voice technology.

## THE ASSERTED PATENTS

18. The VoiceBox inventions contained in the Asserted Patents in this case relate to groundbreaking improvements to voice recognition and NLU and have particular application in consumer electronics such as smart phones, tablets, and IoT devices.

### U.S. Patent No. 7,398,209

19. On July 8, 2008, the U.S. Patent and Trademark Office (“U.S. Patent Office”) duly and legally issued the ’209 Patent, entitled “Systems And Methods For Responding To Natural Language Speech Utterance.” A true and correct copy of the ’209 Patent is attached hereto as **Exhibit 1**.

20. Dialect is the owner and assignee of all right, title, and interest in and to the ’209 Patent, including the right to assert all causes of action arising under the ’209 Patent and the right to sue and obtain any remedies for past, present, or future infringement.

21. The ’209 Patent describes, among other things, novel systems and methods for receiving natural language queries and/or commands. ’209 Patent, Abstract. The claimed invention makes significant use of context, prior information, domain knowledge, and user specific profile data to achieve a natural environment for one or more users. *Id.* As the ’209 Patent explains, prior to its inventions, a machine’s ability to communicate with humans in a natural manner was a difficult technical problem in need of a technical solution. As described in the specification, in the prior art “human questions and machine processing of queries may be fundamentally incompatible,” because “a person asking a question or giving a command typically relies heavily on context and the domain knowledge of the person answering,” whereas “machine-based queries” are “highly structured and are not inherently natural to the human user.” *Id.* at 1:27–35. The inventions described and claimed in the ’209 Patent overcome these challenges in various embodiments, for example by providing a system that uses domain agents to organize domain specific behavior and information. *Id.* at 2:48–59. The inventions in various embodiments further include a system capable of parsing and interpreting the

1 natural language query to “determine the domain of expertise required and context, invoking the  
2 proper resources, including agents.” *Id.* at 4:46–54.

3 22. The novel features of the invention are recited in the claims. For example, Claim 1 of  
4 the '209 Patent recites:

5 A method responsive to a user generated natural language speech utterance,  
6 comprising:

7 receiving the user generated natural language speech utterance, the received user  
8 utterance containing at least one request;

9 maintaining a dynamic set of prior probabilities or fuzzy possibilities usable at each  
10 stage of processing the received user utterance;

11 recognizing words and phrases contained in the received utterance using  
12 information in one or more dictionary and phrase tables;

13 parsing the recognized words and phrases to determine a meaning of the utterance,  
14 wherein determining the meaning includes determining a context for the at least  
15 one request contained in the utterance based on one or more keywords  
16 contained in the recognized words and phrases;

17 selecting at least one domain agent based on the determined meaning, the selected  
18 domain agent being an autonomous executable that receives, processes, and  
19 responds to requests associated with the determined context;

20 formulating the at least one request contained in the utterance in accordance with a  
21 grammar used by the selected domain agent to process requests associated with  
22 the determined context;

23 invoking the selected domain agent to process the formulated request; and

24 presenting results of the processed request to the user, the presented results  
25 generated as a result of the invoked domain agent processing the formulated  
26 request.

27 '209 Patent at Claim 1.

28 23. Figure 6 of the '209 Patent, reproduced below, shows a block diagram of a process for  
determining the proper domain agents to invoke and properly formatting queries for the agents  
according to one embodiment of the invention.

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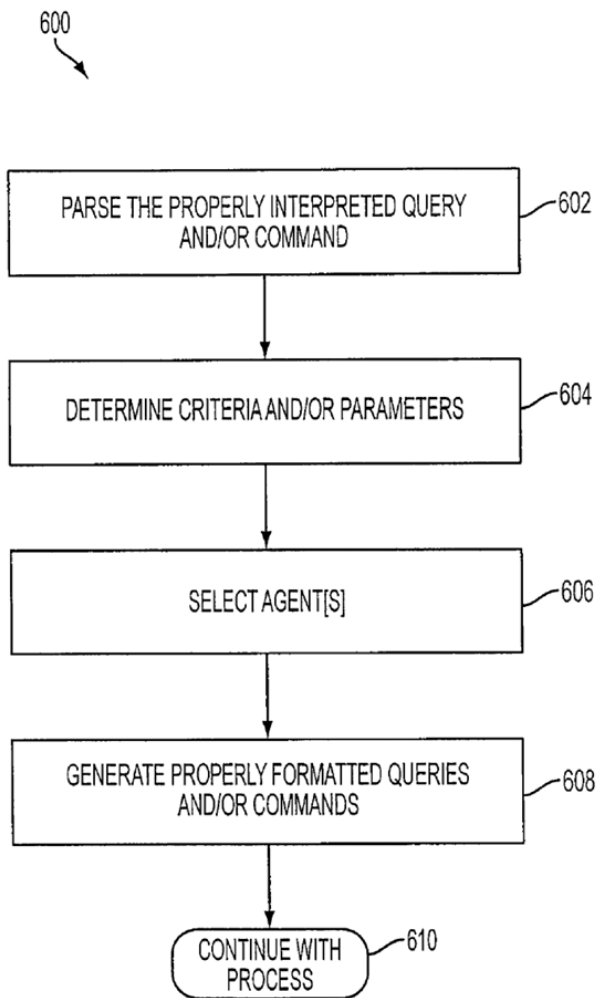


FIG. 6

'209 Patent, Fig. 6.

24. In explaining the reasons for allowing the claims, the United States Patent and Trademark Office described how the closes existing prior art did not disclose or teach the claimed combination of inventive elements.

[T]he prior art of record does not disclose or reasonably suggest recognizing words using information from phrase tables in combination with the limitations of parsing to determine a meaning based on keywords, selecting a domain agent, and formulating a request in accordance with a grammar used by a selected domain agent...Halverson et al. omits a grammar used by a domain agent associated with the determined context and one or more dictionary and phrase tables. Kuhn et al. teaches a natural language parser that returns a probability score for retrieved information in response to a user request, and predefined



1 grammars that are constructed based on goal-oriented tasks, but omits recognizing words  
2 based on a dictionary and phrase tables. While it is known to recognize words based on a  
3 vocabulary defined by a dictionary for speech recognition, the prior art of record does not  
disclose or reasonable suggest additionally utilizing phrase tables for speech recognition.

4 '209 File History, Notice of Allowance (May 19, 2008) at 2 (attached as **Exhibit 2**).

5  
6 **U.S. Patent No. 7,502,738**

7 25. On March 10, 2009, the U.S. Patent Office duly and legally issued the '738 Patent,  
8 entitled "Systems And Methods For Responding To Natural Language Speech Utterance." A true and  
9 correct copy of the '738 Patent is attached hereto as **Exhibit 3**.

10 26. Dialect is the owner and assignee of all right, title, and interest in and to the '738 Patent,  
11 including the right to assert all causes of action arising under the '738 Patent and the right to sue and  
12 obtain any remedies for past, present, or future infringement.

13 27. The '738 Patent describes, among other things, novel systems and methods for  
14 receiving natural language queries and/or commands. '738 Patent, Abstract. The claimed invention  
15 makes significant use of context, prior information, domain knowledge, and user specific profile data  
16 to achieve a natural environment for one or more users. *Id.* As the '738 Patent explains, prior to its  
17 inventions, a machine's ability to communicate with humans in a natural manner was a difficult  
18 technical problem in need of a technical solution. As described in the specification, in the prior art  
19 "human questions and machine processing of queries may be fundamentally incompatible," because  
20 "a person asking a question or giving a command typically relies heavily on context and the domain  
21 knowledge of the person answering," whereas "machine-based queries" are "highly structured and are  
22 not inherently natural to the human user." *Id.* at 1:26–37. The inventions described and claimed in the  
23 '738 Patent overcome these challenges in various embodiments, for example by providing a system  
24 that uses agents to organize domain specific behavior and information. *Id.* at 2:47–56. The inventions  
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1 in various embodiments, include an “update manager” that “is used to add new agents to the system.”

2 *Id.* at 2:63–67.

3 28. The novel features of the invention are recited in the claims. For example, Claim 1 of  
4 the ’738 Patent recites:

5 A system responsive to a user generated natural language speech utterance,  
6 comprising:

7 an agent architecture that includes a plurality of domain agents, each of the plurality  
8 of domain agents being an autonomous executable configured to receive,  
9 process, and respond to requests associated with a respective context;

10 a parser configured to determine a context for one or more keywords contained in  
11 the utterance and to determine a meaning of the utterance based on the  
12 determined context, wherein the parser selects at least one of the plurality of  
13 domain agents based on the determined meaning, wherein the selected domain  
14 agent is configured to receive, process, and respond to requests associated with  
15 the determined context;

16 an event manager configured to coordinate interaction between the parser and the  
17 agent architecture; and

18 an update manager that enables the user to purchase one or more domain agents  
19 from a third party on a one-time or subscription basis.

20 ’738 Patent at Claim 1.

21 29. Figure 2 of the ’738 Patent, reproduced below, shows a schematic block diagram of an  
22 embodiment showing the agent architecture.  
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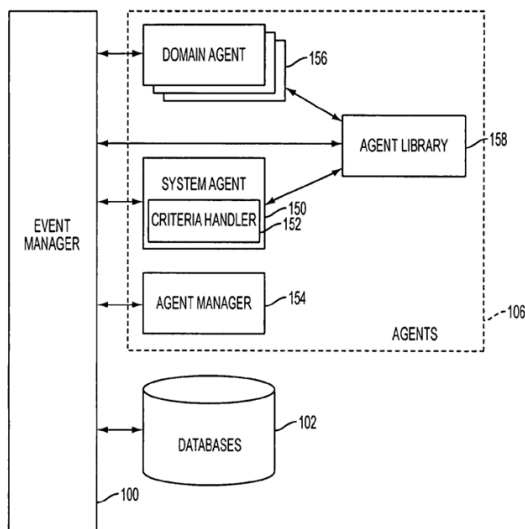


FIG. 2

**'738 Patent, Fig. 2.**

30. In explaining the reasons for allowing the claims, the United States Patent and Trademark Office described how the closes existing prior art did not disclose or teach the claimed combination of inventive elements.

The prior art of record does not disclose or reasonably suggest the limitation of an update manager that enables a user to purchase one or more domain agents from a third party on a one-time or subscription basis, in combination with an agent architecture including a plurality of domain agents, and a parser configured to determine a context for one more keywords...the prior art of record does not disclose or reasonably suggest purchasing domain agents from a third party on a one-time or subscription basis...the prior art of record does not disclose or reasonably suggest purchasing a domain agent through an update manager, in combination with an agent architecture including a plurality of domain agents, and a parser configured to determine a context for one or more keywords.

'738 File History, Notice of Allowance (December 11, 2008) at 2 (attached as **Exhibit 4**).

**U.S. Patent No. 7,640,160**

31. On December 29, 2009, the U.S. Patent Office duly and legally issued the '160 Patent, entitled "Systems And Methods For Responding To Natural Language Speech Utterance." A true and correct copy of the '160 Patent is attached hereto as **Exhibit 5**.

1           32. Dialect is the owner and assignee of all right, title, and interest in and to the '160 Patent,  
2 including the right to assert all causes of action arising under the '160 Patent and the right to sue and  
3 obtain any remedies for past, present, or future infringement.

4           33. The '160 Patent describes, among other things, novel systems and methods for  
5 receiving natural language queries and/or commands and executing the queries and/or commands.  
6 '160 Patent, Abstract. The systems and methods improve the reliability of determining the context of  
7 speech and non-speech communications and presenting the expected results for a particular question  
8 or command. *Id.* As the '160 Patent explains, prior to its inventions, a machine's ability to  
9 communicate with humans in a natural manner was a difficult technical problem in need of a technical  
10 solution. As described in the specification, in the prior art a "machine's ability to communicate with  
11 humans in a natural manner remains a difficult problem," because "a person asking a question or  
12 giving a command[] typically relies heavily on context and the domain knowledge of the target  
13 person," whereas "machine-based queries" may be "highly structured and may not be inherently  
14 natural to the human user." *Id.* at 1:22–41. The inventions described and claimed in the '209 Patent  
15 overcome these challenges in various embodiments, for example by obtaining information and  
16 presenting results in a natural manner, even in cases where the question asked or the responses received  
17 are incomplete, ambiguous, or subjective. *Id.* at 2:14–18. This is true even when utterances "include[e]  
18 imperfect information such as, incomplete thoughts, incomplete sentences, incomplete phrases, slang  
19 terminology, repeated words, word variations, synonyms, or other imperfect information." *Id.* at 1:51–  
20 57.

21           34. The novel features of the invention are recited in the claims. For example, Claim 12 of  
22 the '160 Patent recites:

23  
24           12. A method for interpreting natural language utterances using knowledge-  
25 enhanced speech recognition engine, wherein the knowledge-enhanced speech  
26 recognition engine is configured to determine an intent and correct false  
27 recognitions of the natural language utterances, comprising:  
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1 receiving a transcription of a natural language utterance at a computer comprising  
2 the knowledge-enhanced speech recognition engine;  
3 identifying one or more contexts that completely or partially match one or more text  
4 combinations contained in the transcription, wherein identifying the matching  
5 contexts includes comparing the text combinations against the grammar  
6 expression entries in the context description grammar and against one or more  
7 expected contexts stored in a context stack;  
8 scoring each of the identified matching contexts;  
9 selecting the matching context having a highest score to determine a most likely  
10 context for the utterance; and  
11 communicating a request to a domain agent configured to process requests in the  
12 most likely context for the utterance, the request formulated using at least one  
13 grammar expression entry in the context description grammar.

14 '160 Patent at Claim 12.

15 **U.S. Patent No. 7,693,720**

16 35. On April 6, 2010, the U.S. Patent Office duly and legally issued the '720 Patent, entitled  
17 "Mobile Systems And Methods For Responding To Natural Language Speech Utterance." A true and  
18 correct copy of the '720 Patent is attached hereto as **Exhibit 6**.

19 36. Dialect is the owner and assignee of all right, title, and interest in and to the '720 Patent,  
20 including the right to assert all causes of action arising under the '720 Patent and the right to sue and  
21 obtain any remedies for past, present, or future infringement.

22 37. As described in the '720 Patent, "many natural language questions may be ambiguous  
23 or subjective." '720 Patent, 2:8-10. While human beings are adept at interpreting these types of  
24 communication, they are not easily "transformed to machine processable form," resulting in a uniquely  
25 challenging technological problem to building natural-language speech-recognition interfaces for  
26 computers and vehicles." *Id.* at 2:6-12.

27 38. To solve these problems, the inventors of the '720 Patent conceived of novel software  
28 techniques and structures (and novel combinations and ordering of techniques and structures) not  
found in existing computer or vehicle systems. The '720 Patent describes, among other things, a

1 complete speech-based information query, retrieval, presentation and local or remote command  
2 environment. '720 Patent, Abstract. The invention can be used in dynamic environments such as those  
3 of mobile vehicles to control and communicate with both vehicle systems and remote systems and  
4 devices. *Id.* As the '720 Patent explains, prior to its inventions, “creating a natural language speech  
5 interface that is suitable for use in the vehicular environment has proved difficult. A general-purpose  
6 telematics system must accommodate commands and queries from a wide range of domains and from  
7 many users with diverse preferences and needs. Further, multiple vehicle occupants may want to use  
8 such systems, often simultaneously. Finally, most vehicle environments are relatively noisy, making  
9 accurate speech recognition inherently difficult.” *Id.* at 1:34–42. “Managing and evaluating complex  
10 and uncertain queries while maintaining real-time performance is a significant challenge.” *Id.* at 2:40–  
11 42. Existing speech interfaces required queries and commands to be “highly structured” in a way that  
12 is “not inherently natural to the human user,” causing natural language inputs to be “fundamentally  
13 incompatible” with existing solutions. *Id.* at 1:49-54.

16 39. The inventions described and claimed in the '720 Patent overcome these challenges in  
17 various embodiments, for example by providing “a complete speech-based information query,  
18 retrieval, presentation and command environment,” which “makes significant use of context, prior  
19 information, domain knowledge, and user specific profile data to achieve a natural environment for  
20 one or more users making queries or commands in multiple domains. Through this integrated  
21 approach, a speech-based natural language query, response and command environment is created.  
22 Further, at each step in the process, accommodation may be made for full or partial failure and graceful  
23 recovery.” *Id.* at 2:52–61.

25 40. The novel features of the invention are recited in the claims. For example, Claim 1 of  
26 the '720 Patent recites a novel combination of a speech recognition engine that uses data that includes  
27 a “plurality of dictionary and phrase entries that are dynamically updated based on at least a history of  
28

1 a current dialog and prior dialogs associated with the user,” and a parser that interprets recognized  
2 words or phrases and uses data received from a plurality of domain agents, determines a context for a  
3 natural language speech utterance, selects a domain agent based on the context, and transforms the  
4 recognized words or phrases into a question or command formulated in a grammar that the domain  
5 agent uses to process the formulated question or command. The recited combination also includes an  
6 agent architecture that communicatively couples domain agents to a system agent in a vehicle system:  
7

8 A mobile system responsive to a user generated natural language speech utterance,  
9 comprising:

10 a speech unit connected to a computer device on a vehicle, wherein the speech unit  
11 receives a natural language speech utterance from a user and converts the  
12 received natural language speech utterance into an electronic signal; and

13 a natural language speech processing system connected to the computer device on  
14 the vehicle, wherein the natural language speech processing system receives,  
15 processes, and responds to the electronic signal using data received from a  
16 plurality of domain agents, wherein the natural language speech processing  
17 system includes:

18 a speech recognition engine that recognizes at least one of words or phrases  
19 from the electronic signal using at least the data received from the plurality  
20 of domain agents, wherein the data used by the speech recognition engine  
21 includes a plurality of dictionary and phrase entries that are dynamically  
22 updated based on at least a history of a current dialog and one or more prior  
23 dialogs associated with the user;

24 a parser that interprets the recognized words or phrases, wherein the parser uses  
25 at least the data received from the plurality of domain agents to interpret  
26 the recognized words or phrases, wherein the parser interprets the  
27 recognized words or phrases by:

28 determining a context for the natural language speech utterance;

selecting at least one of the plurality of domain agents based on the  
determined context; and

transforming the recognized words or phrases into at least one of a question  
or a command, wherein the at least one question or command is formulated  
in a grammar that the selected domain agent uses to process the formulated  
question or command; and

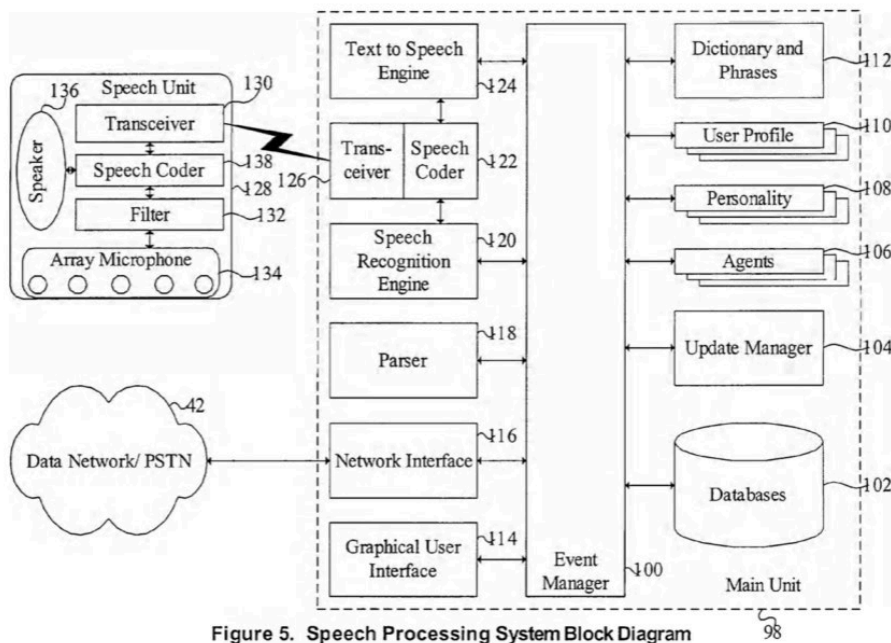
an agent architecture that communicatively couples services of each of an agent  
manager, a system agent, the plurality of domain agents, and an agent  
library that includes one or more utilities that can be used by the system  
agent and the plurality of domain agents, wherein the selected domain agent  
uses the communicatively coupled services to create a response to the

1 formulated question or command and format the response for presentation  
 2 to the user.

3 '720 Patent at Claim 1.

4 41. Embodiments of these claimed elements are shown and described in the specification.

5 For example, Figure 5 shows an overall diagrammatic view of the interactive natural language speech  
 6 processing system according to one embodiment:



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Figure 5. Speech Processing System Block Diagram

42. The specification of the '720 Patent describes how these claim elements help the overall system overcome the technical limitations of existing speech recognition systems. *See, e.g., id.* at 21:61-22:57 (describing domain agents, system agents, and their interactions); 27:1-28:6 (describing the use of the speech recognition system and the dictionary and phrase entries); 28:25-29:50 (describing the interactions between system and domain agents in processing questions or commands).

43. In explaining the reasons for allowing the claims, the United States Patent and Trademark Office described how the closes existing prior art did not disclose or teach the claimed combination of inventive elements.



1 With respect to Claims 1 and 28, the prior art of record fails to explicitly teach or fairly  
2 suggest, either taken individually or in combination, a respective vehicle-based system and  
3 method as is set forth in these claims that features means/steps of receiving a natural  
4 language speech input from a user, processing a natural language speech input using a  
5 speech recognition engine, and a specific parser, and a specific agent architecture in  
6 combination with the speech recognition engine including a plurality of dictionary and  
7 phrase entries that are dynamically updated based on at least combined histories from a  
8 present dialog and other prior dialogs and the agent architecture featuring a agent library  
9 that includes one or more utilities that can be used by the system agent and the plurality of  
10 domain agents.

11 '720 File History, Notice of Allowance (December 10, 2009) at 4 (attached as **Exhibit 7**).

12 **U.S. Patent No. 8,015,006**

13 44. On September 6, 2011, the U.S. Patent Office duly and legally issued the '006 Patent,  
14 entitled "Systems And Methods For Processing Natural Language Speech Utterances With Context-  
15 Specific Domain Agents." A true and correct copy of the '006 Patent is attached hereto as **Exhibit 8**.

16 45. Dialect is the owner and assignee of all right, title, and interest in and to the '006 Patent,  
17 including the right to assert all causes of action arising under the '006 Patent and the right to sue and  
18 obtain any remedies for past, present, or future infringement.

19 46. The '006 Patent describes, among other things, novel systems and methods for  
20 receiving natural language queries and/or commands and executing the queries and/or commands.  
21 '006 Patent, Abstract. The claimed invention makes significant use of context, prior information,  
22 domain knowledge, and user specific profile data to achieve a natural environment for one or more  
23 users. *Id.* As the '006 Patent explains, prior to its inventions, a machine's ability to communicate with  
24 humans in a natural manner was a difficult technical problem in need of a technical solution. As  
25 described in the specification, in the prior art "human questions and machine processing of queries  
26 may be fundamentally incompatible," because "a person asking a question or giving a command  
27 typically relies heavily on context and the domain knowledge of the person answering," whereas  
28 "machine-based queries" are "highly structured and are not inherently natural to the human user." *Id.*

1 at 1:27–41. The inventions described and claimed in the '006 Patent overcome these challenges in  
2 various embodiments, for example by providing a system that uses domain agents to organize domain  
3 specific behavior and information. *Id.* at 2:53–3:7. The inventions in various embodiments further  
4 include a system that can “determine the user’s identity by voice and name for each utterance,” so that  
5 “[r]ecognized words and phrases may be tagged with this identity in all further processing” for security  
6 and other purposes. *Id.* at 16:60–17:4.

8 47. Thus, while “speech recognition” (i.e., transcribing human speech into text) had  
9 “steadily improved in accuracy” and was “successfully used in a wide range of applications,” (*id.* at  
10 1:46-48) simply translating uttered speech from a user into machine-readable text form, alone, did not  
11 and does not overcome the additional challenges of creating a natural language query and response  
12 system. Instead, existing systems were “generally unable to provide a complete environment for users  
13 to make natural language speech queries and receive natural-sounding responses” and “[t]here  
14 remain[ed] a number of significant barriers to creation of a complete natural language speech-based  
15 query and response environment.” *Id.* at 1:50-55.

17 48. To overcome these barriers, the inventors of the 006 Patent conceived of novel software  
18 techniques and structures (and novel combinations and ordering of techniques and structures) not  
19 found in existing systems. The claimed invention “makes significant use of context, prior information  
20 domain knowledge, and user specific profile data to achieve a natural language environment for one  
21 or more user specific profile data to achieve a natural environment for one or more users making  
22 queries or commands in multiple domains.” ’006 Patent, Abstract. The inventions described and  
23 claimed in the 006 Patent overcome these challenges in various embodiments, for example by  
24 providing a system that uses domain agents to organize domain specific behavior and information. *Id.*  
25 at 2:53-3:7. The inventions in various embodiments further include a system that can “determine the  
26 user’s identity by voice and name for each utterance,” so that “[r]ecognized words and phrases may  
27  
28

1 be tagged with this identity in all further processing” for security and other purposes. *Id.* at 16:60-  
2 17:4.

3 49. The novel features of the invention are recited in the claims. For example, Claim 5 of  
4 the '006 Patent recites a novel combination of parsing to determine a meaning and a context of speech  
5 associated with a request involving a grammar by a domain agent, satisfying a predetermined  
6 confidence level, updating user specific vocabularies or dictionaries, and determining an identity of a  
7 user based on voice characteristics:  
8

9 A method for processing natural language speech utterances with context-specific  
10 domain agents, comprising:

11 receiving, at a speech unit coupled to a processing device, a natural language speech  
utterance that contains a request;

12 recognizing, at a speech recognition engine coupled to the processing device, one or  
13 more words or phrases contained in the utterance using information in one or  
more dictionary and phrase tables;

14 parsing, at a parser coupled to the processing device, information relating to the  
15 utterance to determine a meaning associated with the utterance and a context  
associated with the request contained in the utterance, wherein the parsed  
16 information includes the one or more recognized words or phrases;

17 formulating, at the parser, the request contained in the utterance in accordance with  
18 a grammar used by a domain agent associated with the determined context,  
wherein formulating the request in accordance with the grammar used by the  
domain agent includes:

19 determining one or more required values and one or more optional values  
20 associated with formulating the request in the grammar used by the domain  
agent;

21 extracting one or more criteria and one or more parameters from one or more  
22 keywords contained in the one or more recognized words or phrases,  
wherein the parser extracts the one or more criteria and the one or more  
23 parameters using procedures sensitive to the determined context;

24 inferring one or more further criteria and one or more further parameters  
25 associated with the request using a dynamic set of prior probabilities or  
fuzzy possibilities; and

26 transforming the one or more extracted criteria, the one or more extracted  
27 parameters, the one or more inferred criteria, and the one or more inferred  
parameters into one or more tokens having a format compatible with the  
28 grammar used by the domain agent, wherein the one or more tokens include

all the required values and one or more of the optional values associated with formulating the request in the grammar used by the domain agent; processing the formulated request with the domain agent associated with the determined context to generate a response to the utterance; and presenting the generated response to the utterance via the speech unit.

'006 Patent at Claim 5.

50. Embodiments of these claimed elements are shown and described in the specification.

For example, Figure 1 shows an overall diagrammatic view of the interactive natural language speech processing system according to one embodiment:

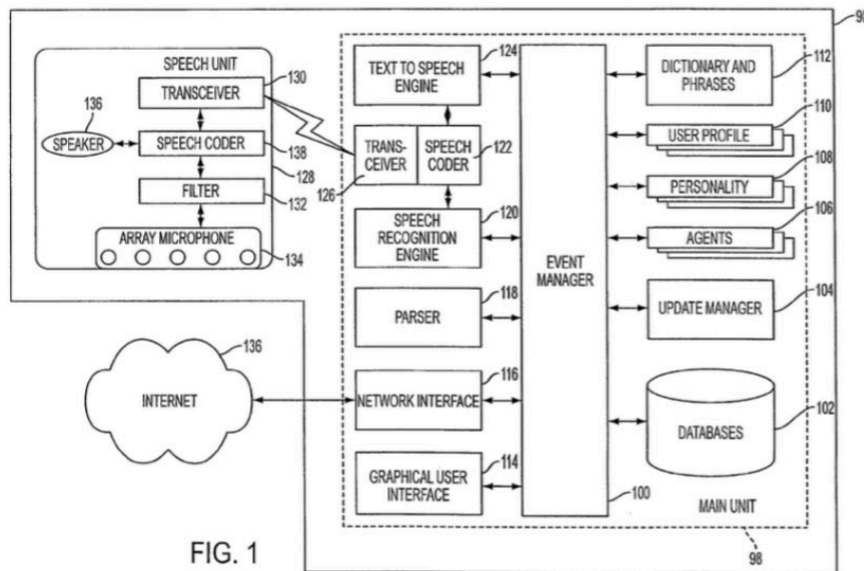


FIG. 1

51. The specification of the 006 Patent describes how these claim elements help the overall system overcome the technical limitations of existing speech recognition systems. *See e.g., id.* at 10:56-12:18 (describing domain agents, system agents, and their interactions); 17:13-18:49 (describing the use of the speech recognition system and the dictionary and phrase entries, parser and domain agents to determine context and criteria); 18:50-21:25 (describing the interactions between system and domain agents in processing questions or commands).

1           52. In explaining the reasons for allowing the claims, the United States Patent and  
2 Trademark Office described how the closes existing prior art did not disclose or teach the claimed  
3 combination of inventive elements:

4                   Independent Claim [5] is allowable because the prior art of record does not disclose or  
5 reasonably suggest a combination of parsing to determine a meaning and a context of  
6 speech associated with a request involving a grammar by a domain agent, satisfying a  
7 predetermined confidence level, updating user specific vocabularies or dictionaries, and  
8 determining an identity of a user based on voice characteristics. Sabourin (U.S. Patent No.  
9 6,208, 964) teaches updating a user specific vocabularies or dictionaries, but not in  
10 combination with satisfying a predetermined confidence level and determining an identity  
11 of the user based on voice characteristics of the user. Although determining an identity  
12 of a user based on voice characteristics is known individually for a voice profile, the prior art  
13 of record does not disclose or reasonably suggest that feature in combination with updating  
14 a user specific vocabulary when a predetermined confidence level is not met.

15           ’006 File History, Notice of Allowance (April 28, 2001) at 2 (attached as **Exhibit 9**).

16                   **U.S. Patent No. 8,447,607**

17           53. On May 21, 2013, the U.S. Patent Office duly and legally issued the ’607 Patent,  
18 entitled “Mobile Systems And Methods Of Supporting Natural Language Human-Machine  
19 Interactions.” A true and correct copy of the ’607 Patent is attached hereto as **Exhibit 10**.

20           54. Dialect is the owner and assignee of all right, title, and interest in and to the ’607 Patent,  
21 including the right to assert all causes of action arising under the ’607 Patent and the right to sue and  
22 obtain any remedies for past, present, or future infringement.

23           55. The ’607 Patent describes, among other things, a novel mobile system that identifies  
24 and uses context, prior information, domain knowledge, and user specific profile data to achieve a  
25 natural environment for users to submit natural language requests. ’607 Patent, Abstract. The claimed  
26 invention creates, stores and uses extensive personal profile information for each user to improve the  
27 reliability of determining the context of a request and presenting the expected results. *Id.* As the ’607  
28 Patent explains, prior to its inventions, a machine’s ability to communicate with humans in a natural  
manner was a difficult technical problem in need of a technical solution. As described in the

1 specification, under the existing systems and devices “verbal communications and machine processing  
2 of requests that are extracted from the verbal communications may be fundamentally incompatible,”  
3 because the existing systems and devices use requests that are “highly structured and may not be  
4 inherently natural to the human user.” *Id.* at 1:56–61. “Cognitive research on human interaction,”  
5 however, “shows that verbal communication, such as a person asking a question or giving a command,  
6 typically relies heavily on context and domain knowledge of the target person.” *Id.* at 1:52–55. The  
7 inventions described and claimed in the ’607 Patent overcome these challenges in various  
8 embodiments, for example by providing a system that uses “multi-modal communications that enable  
9 displaying of non-speech search results on a graphical interface” in conjunction with “speech  
10 commands” to execute requests. *Id.* at 21:49–60.

11  
12 56. The novel features of the invention are recited in the claims. For example, Claim 14 of  
13 the ’607 Patent recites:

14 A device for processing natural language inputs, comprising one or more processors  
15 configured to:

16 receive a natural language utterance from a user;

17 identify the user who provided the natural language utterance;

18 generate a speech-based transcription based on a personal cognitive model  
19 associated with the user and a general cognitive model, wherein the personal  
20 cognitive model includes information on one or more prior interactions between  
21 the device and the user, and wherein the general cognitive model includes  
information on one or more prior interactions between the device and a plurality  
of users;

22 identify, from among a plurality of entries that are in a context stack and that are  
23 each indicative of context, an entry that matches information in the speech-  
based transcription;

24 identify a domain agent associated with the entry in the context stack; determine a  
25 request based on the speech-based transcription; and

26 communicate the request to the domain agent, wherein the domain agent is  
27 configured to generate a response to the user.

28 ’607 Patent at Claim 14.

**U.S. Patent No. 8,849,652**

1  
2           57.     On September 30, 2014, the U.S. Patent Office duly and legally issued the '652 Patent,  
3 entitled "Mobile Systems And Methods Of Supporting Natural Language Human-Machine  
4 Interactions." A true and correct copy of the '652 Patent is attached hereto as **Exhibit 11**.

5  
6           58.     Dialect is the owner and assignee of all right, title, and interest in and to the '652 Patent,  
7 including the right to assert all causes of action arising under the '652 Patent and the right to sue and  
8 obtain any remedies for past, present, or future infringement.

9           59.     The '652 Patent describes, among other things, a novel mobile system that identifies  
10 and uses context, prior information, domain knowledge, and user specific profile data to achieve a  
11 natural environment for users to submit natural language requests. '652 Patent, Abstract. The claimed  
12 invention creates, stores and uses extensive personal profile information for each user to improve the  
13 reliability of determining the context of a request and presenting the expected results. *Id.* As the '652  
14 Patent explains, prior to its inventions, a machine's ability to communicate with humans in a natural  
15 manner was a difficult technical problem in need of a technical solution. As described in the  
16 specification, under the existing systems and devices "verbal communications and machine processing  
17 of requests that are extracted from the verbal communications may be fundamentally incompatible,"  
18 because the existing systems and devices use requests that are "highly structured and may not be  
19 inherently natural to the human user." *Id.* at 1:58–63. "Cognitive research on human interaction,"  
20 however, "shows that verbal communication, such as a person asking a question or giving a command,  
21 typically relies heavily on context and domain knowledge of the target person." *Id.* at 1:54–57. The  
22 inventions described and claimed in the '652 Patent overcome these challenges in various  
23 embodiments, for example by providing a system that uses context information determined from a  
24 command or request, comparing it against one or more words to create a score for context entries and  
25  
26  
27  
28

1 generating a context stack to enable future requests. *Id.* at 4:5–55. The context stacks can be  
2 synchronized across multiple devices. *Id.* at 4:20–36.

3 60. The novel features of the invention are recited in the claims. For example, Claim 1 of  
4 the '652 Patent recites:

5 A system for processing natural language utterances where recognized words of the  
6 natural language utterances alone are insufficient to completely determine one or  
7 more commands or requests, the system comprising:

8 one or more physical processors programmed with one or more computer program  
9 instructions which, when executed, cause the one or more physical processors  
10 to:

11 generate a first context stack associated with a first device, the first context stack  
12 comprising context information that corresponds to a plurality of prior  
13 utterances;

14 synchronize the first context stack with a second context stack associated with  
15 a second device such that the context information of the first context stack  
16 is updated based on related context information of the second context stack;

17 receive a natural language utterance associated with a command or request;

18 determine one or more words of the natural language utterance by performing  
19 speech recognition on the natural language utterance; and

20 determine the command or request based on the one or more words and the  
21 updated context information.

22 '652 Patent at Claim 1.

23 **GOOGLE'S KNOWLEDGE OF THE ASSERTED PATENTS AND ITS INFRINGEMENT**  
24 **OF THE ASSERTED PATENTS**

25 61. Google has had specific knowledge of the Asserted Patents years before the 2016  
26 introduction of the Google Assistant Platform.

27 62. VoiceBox approached Google about collaborating on an NLU product in 2007. At that  
28 time, VoiceBox was known in the industry as having made key early NLU inventions, and it was  
recognized by the Institute of Electrical and Electronics Engineers as having one of the most valuable  
NLU patent portfolios. Dialect had licensed its patented technology to some of the most sophisticated  
companies in the automotive and consumer electronics industries. **Exhibit 12** at p. 6.



1           63.     VoiceBox personally met with Mike Cohen, Google’s Head of Speech, in 2007 to  
2 demonstrate how its NLU product worked. **Exhibit 13.** In 2008, VoiceBox met with Mr. Cohen  
3 again, along with two of his lead speech engineers, a Google product manager, Google’s maps  
4 marketing manager, and an individual in Google’s business development team to discuss ways to  
5 integrate VoiceBox’s NLU technology into Google’s products. **Exhibit 14.**  
6

7           64.     From 2008 through 2009, Google publicly emphasized the importance of developing  
8 voice recognition technology to its overall business. **Exhibits 15-18.**

9           65.     In 2010, VoiceBox began corresponding with Steve Woods, Google’s Senior Director  
10 of Engineering, to explore market opportunities to deliver natural language voice applications for  
11 Google’s voice technology. **Exhibit 12.** In this correspondence, Dialect provided an executive  
12 summary of its technology, along with a detailed description of its product’s architecture and an  
13 explanation of how each component worked. *Id.* at 6-9. The executive summary made explicit that  
14 VoiceBox held U.S. patents on its core NLU technology, and provided a list of its existing patents and  
15 patent applications. *Id.* at 9-10. This list identified the ’209, ’738, and ’160 Patents, along with a  
16 comprehensive description of VoiceBox’s pending patent applications. *Id.* at 10.  
17

18           66.     Around the same time, Apple launched its voice assistant product, Siri. *See Exhibits*  
19 **19-22.** Recognizing the opportunity, VoiceBox offered to help Google deliver a competitive product  
20 and gain an edge over Apple using VoiceBox’s patented NLU technology. *See Exhibits 19-21.*  
21

22           67.     In 2011, VoiceBox began corresponding with Mr. Cohen again, hoping to find a way  
23 to partner on speech applications. **Exhibit 23.** Shortly afterward, executives from VoiceBox met  
24 personally with Mr. Cohen to discuss a collaboration. **Exhibits 24-25.** Later that year, VoiceBox  
25 spoke with Mr. Woods, who put VoiceBox in contact with another Director of Engineering at Google,  
26 Dave Burke, who was leading the charge on a project that was designed to “go directly at Siri.”  
27 **Exhibit 26.** A few days later, an executive at VoiceBox had dinner with Mr. Woods, who confirmed  
28

1 that Google was “throwing significant resources to chase Siri.” **Exhibit 27**. During this meeting, Mr.  
2 Woods expressed interest in VoiceBox’s patents. *Id.*

3 68. Mr. Woods then put VoiceBox in contact with Mr. Burke. **Exhibit 28**. VoiceBox  
4 again expressed an interest in collaborating to create a voice assistant product, and emphasized that it  
5 had “multiple patents covering intent recognition in speech, context specific agents in a personal  
6 assistant and voice advertising.” *Id.* Mr. Burke responded by requesting a demonstration of  
7 VoiceBox’s technology, which VoiceBox provided while again emphasizing that it had patents  
8 covering this technology. **Exhibits 29-30**.

9  
10 69. In mid-2012, having heard nothing further from Google, VoiceBox again reached out  
11 to Mr. Woods, this time to inform him that VoiceBox had been approached by two companies who  
12 were interested in acquiring VoiceBox’s intellectual property and to see if Google would be interested  
13 in a strategic dialog. **Exhibit 31**. In this correspondence, VoiceBox provided another presentation  
14 with an overview of how its technology worked. **Exhibit 32**. Mr. Woods eventually forwarded this  
15 correspondence to Google’s head of Corporate Development, David Lawee. **Exhibits 33-36**. The  
16 next month, Joe Brennan, a patent attorney at Google, reached out to VoiceBox asking for “a document  
17 that lists Voicebox patents and pending patent applications” specifically so he could review them.  
18 **Exhibit 37**. VoiceBox provided a list that identified the ’209, ’006, ’738, ’720, and ’160 Patents,  
19 along with the 299 Patent application that eventually matured into the ’607 and ’652 Patents, and  
20 specifically identified which NLU features each patent applied to. *Id.* A VoiceBox executive met  
21 with Mr. Brennan in August and October of 2012 to discuss VoiceBox’s patents. **Exhibits 38-39**.  
22 Later that month, however, Google told VoiceBox it decided to pass on the opportunity to partner,  
23 only to launch the accused products a few years later in 2016. **Exhibit 40**.

24  
25  
26 70. Google also knew of several of the Asserted Patents through the prosecution of its own  
27 patent applications covering similar technology.  
28

1           71. On information and belief, Google continued to monitor and analyze the Asserted  
2 Patents. For example, Google’s continued monitoring and analysis of the Asserted Patents is  
3 demonstrated by Google’s repeated disclosure of the Asserted Patents to the United States Patent and  
4 Trademark office as prior art to Google’s patent applications. For example, on September 7, 2014,  
5 Google disclosed the ’720 Patent as prior art to its own patent application no. 14/048,199. As another  
6 example, on May 27, 2015, Google disclosed the ’607 Patent as prior art to its own patent application  
7 no. 14/723,305. Again, on February 4, 2016, Google disclosed the ’607 Patent as prior art to its own  
8 patent application no. 15/051,778.  
9

10           72. After VoiceBox disclosed the Asserted Patents to Google, Google affirmatively chose  
11 not to obtain a license.  
12

13           73. On information and belief, Google developed its Google Assistant Platform in light of  
14 the knowledge it gained from its specific review of the Asserted Patents. Google was made aware of  
15 and reviewed the Asserted Patents in 2012 and 2013, at least three years before the release of the  
16 Google Assistant Platform.  
17

18           74. Google’s former-CEO Eric Schmidt, has stated publicly that successful startups should  
19 steal others’ intellectual property and hire lawyers to “clean up the mess.” **Exhibit 41**. On information  
20 and belief, Google itself regularly and willfully disregards the intellectual property of others and hires  
21 lawyers to clean up its mess.  
22

### **GOOGLE’S USE OF THE PATENTED TECHNOLOGY**

23           75. Google is a digital conglomerate that provides internet advertising services, internet  
24 cloud services, and internet-enabled hardware and software products in the United States and  
25 worldwide. In 2022, Google, through its parent, reported consolidated revenues of over \$282 billion.  
26

27           76. Among the products and services that Google makes, uses, sells, and/or offers to sell  
28 in the United States, and/or imports into the United States, are: the Google Assistant Platform,

1 including Google Assistant’s Conversational Actions, App Actions, smart home Actions, Google  
2 Assistant for Android Auto, and/or media Actions; servers, network infrastructure, smartphones,  
3 tablets, and internet of things (“IoT”) devices such as Google Home devices comprising software to  
4 access such Google Assistant Platform products and services alone or in combination with Android  
5 software, Android Auto software, and/or Android Automotive OS software; and Dialogflow virtual  
6 agents comprising Google Assistant Platform technology (collectively, the “Accused Google Assistant  
7 Products and Services”), which infringe the Asserted Patents as described in the counts below.

8  
9 77. On information and belief, Google also provides third-party developers of automobiles,  
10 electronic hardware, and software with interfaces to the Accused Google Assistant Products and  
11 Services, in order to encourage those developers to design, make, use, import into the United States,  
12 offer to sell, and sell products and services capable of being voice-controlled by the Accused Google  
13 Assistant Products and Services.  
14

### 15 **FIRST COUNT**

#### 16 **(Infringement of U.S Patent No. 7,398,209)**

17 78. Dialect incorporates by reference the allegations set forth in Paragraphs 1–77 as though  
18 fully set forth herein.  
19

20 79. The claims of the ’209 Patent are valid and enforceable.

21 80. The claims of the ’209 Patent are directed to patentable subject matter. Particularly, the  
22 ’209 Patent is directed to a novel, tangible voice recognition system. The inventive, tangible claimed  
23 structures of the ’209 Patent improve on the natural language processing of a natural language  
24 utterance by a user. The claimed inventions provide specific concrete solutions to the problem of  
25 speech recognition in existing systems.  
26

27 81. In violation of 35 U.S.C. § 271(a) and without authority from Plaintiff, Google has  
28 directly infringed by making, using, offering for sale, selling, and/or importing into the state of

1 Delaware, this judicial district, and elsewhere in the United States products and services that embody  
2 the invention disclosed and claimed in the '209 Patent, including at least the Accused Google Assistant  
3 Products and Services.

4           82. Each of the Accused Google Assistant Products and Services contains elements that  
5 are identical or equivalent to each claimed element of the patented invention claimed by at least Claim  
6 1 of the '209 Patent.

7           83. Each of the Accused Google Assistant Products and Services comprises a method  
8 responsive to a user generated natural language speech utterance.

9           84. For example, Google describes Google Assistant as responding to a user generated  
10 natural language speech utterance.<sup>3</sup>  
11  
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22  
23  
24  
25  
26  
27

28 <sup>3</sup> <https://support.google.com/assistant/answer/7172842?hl=en>

1 **What you can ask Google Assistant**

2 You can ask Google Assistant for info and for help with everyday tasks.

3 **Important:** Some queries won't work on all devices and in all languages.

4 For ideas about what Google Assistant can help with, ask "What can you do?"

5 **What Google Assistant can do**

6 **Get local info**

- 7 • **Weather:** What's the weather today?
- 8 • **Food:** Find pizza restaurants nearby.
- 9 • **Business hours:** Is Walgreens still open?
- 10 • **Navigation:** Navigate home.

11 **Plan your day**

- 12 • **Traffic:** How's the traffic to work?
- 13 • **Reminders:** Remind me to do laundry this evening. Remind me to call Mom every Sunday.
- 14 • **Calendar events:** When's my first meeting today? Add a meeting to my calendar.
- 15 • **Flights:** Is United flight 1463 on time?

16 **Ask Google**

- 17 • **Game updates:** Who won the Warriors game?
- 18 • **Calculations:** What's 20% of 80?
- 19 • **Dictionary:** What does "gregarious" mean?
- 20 • **Translations:** How do I say "Nice to meet you" in French?
- 21 • **Finance:** How's the S&P 500 doing?
- 22 • **Unit conversions:** How many kilometers in a mile?
- 23 • **Search:** Search for summer vacation ideas.
- 24 • **Image search:** Find pictures of kittens.
- 25 • **Web answer:** How do you remove wine stains from a rug?

26 85. Each of the Accused Google Assistant Products and Services comprises receiving the  
27 user generated natural language speech utterance, the received user utterance containing at least one  
28 request.

86. For example, Google describes Google Assistant as receiving user generated natural  
language speech utterances containing at least one request.<sup>4</sup>

---

<sup>4</sup> *Id.*

# 1 What you can ask Google Assistant

2 You can ask Google Assistant for info and for help with everyday tasks.

3 **Important:** Some queries won't work on all devices and in all languages.

4 For ideas about what Google Assistant can help with, ask "What can you do?"

## 5 What Google Assistant can do

### 6 Get local info

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### 9 Plan your day

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### 12 Ask Google

- 13 • **Game updates:** Who won the Warriors game?
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- 18 • **Unit conversions:** How many kilometers in a mile?
- 19 • **Search:** Search for summer vacation ideas.
- 20 • **Image search:** Find pictures of kittens.
- 21 • **Web answer:** How do you remove wine stains from a rug?

19 Google further describes its Assistant as "process[ing] the question and get[ting] text out of it."<sup>5</sup>

20 **Got it. Let's say I ask Assistant something pretty straightforward, like, "Hey Google, where's the**  
21 **closest dog park?" – how would Assistant understand what I'm saying and respond to my query?**

22 The first step is for Assistant to process that "Hey Google" and realize, "Ah, it looks like this person is  
23 now speaking to me and wants something from me."

24 Assistant picks up the rest of the audio, processes the question and gets text out of it. As it does that, it  
25 tries to understand what your sentence is about. What type of intention do you have?

26  
27  
28 <sup>5</sup> <https://blog.google/products/assistant/ask-a-techspert-assistant-questions/>

1           87. Each of the Accused Google Assistant Products and Services comprises maintaining a  
2 dynamic set of prior probabilities or fuzzy possibilities usable at each stage of processing the received  
3 user utterance.

4           88. For example, Google describes Google Assistant as analyzing the text of the question  
5 in combination with “useful information such as recent requests.”<sup>6</sup>  
6

## 7 Understanding your request

8 If you interact with Assistant by voice, our speech recognition technology converts your request to text. Next, Assistant analyzes the  
9 text, in combination with useful information such as recent requests or the type of device you are using, to identify possible  
interpretations.

10 For example, if you say “Hey Google, stop,” you might want to stop one of two timers that are running, music that’s playing, or a routine  
11 that’s running. You might also want to see search results for “Stop,” or something else entirely.

12 To weigh the options, Assistant compiles a list of the different interpretations of your request and how it would respond to each one.  
The next step is to rank these options to find the best way to fulfill your request.

13           89. Each of the Accused Google Assistant Products and Services comprises recognizing  
14 words and phrases contained in the received utterance using information in one or more dictionary and  
15 phrase tables.  
16

17           90. For example, Google describes Google Assistant as using “trainingPhrases[]” to “allow  
18 Google’s NLU to automatically” match words or phrases found in the user input.<sup>7</sup>

<code>trainingPhrases[]</code>	<p><code>string</code></p> <p>Training phrases allow Google’s NLU to automatically match intents with user input. The more unique phrases that are provided, the better chance this intent will be matched. The following is the format of training phrase part which are annotated. Note that <code>auto</code> field is optional and the default behavior when <code>auto</code> is not specified is equivalent to <code>auto=false</code>. (<code>&lt;paramName&gt; ' &lt;sample text&gt; ' auto=&lt;true or false&gt; </code> <code>auto = true</code> means the part was auto annotated by NLU. <code>auto = false</code> means the part was annotated by the user. This is the default when <code>auto</code> is not specified. Example: “Book a flight from (<code>\$source</code> ‘San Francisco’ <code>auto=false</code>) to (<code>\$dest</code> ‘Vancouver’)”</p>
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19  
20  
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24 Google further describes its Assistant as using “define[d] custom training phrases” to “augment[] the  
25 Assistant NLU.”<sup>8</sup>  
26

27 <sup>6</sup> <https://developers.google.com/assistant/howassistantworks/responses>

28 <sup>7</sup> <https://developers.google.com/assistant/actionssdk/reference/rest/Shared.Types/Intent>

<sup>8</sup> <https://developers.google.com/assistant/conversational/intents>



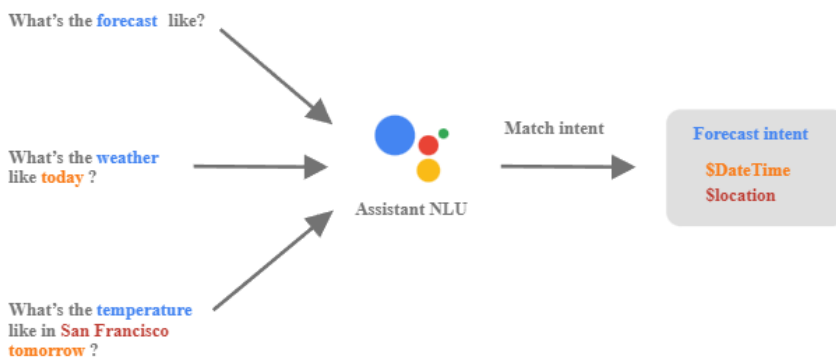
- **User intents** let you extend Assistant's ability to understand user requests that are specific to your brand and services. You define custom training phrases within an intent, which in turn generates an intent's language model. That language model augments the Assistant NLU, increasing its ability to understand even more.
- **System intents** have training data or other non-conversational input signals defined by Assistant. This means you don't need to define training phrases for these intents. Assistant matches these intents in a standard way, during well-known system events such as main invocation or when users don't provide any input.

91. Each of the Accused Google Assistant Products and Services comprises parsing the recognized words and phrases to determine a meaning of the utterance, wherein determining the meaning includes determining a context for the at least one request contained in the utterance based on one or more keywords contained in the recognized words and phrases.

92. For example, Google describes Google Assistant as determining a context for the request in the natural language utterance based on one or more keywords.<sup>9</sup>

For example, consider an easy user request like, "What's the forecast like today?" Other users might also ask, "What's the weather like right now?" or "What's the temperature like in San Francisco tomorrow?" Even with this simple question, you can see that conversational experiences are hard to implement, because interpreting and processing natural language requires a very robust language parser that's capable of understanding the nuances of language. Your code would have to handle all these different types of requests (and potentially many more) to carry out the same logic: looking up some forecast information for a time and location. For this reason, a traditional computer interface requires well-known, standard input requests to the detriment of the user experience, because it's easier to handle highly structured input.

However, when you build Conversational Actions, Assistant handles the natural language understanding (NLU) for you, so you can build open-ended, conversational interfaces easily. These interface tools let you understand the vast and varied nuances of human language and translate that to standard and structured meaning that your apps and services can understand. Let's take a look at how an Action might handle the previous examples for weather forecast requests.



<sup>9</sup> <https://developers.google.com/assistant/conversational/overview>

1 Google states that its Assistant “gets text out” of the question and identifies “the semantics, i.e. the  
2 meaning, of your question.”<sup>10</sup>

3 **Got it. Let's say I ask Assistant something pretty straightforward, like, “Hey Google, where's the  
4 closest dog park?” – how would Assistant understand what I'm saying and respond to my query?**

5 The first step is for Assistant to process that “Hey Google” and realize, “Ah, it looks like this person is  
6 now speaking to me and wants something from me.”

7 Assistant picks up the rest of the audio, processes the question and gets text out of it. As it does that, it  
8 tries to understand what your sentence is about. What type of intention do you have?

9 To determine this, Assistant will parse the text of your question with another neural network that tries to  
10 identify the semantics, i.e. the meaning, of your question.

11 Google describes the Assistant’s NLU models as understanding context, “meaning it knows exactly  
12 what you’re trying to do with a command.”<sup>11</sup>

## 13 A good conversation is all about context

14 Assistant’s timers are a popular tool, and plenty of us set more than one of them at the same time.  
15 Maybe you’ve got a 10-minute timer for dinner going at the same time as another to remind the kids to  
16 start their homework in 20 minutes. You might fumble and stop mid sentence to correct how long the  
17 timer should be set for, or maybe you don’t use the exact same phrase to cancel it as you did to create it.  
18 Like in any conversation, context matters and Assistant needs to be flexible enough to understand what  
you’re referring to when you ask for help.

19 To help with these kinds of conversational complexities, we fully rebuilt Assistant’s NLU models so it can  
20 now more accurately understand context while also improving its “reference resolution” – meaning it  
21 knows exactly what you’re trying to do with a command. This upgrade uses machine learning  
22 technology powered by [state-of-the-art BERT](#), a technology we invented in 2018 and first brought to  
23 [Search](#) that makes it possible to process words in relation to all the other words in a sentence, rather  
24 than one-by-one in order. Because of these improvements, Assistant can now respond nearly 100  
25 percent accurately to alarms and timer tasks. And over time, we’ll bring this capability to other use  
26 cases, so Assistant can learn to better understand you.

27 \_\_\_\_\_  
28 <sup>10</sup> <https://blog.google/products/assistant/ask-a-techspert-assistant-questions/>

<sup>11</sup> <https://blog.google/products/assistant/loud-and-clear-ai-improving-assistant-conversations/>

1           93. Each of the Accused Google Assistant Products and Services comprises selecting at  
2 least one domain agent based on the determined meaning, the selected domain agent being an  
3 autonomous executable that receives, processes, and responds to requests associated with the  
4 determined context.

5           94. For example, Google describes Google Assistant as selecting, in the example below,  
6 Maps or Search to respond to requests associated with the determined context.<sup>12</sup>  
7

8           **To make it a little more complicated: If I were to ask something a bit more ambiguous, like, “Hey**  
9 **Google, what is the most popular dog?” – how would it know if I meant dog breed, dog name or the**  
10 **most popular famous dog?**

11           In the first example, Assistant has to understand that you’re looking for a location (“where is”) and what  
12 you’re looking for (“a dog park”), so it makes sense to use Maps to help. In this, Assistant would  
13 recognize it’s a more open-ended question and call upon Search instead. What this really comes down  
14 to is identifying the best interpretation. One thing that is helpful is that Assistant can rank how satisfied  
15 previous users were with similar responses to similar questions – that can help it decide how certain it  
16 is of its interpretation. Ultimately, that question would go to Search, and the results would be proposed  
17 to you with whatever formatting is best for your device.

18           Google’s own research papers describe understanding user utterances by, in part, “detecting the  
19 domain of the utterance.”<sup>13</sup>

### 20           **1. Introduction**

21           In traditional goal-oriented dialogue systems, user utterances  
22 are typically understood in terms of hand-designed semantic  
23 frames comprised of domains, intents and slots [1]. Under-  
24 standing the user utterance involves (i) detecting the domain of  
25 the utterance, (ii) classifying the intent of the utterance based on

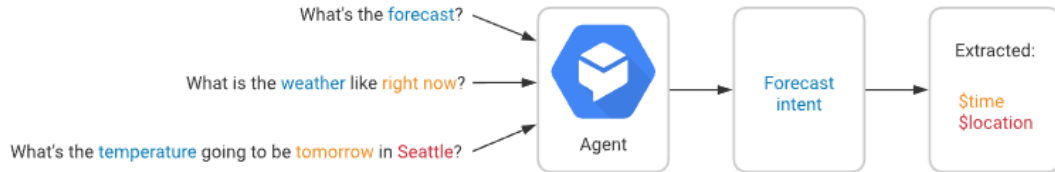
26           95. Each of the Accused Google Assistant Products and Services comprises formulating  
27 the at least one request contained in the utterance in accordance with a grammar used by the selected  
28 domain agent to process requests associated with the determined context.

<sup>12</sup> <https://blog.google/products/assistant/ask-a-techspert-assistant-questions/>

<sup>13</sup> <https://research.google.com/pubs/archive/553ee0ffc2c91cbb340860b5f109a3f413438de2.pdf>

1           96. For example, Google describes Google Assistant as formulating requests contained in  
2 the user utterance in accordance with a specific structure for a weather query.<sup>14</sup>

3 For example, you could create a weather agent that recognizes and responds to end-user questions about the weather.  
4 You would likely define an intent for questions about the weather forecast. If an end-user says "What's the forecast?",  
5 Dialogflow would match that end-user expression to the forecast intent. You can also define your intent to extract useful  
6 information from the end-user expression, like a time or location for the desired weather forecast. This extracted data is  
7 important for your system to perform a weather query for the end-user.



8           97. Google further describes how the request contained in the user utterance can “include parameters that  
9 partially or entirely fill” parameters for a request.<sup>15</sup>

10 In many cases, a previous intent match can include parameters that partially or entirely fill a corresponding scene's slot  
11 values. In these cases, all slots filled by intent parameters map to the scene's slot filling if the slot name matches the  
12 intent parameter name.

13 For example, if a user matches an intent to order a beverage by saying "I want to order a large vanilla coffee", existing  
14 slots for size, flavor, and beverage type are considered filled in the corresponding scene if that scene defines same slots.

15           98. Each of the Accused Google Assistant Products and Services comprises invoking the  
16 selected domain agent to process the formulated request.

17           98. For example, Google describes Google Assistant as invoking Maps to return results of  
18 a query.<sup>16</sup>

19 In this case, it will figure out that it's a question it needs to search for – it's not you asking to turn on your  
20 lights or anything like that. And since this is a location-based question, if your settings allow it, Assistant  
21 can send the geographic data of your device to Google Maps to return the results of which dog park is  
22 near you.  
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27 <sup>14</sup> <https://cloud.google.com/dialogflow/es/docs/intents-overview>

28 <sup>15</sup> [https://developers.google.com/assistant/conversational/build/conversation#slot\\_value\\_mapping](https://developers.google.com/assistant/conversational/build/conversation#slot_value_mapping)

<sup>16</sup> <https://blog.google/products/assistant/ask-a-techspert-assistant-questions/>

1           99. Each of the Accused Google Assistant Products and Services comprises presenting  
2 results of the processed request to the user, the presented results generated as a result of the invoked  
3 domain agent processing the formulated request.

4           100. For example, Google describes Google Assistant as providing the results “in the  
5 appropriate format for your device.”<sup>17</sup>  
6

7           Then Assistant will sort its possible answers based on things like how sure it is that it understood you  
8 correctly and how relevant its various potential answers are. It will decide on the best answer, then  
9 provide it in the appropriate format for your device. It might be just a *speaker*, in which case it can give  
10 you spoken information. If you have a display in front of you, it could show you a map with walking  
11 directions.

12           101. Plaintiff anticipates identifying additional evidence and asserted claims in accordance  
13 with the case schedule and Plaintiff’s discovery obligations.

14           102. Google has known about the ’209 Patent since at least 2012, when it was specifically  
15 disclosed to Google by VoiceBox.

16           103. Additionally, on information and belief, Google actively monitors patent activity  
17 through information that is available to the public from the United States Patent and Trademark Office  
18 and from commercial and foreign government databases (including commercial databases operated by  
19 Google). For example, on or about October 6, 2014, the U.S. Patent Office identified the ’209 Patent  
20 to Google as prior art to Google’s own United States patent application no. 13/888,770. On at least  
21 two other occasions Google has disclosed to the U.S. Patent Office the published patent application  
22 corresponding to the ’209 Patent, U.S. Application Publication No. 2004/0044516, as prior art to  
23 Google’s own U.S. patent applications. On information and belief, on one or more of those occasions  
24 Google intentionally failed to disclose to the U.S. Patent Office that the ’209 Patent had issued from  
25 that published application, with the intent to conceal Google’s knowledge of the issued ’209 Patent.  
26

27  
28 \_\_\_\_\_  
<sup>17</sup> <https://blog.google/products/assistant/ask-a-techspert-assistant-questions/>

1           104. Google knew or should have known that Google's actions infringe one or more of the  
2 claims of the '209 Patent because Google has the technical expertise to understand the scope and  
3 content of the '209 Patent, because Google was made aware of and reviewed the content of the '209  
4 Patent before or during the development of the Accused Google Assistant Products and Services,  
5 because Google developed the Accused Google Assistant Products and Services in light of its review  
6 of the Asserted Patents, because Google is a major provider of voice recognition products and services,  
7 and because Google knows the design, function, and operation of the Accused Google Assistant  
8 Products and Services, as well as the nature and extent of their use by others. Additionally,, Google  
9 had notice of its infringement of the '209 Patent at least as of the filing of the initial Complaint and  
10 has continued to infringe the '209 Patent despite clear notice of its infringement.  
11

12           105. Further, on information and belief, Google has actively induced and/or contributed to  
13 infringement of at least Claim 1 of the '209 Patent in violation of at least 35 U.S.C. § 271(b) and (c).  
14

15           106. Users of the Accused Google Assistant Products and Services directly infringe at least  
16 Claim 1 of the '209 Patent when they use the Accused Google Assistant Products and Services in the  
17 ordinary, customary, and intended way.

18           107. On information and belief, Google's inducements in violation of 35 U.S.C. § 271(b)  
19 include, without limitation and with specific intent to encourage infringement, knowingly inducing  
20 businesses and consumers to use the Accused Google Assistant Products and Services within the  
21 United States in the ordinary, customary, and intended way by, directly or through intermediaries,  
22 supplying the Accused Google Assistant Products and Services to businesses and consumers within  
23 the United States, and instructing and encouraging such businesses and consumers to use the Accused  
24 Google Assistant Products and Services in the ordinary, customary, and intended way, which Google  
25 knew infringes at least Claim 1 of the '209 Patent, or, alternatively, was willfully blind to the  
26 infringement.  
27  
28

1           108. On information and belief, Google's inducements in violation of 35 U.S.C. § 271(b)  
2 further include, without limitation and with specific intent to encourage the infringement, knowingly  
3 inducing Google's customers to commit acts of infringement with respect to the Accused Google  
4 Assistant Products and Services within the United States, by, directly or through intermediaries,  
5 instructing and encouraging such customers to import, make, use, sell, offer to sell, or otherwise  
6 commit acts of infringement with respect to the Accused Google Assistant Products and Services in  
7 the United States, which Google knew infringes at least Claim 1 of the '209 Patent, or, alternatively,  
8 was willfully blind to the infringement.  
9

10           109. On information and belief, in violation of 35 U.S.C. § 271(c), Google's contributory  
11 infringement further includes offering to sell or selling within the United States, or importing into the  
12 United States, components of the patented invention of and/or a material or apparatus for use in  
13 practicing at least Claim 1 of the '209 Patent, constituting a material part of the invention. For example,  
14 Google sells, offers to sell, and/or imports solid state memory and/or processors containing the specific  
15 routines to execute the patented methods. These components were specifically adapted for  
16 infringement and have no substantial noninfringing uses. On information and belief, Google knows  
17 and has known the same to be especially made or especially adapted for use in an infringement of the  
18 '209 Patent, and such components are not a staple article or commodity of commerce suitable for  
19 substantial noninfringing use.  
20  
21

22           110. Google is not licensed or otherwise authorized to practice the claims of the '209 Patent.

23           111. Thus, by its acts, Google has injured Dialect and is liable to Dialect for directly and/or  
24 indirectly infringing one or more claims of the '209 Patent, whether literally or under the doctrine of  
25 equivalents, including without limitation Claim 1.  
26  
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28

1           112. As a result of Google’s infringement of the ’209 Patent, Dialect has suffered monetary  
2 damages, and seeks recovery, in an amount to be proven at trial, adequate to compensate for Google’s  
3 infringement, but in no event less than a reasonable royalty with interest and costs.

4           113. On information and belief, in addition to Google’s knowledge of the ’209 Patent as set  
5 forth above both prior to and as a result of the filing of the initial Complaint, Google has had, and  
6 continues to have, knowledge that it infringes and the specific intent to infringe, through its deliberate  
7 and intentional infringement or, alternatively, through its willfully blind disregard of the ’209 Patent  
8 by knowing there was a high probability of infringement but taking deliberate actions to avoid  
9 confirming that infringement. The specific disclosure of the ’209 Patent and multiple demonstrations  
10 of VoiceBox’s NLU technology to Google years before the release of the Accused Google Assistant  
11 Products and Services, as well as the citation of the ’209 Patent and/or its published patent application  
12 as prior art to Google’s own patent applications, and Google’s policy of ignoring the intellectual  
13 property rights of others support an inference that Google’s managers, engineers, employees, and/or  
14 agents were aware or should have been aware of the ’209 Patent, yet willfully continued Google’s  
15 infringing conduct. The filing of this action has also made Google aware of the unjustifiably high risk  
16 that its actions constituted and continue to constitute infringement of the ’209 Patent. On information  
17 and belief, discovery will reveal additional facts and circumstances from which Google’s knowledge  
18 and intent to infringe (or willful indifference), both before and after the filing of this action, may be  
19 inferred.  
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23           114. Accordingly, Google’s infringement of the ’209 Patent has also been and continues to  
24 be deliberate, intentional, and willful, and this is therefore an exceptional case warranting an award of  
25 enhanced damages and attorneys’ fees and costs pursuant to 35 U.S.C. §§ 284 and 285.  
26  
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1 115. Google’s infringement of Dialect’s rights under the ’209 Patent will continue to  
2 damage Dialect, causing irreparable harm for which there is no adequate remedy at law, unless  
3 enjoined by this Court.  
4

5 **SECOND COUNT**

6 **(Infringement of U.S Patent No. 7,502,738)**

7 116. Dialect incorporates by reference the allegations set forth in Paragraphs 1–115 as  
8 though fully set forth herein.

9 117. The claims of the ’738 Patent are valid and enforceable.

10 118. The claims of the ’738 Patent are directed to patentable subject matter. Particularly, the  
11 ’738 Patent is directed to a novel, tangible voice recognition system. The inventive, tangible claimed  
12 structures of the ’738 Patent improve on the natural language processing of a natural language  
13 utterance by a user. The claimed inventions provide specific concrete solutions to the problem of  
14 speech recognition in existing systems.  
15

16 119. In violation of 35 U.S.C. § 271(a) and without authority from Plaintiff, Google has  
17 directly infringed by making, using, offering for sale, selling, and/or importing into the state of  
18 Delaware, this judicial district, and elsewhere in the United States products and services that embody  
19 the invention disclosed and claimed in the ’738 Patent, including at least the Accused Google Assistant  
20 Products and Services.  
21

22 120. Each of the Accused Google Assistant Products and Services contains elements that  
23 are identical or equivalent to each claimed element of the patented invention pointed out by at least  
24 Claim 1 of the ’738 Patent.

25 121. Each of the Accused Google Assistant Products and Services comprises a system  
26 responsive to a user generated natural language speech utterance.  
27  
28

1           122. For example, Google describes Google Assistant as responding to a user generated  
2 natural language speech utterance.<sup>18</sup>

### 3           What you can ask Google Assistant

4           You can ask Google Assistant for info and for help with everyday tasks.

5           **Important:** Some queries won't work on all devices and in all languages.

6           For ideas about what Google Assistant can help with, ask "What can you do?"

### 7           What Google Assistant can do

#### 8           Get local info

- 9           • **Weather:** What's the weather today?
- 10           • **Food:** Find pizza restaurants nearby.
- 11           • **Business hours:** Is Walgreens still open?
- 12           • **Navigation:** Navigate home.

#### 13           Plan your day

- 14           • **Traffic:** How's the traffic to work?
- 15           • **Reminders:** Remind me to do laundry this evening. Remind me to call Mom every Sunday.
- 16           • **Calendar events:** When's my first meeting today? Add a meeting to my calendar.
- 17           • **Flights:** Is United flight 1463 on time?

#### 18           Ask Google

- 19           • **Game updates:** Who won the Warriors game?
- 20           • **Calculations:** What's 20% of 80?
- 21           • **Dictionary:** What does "gregarious" mean?
- 22           • **Translations:** How do I say "Nice to meet you" in French?
- 23           • **Finance:** How's the S&P 500 doing?
- 24           • **Unit conversions:** How many kilometers in a mile?
- 25           • **Search:** Search for summer vacation ideas.
- 26           • **Image search:** Find pictures of kittens.
- 27           • **Web answer:** How do you remove wine stains from a rug?

28           123. Each of the Accused Google Assistant Products and Services comprises an agent  
29 architecture that includes a plurality of domain agents, each of the plurality of domain agents being an  
30 autonomous executable configured to receive, process, and respond to requests associated with a  
31 respective context.

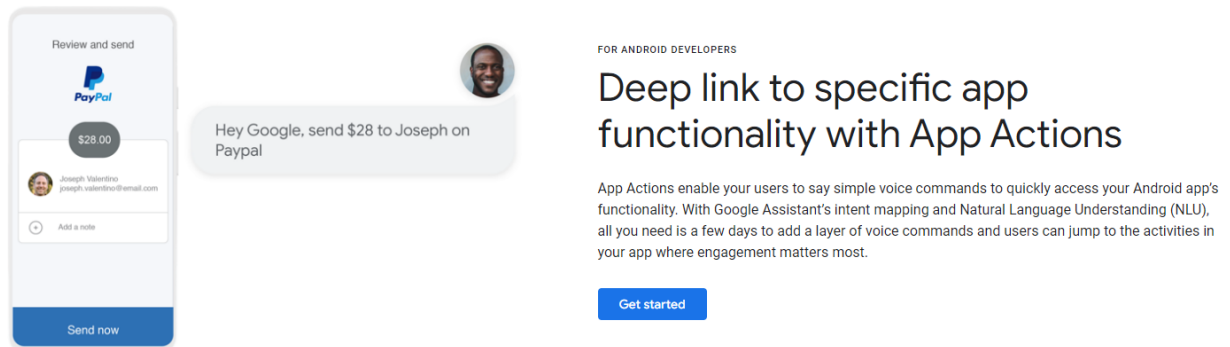
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32 <sup>18</sup> <https://support.google.com/assistant/answer/7172842?hl=en>

1 124. For example, Google describes Google Assistant as allowing developers to develop  
 2 applications in a variety of contexts.<sup>19</sup>

- 3 ▶ Common
- 4 ▶ Communications
- 5 ▶ Finance
- 6 ▶ Food and drink
- 7 ▶ Games
- 8 ▶ Health and fitness
- 9 ▶ Productivity
- 10 ▶ Shopping
- 11 ▶ Social
- 12 ▶ Transportation
- 13 ▶ Travel

14 Google further describes the ability of Google Assistant to link directly to applications.<sup>20</sup>



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 22 125. Each of the Accused Google Assistant Products and Services comprises a parser  
 23 configured to determine a context for one or more keywords contained in the utterance and to  
 24 determine a meaning of the utterance based on the determined context, wherein the parser selects at  
 25 least one of the plurality of domain agents based on the determined meaning, wherein the selected  
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27  
 28 <sup>19</sup> <https://developer.android.com/reference/app-actions/built-in-intents/bii-index>

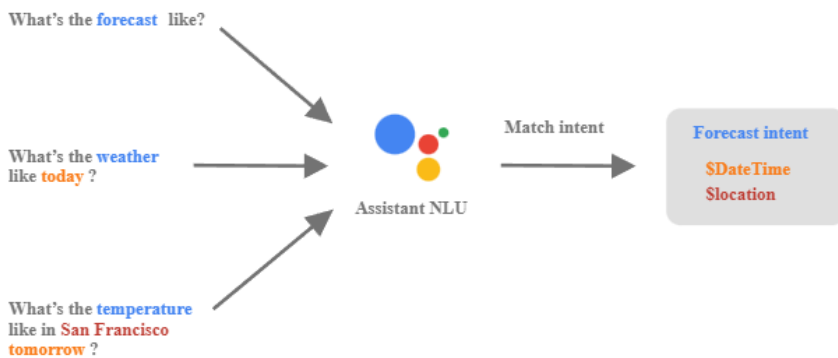
<sup>20</sup> <https://developers.google.com/assistant/app>

1 domain agent is configured to receive, process, and respond to requests associated with the determined  
 2 context.

3 126. For example, Google describes Google Assistant as determining a context for the  
 4 request in the natural language utterance based on one or more keywords.<sup>21</sup>

5 For example, consider an easy user request like, "What's the forecast like today?" Other users might also ask, "What's the  
 6 weather like right now?" or "What's the temperature like in San Francisco tomorrow?" Even with this simple question, you  
 7 can see that conversational experiences are hard to implement, because interpreting and processing natural language  
 8 requires a very robust language parser that's capable of understanding the nuances of language. Your code would have  
 9 to handle all these different types of requests (and potentially many more) to carry out the same logic: looking up some  
 forecast information for a time and location. For this reason, a traditional computer interface requires well-known,  
 standard input requests to the detriment of the user experience, because it's easier to handle highly structured input.

10 However, when you build Conversational Actions, Assistant handles the natural language understanding (NLU) for you, so  
 11 you can build open-ended, conversational interfaces easily. These interface tools let you understand the vast and varied  
 nuances of human language and translate that to standard and structured meaning that your apps and services can  
 understand. Let's take a look at how an Action might handle the previous examples for weather forecast requests.



12 Google states that its Assistant "gets text out" of the question and identifies "the semantics, i.e. the  
 13 meaning, of your question" and then selects, for example, Google Maps.<sup>22</sup>

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<sup>21</sup> <https://developers.google.com/assistant/conversational/overview>

<sup>22</sup> <https://blog.google/products/assistant/ask-a-techspert-assistant-questions/>

1 **Got it. Let's say I ask Assistant something pretty straightforward, like, "Hey Google, where's the**  
2 **closest dog park?" – how would Assistant understand what I'm saying and respond to my query?**

3 The first step is for Assistant to process that "Hey Google" and realize, "Ah, it looks like this person is  
4 now speaking to me and wants something from me."

5 Assistant picks up the rest of the audio, processes the question and gets text out of it. As it does that, it  
6 tries to understand what your sentence is about. What type of intention do you have?

7 To determine this, Assistant will parse the text of your question with another neural network that tries to  
8 identify the semantics, i.e. the meaning, of your question.

9 In this case, it will figure out that it's a question it needs to search for – it's not you asking to turn on your  
10 lights or anything like that. And since this is a location-based question, if your settings allow it, Assistant  
11 can send the geographic data of your device to Google Maps to return the results of which dog park is  
12 near you.

13 Google describes the Assistant's NLU models as understanding context, "meaning it knows exactly  
14 what you're trying to do with a command."<sup>23</sup>

## 15 A good conversation is all about context

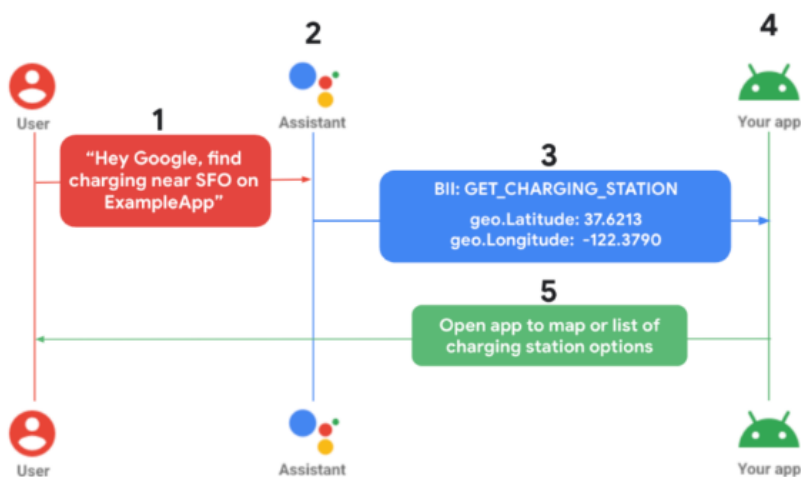
16 Assistant's timers are a popular tool, and plenty of us set more than one of them at the same time.  
17 Maybe you've got a 10-minute timer for dinner going at the same time as another to remind the kids to  
18 start their homework in 20 minutes. You might fumble and stop mid sentence to correct how long the  
19 timer should be set for, or maybe you don't use the exact same phrase to cancel it as you did to create it.  
20 Like in any conversation, context matters and Assistant needs to be flexible enough to understand what  
21 you're referring to when you ask for help.

22 To help with these kinds of conversational complexities, we fully rebuilt Assistant's NLU models so it can  
23 now more accurately understand context while also improving its "reference resolution" – meaning it  
24 knows exactly what you're trying to do with a command. This upgrade uses machine learning  
25 technology powered by [state-of-the-art BERT](#), a technology we invented in 2018 and first brought to  
26 [Search](#) that makes it possible to process words in relation to all the other words in a sentence, rather  
27 than one-by-one in order. Because of these improvements, Assistant can now respond nearly 100  
28 percent accurately to alarms and timer tasks. And over time, we'll bring this capability to other use  
cases, so Assistant can learn to better understand you.

<sup>23</sup> <https://blog.google/products/assistant/loud-and-clear-ai-improving-assistant-conversations/>

127. Each of the Accused Google Assistant Products and Services comprises an event manager configured to coordinate interaction between the parser and the agent architecture.

128. For example, Google describes Google Assistant as including software that coordinates interactions between the components of the system.<sup>24</sup>



1. A user triggers Assistant and makes a voice request for a specific app.
2. Assistant matches the request to a pre-trained model (BII), and extracts any parameters supported by the BII.
3. In this example, Assistant matches the query to the `GET_CHARGING_STATION` BII, extracts the location parameter "SFO", and translates the location to its geo coordinates.
4. The app is triggered via its fulfillment definition for this BII.
5. The app processes the fulfillment, displaying charging station options in the driver's infotainment system.

129. Each of the Accused Google Assistant Products and Services comprises an update manager that enables the user to purchase one or more domain agents from a third party on a one-time or subscription basis.

130. For example, based on public reporting, Google Assistant has allowed app makers to "sell subscriptions directly to users" since October 3, 2018.<sup>25</sup>

<sup>24</sup> <https://developer.android.com/guide/app-actions/cars>

<sup>25</sup> <https://venturebeat.com/ai/google-assistant-developers-can-now-sell-subscriptions/>










# Google Assistant developers can now sell subscriptions

Starting today, developers creating voice apps for Google Assistant can make more visual experiences and sell subscriptions directly to users during conversations with the Assistant on Smart Displays, smartphones, and Home speakers.





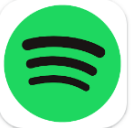



Google provides applications, including those with App Actions that permit subscription purchases through the Google Play store.<sup>26</sup>

## Top charts

Top free    Top grossing    Top paid

1	 Temu: Shop Like a Billionaire Shopping 4.7 ★	4	 WhatsApp Messenger Communication 4.3 ★	7	 Local News: Breaking & Latest News & Magazines 4.5 ★
2	 SHEIN-Shopping Online Shopping 4.7 ★	5	 Instagram Social 3.9 ★	8	 Snapchat Communication 4.2 ★
3	 TikTok Social 4.4 ★	6	 Cash App Finance 4.6 ★	9	 Messenger Communication 4.1 ★

## Recommended for you

							
Google Photos 4.5 ★	Gmail 4.2 ★	YouTube 4.2 ★	Google Earth 4.3 ★	Spotify: Music, Podcasts, Lit 4.4 ★	Adobe Acrobat Reader: Edit PDF 4.6 ★	Google Maps 4.1 ★	Google Calendar 4.2 ★

131. Google has known about the '738 Patent since at least 2012, when it was specifically disclosed to Google by VoiceBox.

<sup>26</sup> [https://play.google.com/store/apps?hl=en\\_US&gl=US&pli=1](https://play.google.com/store/apps?hl=en_US&gl=US&pli=1)

1           132. Additionally, on information and belief, Google actively monitors patent activity  
2 through information that is available to the public from the United States Patent and Trademark Office  
3 and from commercial and foreign government databases (including commercial databases operated by  
4 Google). For example, on or about October 6, 2014, the U.S. Patent Office identified the '209 Patent,  
5 to which the '738 Patent claims priority, to Google as prior art to Google's own United States patent  
6 application no. 13/888,770. On information and belief, Google was thereafter aware of the related '738  
7 Patent.  
8

9           133. Google knew or should have known that Google's actions infringe one or more of the  
10 claims of the '738 Patent because Google has the technical expertise to understand the scope and  
11 content of the '738 Patent, because Google was made aware of and reviewed the content of the '738  
12 Patent before or during the development of the Accused Google Assistant Products and Services,  
13 because Google developed the Accused Google Assistant Products and Services in light of its review  
14 of the Asserted Patents, because Google is a major provider of voice recognition products and services,  
15 and because Google knows the design, function, and operation of the Accused Google Assistant  
16 Products and Services, as well as the nature and extent of their use by others. Additionally, Google  
17 had notice of its infringement of the '738 Patent at least as of the filing of the initial Complaint and  
18 has continued to infringe the '738 Patent despite clear notice of its infringement.  
19

20           134. Further, on information and belief, Google has actively induced and/or contributed to  
21 infringement of at least Claim 1 of the '738 Patent in violation of at least 35 U.S.C. § 271(b), (c), and  
22 (f).  
23

24           135. Users of the Accused Google Assistant Products and Services directly infringe at least  
25 Claim 1 of the '738 Patent when they use the Accused Google Assistant Products and Services in the  
26 ordinary, customary, and intended way.  
27  
28



1           136. On information and belief, Google's inducements in violation of 35 U.S.C. § 271(b)  
2 include, without limitation and with specific intent to encourage infringement, knowingly inducing  
3 businesses and consumers to use the Accused Google Assistant Products and Services within the  
4 United States in the ordinary, customary, and intended way by, directly or through intermediaries,  
5 supplying the Accused Google Assistant Products and Services to businesses and consumers within  
6 the United States, and instructing and encouraging such businesses and consumers to use the Accused  
7 Google Assistant Products and Services in the ordinary, customary, and intended way, which Google  
8 knew infringes at least Claim 1 of the '738 Patent, or, alternatively, was willfully blind to the  
9 infringement.  
10

11           137. On information and belief, Google's inducements in violation of 35 U.S.C. § 271(b)  
12 further include, without limitation and with specific intent to encourage the infringement, knowingly  
13 inducing Google's customers to commit acts of infringement with respect to the Accused Google  
14 Assistant Products and Services within the United States, by, directly or through intermediaries,  
15 instructing and encouraging such customers to import, make, use, sell, offer to sell, or otherwise  
16 commit acts of infringement with respect to the Accused Google Assistant Products and Services in  
17 the United States, which Google knew infringes at least Claim 1 of the '738 Patent, or, alternatively,  
18 was willfully blind to the infringement.  
19

20           138. On information and belief, in violation of 35 U.S.C. § 271(c), Google's contributory  
21 infringement further includes offering to sell or selling within the United States, or importing into the  
22 United States, components of the patented invention of and/or a material or apparatus for use in  
23 practicing at least Claim 1 of the '738 Patent, constituting a material part of the invention. For example,  
24 Google sells, offers to sell, and/or imports solid state memory and/or processors containing the specific  
25 routines that embody the claimed system elements when executed. These components were  
26 specifically adapted for infringement and have no substantial noninfringing uses. On information and  
27  
28

1 belief, Google knows and has known the same to be especially made or especially adapted for use in  
2 an infringement of the '738 Patent, and such components are not a staple article or commodity of  
3 commerce suitable for substantial noninfringing use.

4 139. On information and belief, in violation of 35 U.S.C. § 271(f)(1), Google's infringement  
5 further includes without authority supplying or causing to be supplied in or from the United States all  
6 or a substantial portion of the components of the patented invention of at least Claim 1 of the '738  
7 Patent, where such components are uncombined in whole or in part, in such manner as to actively  
8 induce the combination of such components outside of the United States in a manner that would  
9 infringe the patent if such combination occurred within the United States.

10 140. On information and belief, in violation of 35 U.S.C. § 271(f)(2), Google's infringement  
11 further includes without authority supplying or causing to be supplied in or from the United States  
12 components of the patented invention of at least Claim 1 of the '738 Patent that are especially made  
13 or especially adapted for use in the invention and not staple articles or commodities of commerce  
14 suitable for substantial noninfringing use, where such components are uncombined in whole or in part,  
15 knowing that such components are so made or adapted and intending that such components will be  
16 combined outside of the United States in a manner that would infringe the patent if such combination  
17 occurred within the United States.

18 141. Google is not licensed or otherwise authorized to practice the claims of the '738 Patent.

19 142. Thus, by its acts, Google has injured Dialect and is liable to Dialect for directly and/or  
20 indirectly infringing one or more claims of the '738 Patent, whether literally or under the doctrine of  
21 equivalents, including without limitation Claim 1.

22 143. As a result of Google's infringement of the '738 Patent, Dialect has suffered monetary  
23 damages, and seeks recovery, in an amount to be proven at trial, adequate to compensate for Google's  
24 infringement, but in no event less than a reasonable royalty with interest and costs.

1 144. On information and belief, in addition to Google’s knowledge of the ’738 Patent as set  
2 forth above both prior to and as a result of the filing of the initial Complaint, Google has had, and  
3 continues to have, knowledge that it infringes and the specific intent to infringe, through its deliberate  
4 and intentional infringement or, alternatively, through its willfully blind disregard of the ’738 Patent  
5 by knowing there was a high probability of infringement but taking deliberate actions to avoid  
6 confirming that infringement. The specific disclosure of the ’738 Patent and multiple demonstrations  
7 of VoiceBox’s NLU technology to Google years before the release of the Accused Google Assistant  
8 Products and Services and Google’s policy of ignoring the intellectual property rights of others  
9 supports an inference that Google’s managers, engineers, employees, and/or agents were aware or  
10 should have been aware of the ’738 Patent, yet willfully continued Google’s infringing conduct. The  
11 filing of this action has also made Google aware of the unjustifiably high risk that its actions  
12 constituted and continue to constitute infringement of the ’738 Patent. On information and belief,  
13 discovery will reveal additional facts and circumstances from which Google’s knowledge and intent  
14 to infringe (or willful indifference), both before and after the filing of this action, may be inferred.  
15

16  
17 145. Accordingly, Google’s infringement of the ’738 Patent has also been and continues to  
18 be deliberate, intentional, and willful, and this is therefore an exceptional case warranting an award of  
19 enhanced damages and attorneys’ fees and costs pursuant to 35 U.S.C. §§ 284 and 285.  
20

21 146. Google’s infringement of Dialect’s rights under the ’738 Patent will continue to  
22 damage Dialect, causing irreparable harm for which there is no adequate remedy at law, unless  
23 enjoined by this Court.  
24

25 **THIRD COUNT**

26 **(Infringement of U.S Patent No. 7,640,160)**

27 147. Dialect incorporates by reference the allegations set forth in Paragraphs 1–122 as  
28 though fully set forth herein.

1           148. The claims of the '160 Patent are valid and enforceable.

2           149. The claims of the '160 Patent are directed to patentable subject matter. Particularly, the  
3 '160 Patent is directed to a novel, tangible voice recognition system. The inventive, tangible claimed  
4 structures of the '160 Patent improve on the natural language processing of a natural language  
5 utterance by a user. The claimed inventions provide specific concrete solutions to the problem of  
6 speech recognition in existing systems.  
7

8           150. In violation of 35 U.S.C. § 271(a) and without authority from Plaintiff, Google has  
9 directly infringed by making, using, offering for sale, selling, and/or importing into the state of  
10 Delaware, this judicial district, and elsewhere in the United States products and services that embody  
11 the invention disclosed and claimed in the '160 Patent, including at least the Accused Google Assistant  
12 Products and Services.  
13

14           151. Each of the Accused Google Assistant Products and Services contains elements that  
15 are identical or equivalent to each claimed element of the patented invention pointed out by at least  
16 Claim 12 of the '160 Patent.

17           152. Each of the Accused Google Assistant Products and Services comprises a method for  
18 interpreting natural language utterances using knowledge-enhanced speech recognition engine,  
19 wherein the knowledge-enhanced speech recognition engine is configured to determine an intent and  
20 correct false recognitions of the natural language utterances.  
21

22           153. For example, Google describes Google Assistant as responding to a user generated  
23 natural language speech utterance.<sup>27</sup>  
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25  
26  
27

28 <sup>27</sup> <https://support.google.com/assistant/answer/7172842?hl=en>

1 **What you can ask Google Assistant**

2 You can ask Google Assistant for info and for help with everyday tasks.

3 **Important:** Some queries won't work on all devices and in all languages.

4 For ideas about what Google Assistant can help with, ask "What can you do?"

5 **What Google Assistant can do**

6 **Get local info**

- 7 • **Weather:** What's the weather today?
- 8 • **Food:** Find pizza restaurants nearby.
- 9 • **Business hours:** Is Walgreens still open?
- 10 • **Navigation:** Navigate home.

11 **Plan your day**

- 12 • **Traffic:** How's the traffic to work?
- 13 • **Reminders:** Remind me to do laundry this evening. Remind me to call Mom every Sunday.
- 14 • **Calendar events:** When's my first meeting today? Add a meeting to my calendar.
- 15 • **Flights:** Is United flight 1463 on time?

16 **Ask Google**

- 17 • **Game updates:** Who won the Warriors game?
- 18 • **Calculations:** What's 20% of 80?
- 19 • **Dictionary:** What does "gregarious" mean?
- 20 • **Translations:** How do I say "Nice to meet you" in French?
- 21 • **Finance:** How's the S&P 500 doing?
- 22 • **Unit conversions:** How many kilometers in a mile?
- 23 • **Search:** Search for summer vacation ideas.
- 24 • **Image search:** Find pictures of kittens.
- 25 • **Web answer:** How do you remove wine stains from a rug?

26 Google further describes Google Assistant as capable of determining the best interpretation of an  
27 ambiguous query.<sup>28</sup>

28 <sup>28</sup> <https://blog.google/products/assistant/ask-a-techspert-assistant-questions/>

1 **To make it a little more complicated: If I were to ask something a bit more ambiguous, like, “Hey**  
 2 **Google, what is the most popular dog?” – how would it know if I meant dog breed, dog name or the**  
 3 **most popular famous dog?**

4 In the first example, Assistant has to understand that you’re looking for a location (“where is”) and what  
 5 you’re looking for (“a dog park”), so it makes sense to use Maps to help. In this, Assistant would  
 6 recognize it’s a more open-ended question and call upon Search instead. What this really comes down  
 7 to is identifying the best interpretation. One thing that is helpful is that Assistant can rank how satisfied  
 8 previous users were with similar responses to similar questions – that can help it decide how certain it  
 9 is of its interpretation. Ultimately, that question would go to Search, and the results would be proposed  
 10 to you with whatever formatting is best for your device.

11 It’s also worth noting that there’s a group within the Assistant team that works on developing its  
 12 personality, including by writing answers to common get-to-know-you questions like the one you posed  
 13 about Assistant’s favorite food.

14 154. Each of the Accused Google Assistant Products and Services comprises receiving a  
 15 transcription of a natural language utterance at a computer comprising the knowledge-enhanced  
 16 speech recognition engine.

17 155. For example, Google describes Google Assistant as processing “audio of someone  
 18 speaking” and “turn[ing] it into text.”<sup>29</sup>

19 For Assistant, a deep neural network can receive an input, like the audio of someone speaking, and  
 20 process that information across a stack of layers to turn it into text. This is what we call “speech  
 21 recognition.” Then, the text is processed by another stack of layers to parse it into pieces of information  
 22 that help the Assistant understand what you need and help you by displaying a result or taking an action  
 23 on your behalf. This is what we call “natural language processing.”

24 156. Each of the Accused Google Assistant Products and Services comprises identifying one  
 25 or more contexts that completely or partially match one or more text combinations contained in the  
 26 transcription, wherein identifying the matching contexts includes comparing the text combinations  
 27 against the grammar expression entries in the context description grammar and against one or more  
 28 expected contexts stored in a context stack.

<sup>29</sup> <https://blog.google/products/assistant/ask-a-techspert-assistant-questions/>

1           157. For example, Google describes Google Assistant as “trying to understand” a user’s  
2 intent by parsing “the text of your question” to identify the semantics and by sorting “possible answers  
3 based on things like how sure it is that it understood you correctly.”<sup>30</sup>

4           **Got it. Let’s say I ask Assistant something pretty straightforward, like, “Hey Google, where’s the  
5 closest dog park?” – how would Assistant understand what I’m saying and respond to my query?**

6           The first step is for Assistant to process that “Hey Google” and realize, “Ah, it looks like this person is  
7 now speaking to me and wants something from me.”

8           Assistant picks up the rest of the audio, processes the question and gets text out of it. As it does that, it  
9 tries to understand what your sentence is about. What type of intention do you have?

10          To determine this, Assistant will parse the text of your question with another neural network that tries to  
11 identify the semantics, i.e. the meaning, of your question.

12          In this case, it will figure out that it’s a question it needs to search for – it’s not you asking to turn on your  
13 lights or anything like that. And since this is a location-based question, if your settings allow it, Assistant  
14 can send the geographic data of your device to Google Maps to return the results of which dog park is  
15 near you.

16          Then Assistant will sort its possible answers based on things like how sure it is that it understood you  
17 correctly and how relevant its various potential answers are. It will decide on the best answer, then  
18 provide it in the appropriate format for your device. It might be just a *speaker*, in which case it can give  
19 you spoken information. If you have a display in front of you, it could show you a map with walking  
20 directions.

21          Google further describes that types of information Google Assistant uses in identifying possible  
22 interpretations of a user’s text.<sup>31</sup>

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28          <sup>30</sup> <https://blog.google/products/assistant/ask-a-techspert-assistant-questions/>

<sup>31</sup> <https://developers.google.com/assistant/howassistantworks/responses>

1 If you interact with Assistant by voice, our speech recognition technology converts your request to text. Next, Assistant analyzes the  
2 text, in combination with useful information such as recent requests or the type of device you are using, to identify possible  
interpretations.

3 For example, if you say "Hey Google, stop," you might want to stop one of two timers that are running, music that's playing, or a routine  
4 that's running. You might also want to see search results for "Stop," or something else entirely.

5 To weigh the options, Assistant compiles a list of the different interpretations of your request and how it would respond to each one.  
The next step is to rank these options to find the best way to fulfill your request.

## 6 Ranking the available responses

7 Many signals help Assistant rank the available responses, including the following main factors:

- 8 • How sure Assistant is that it understood what you asked.
- 9 • Whether a response is actually available for a particular interpretation of your request.
- 10 • How satisfied previous users were with a particular response to similar requests.
- 11 • How recently the response was created, to help you get a variety of fresh, high-quality responses.
- 12 • How well a response works on the device that you are using. For example, responses that are optimized for devices with  
13 screens are likely to be ranked lower on speakers. On a partner device where Assistant is built-in, if you ask for something  
specific to that device, such as changing the volume or playing a movie, the device manufacturer may handle some or all of the  
response, according to what the partner decides is the best user experience.
- 14 • What else you asked for recently. For example, if you say, "Hey Google, start a five minute timer," and then shortly after say, "Hey  
Google, stop," Assistant may use your earlier request to understand what you mean.
- 15 • What you are currently doing on your device, such as which app you have open when you ask Assistant for help, or what  
16 Assistant is already helping you with. For example, if you are listening to music and you say "Hey Google, skip," Assistant jumps  
to the next song. Similarly, if you are part of the way through making a restaurant reservation using Assistant, it prioritizes  
17 completing the reservation above other possible responses.
- 18 • In limited circumstances, some high-quality responses may be manually curated to rank higher, for the purpose of improving the  
user experience. For example, to help users get timely information about COVID-19 and mitigate misinformation that could risk  
19 public safety, we may curate information from authoritative sources like the World Health Organization and governmental health  
authorities.

20 Google describes the Assistant's NLU models as understanding context, "meaning it knows exactly  
21 what you're trying to do with a command."<sup>32</sup>

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<sup>32</sup> <https://blog.google/products/assistant/loud-and-clear-ai-improving-assistant-conversations/>



## A good conversation is all about context

Assistant's timers are a popular tool, and plenty of us set more than one of them at the same time. Maybe you've got a 10-minute timer for dinner going at the same time as another to remind the kids to start their homework in 20 minutes. You might fumble and stop mid sentence to correct how long the timer should be set for, or maybe you don't use the exact same phrase to cancel it as you did to create it. Like in any conversation, context matters and Assistant needs to be flexible enough to understand what you're referring to when you ask for help.

To help with these kinds of conversational complexities, we fully rebuilt Assistant's NLU models so it can now more accurately understand context while also improving its "reference resolution" – meaning it knows exactly what you're trying to do with a command. This upgrade uses machine learning technology powered by [state-of-the-art BERT](#), a technology we invented in 2018 and first brought to [Search](#) that makes it possible to process words in relation to all the other words in a sentence, rather than one-by-one in order. Because of these improvements, Assistant can now respond nearly 100 percent accurately to alarms and timer tasks. And over time, we'll bring this capability to other use cases, so Assistant can learn to better understand you.

158. Each of the Accused Google Assistant Products and Services comprises scoring each of the identified matching contexts.

159. For example, Google describes Google Assistant as ranking different interpretations of the user's request.<sup>33</sup>

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<sup>33</sup> <sup>33</sup> <https://developers.google.com/assistant/howassistantworks/responses>

## Ranking the available responses

Many signals help Assistant rank the available responses, including the following main factors:

- How sure Assistant is that it understood what you asked.
- Whether a response is actually available for a particular interpretation of your request.
- How satisfied previous users were with a particular response to similar requests.
- How recently the response was created, to help you get a variety of fresh, high-quality responses.
- How well a response works on the device that you are using. For example, responses that are optimized for devices with screens are likely to be ranked lower on speakers. On a partner device where Assistant is built-in, if you ask for something specific to that device, such as changing the volume or playing a movie, the device manufacturer may handle some or all of the response, according to what the partner decides is the best user experience.
- What else you asked for recently. For example, if you say, "Hey Google, start a five minute timer," and then shortly after say, "Hey Google, stop," Assistant may use your earlier request to understand what you mean.
- What you are currently doing on your device, such as which app you have open when you ask Assistant for help, or what Assistant is already helping you with. For example, if you are listening to music and you say "Hey Google, skip," Assistant jumps to the next song. Similarly, if you are part of the way through making a restaurant reservation using Assistant, it prioritizes completing the reservation above other possible responses.
- In limited circumstances, some high-quality responses may be manually curated to rank higher, for the purpose of improving the user experience. For example, to help users get timely information about COVID-19 and mitigate misinformation that could risk public safety, we may curate information from authoritative sources like the World Health Organization and governmental health authorities.

160. Each of the Accused Google Assistant Products and Services comprises selecting the matching context having a highest score to determine a most likely context for the utterance.

161. For example, Google describes Google Assistant as selecting, for example, Search based on the rankings of available responses.<sup>34</sup>

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<sup>34</sup> <https://blog.google/products/assistant/ask-a-techspert-assistant-questions/>

1 **To make it a little more complicated: If I were to ask something a bit more ambiguous, like, “Hey**  
2 **Google, what is the most popular dog?” – how would it know if I meant dog breed, dog name or the**  
3 **most popular famous dog?**

4 In the first example, Assistant has to understand that you’re looking for a location (“where is”) and what  
5 you’re looking for (“a dog park”), so it makes sense to use Maps to help. In this, Assistant would  
6 recognize it’s a more open-ended question and call upon Search instead. What this really comes down  
7 to is identifying the best interpretation. One thing that is helpful is that Assistant can rank how satisfied  
8 previous users were with similar responses to similar questions – that can help it decide how certain it  
9 is of its interpretation. Ultimately, that question would go to Search, and the results would be proposed  
10 to you with whatever formatting is best for your device.

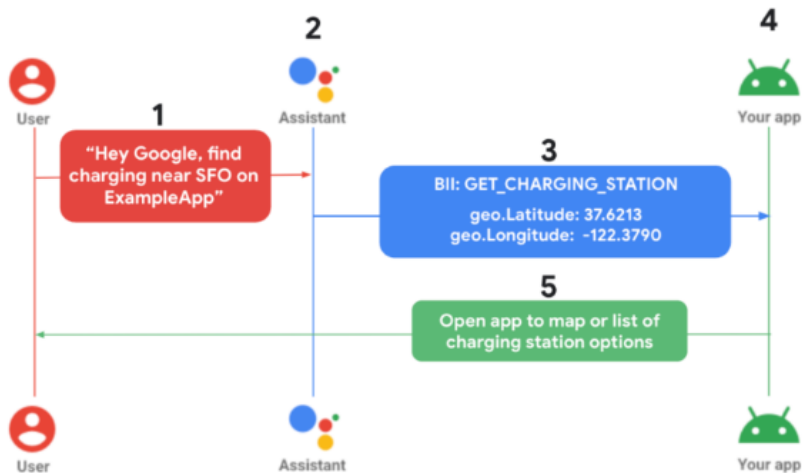
11 It’s also worth noting that there’s a group within the Assistant team that works on developing its  
12 personality, including by writing answers to common get-to-know-you questions like the one you posed  
13 about Assistant’s favorite food.

14 162. Each of the Accused Google Assistant Products and Services comprises  
15 communicating a request to a domain agent configured to process requests in the most likely context  
16 for the utterance, the request formulated using at least one grammar expression entry in the context  
17 description grammar.

18 163. For example, Google describes Google Assistant as including software that coordinates  
19 interactions between components of the system.<sup>35</sup>  
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28 <sup>35</sup> <https://developer.android.com/guide/app-actions/cars>

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1. A user triggers Assistant and makes a voice request for a specific app.
2. Assistant matches the request to a pre-trained model (BII), and extracts any parameters supported by the BII.
3. In this example, Assistant matches the query to the `GET_CHARGING_STATION` BII, extracts the location parameter "SFO", and translates the location to its geo coordinates.
4. The app is triggered via its fulfillment definition for this BII.
5. The app processes the fulfillment, displaying charging station options in the driver's infotainment system.

164. Google has known about the '160 Patent since at least 2012, when it was specifically disclosed to Google by VoiceBox.

165. Additionally, on information and belief, Google actively monitors patent activity through information that is available to the public from the United States Patent and Trademark Office and from commercial and foreign government databases (including commercial databases operated by Google). For example, on or about October 6, 2014, the U.S. Patent Office identified the '160 Patent to Google as prior art to Google's own United States patent application no. 13/888,770. On or about June 15, 2018, the U.S. Patent Office identified the '160 Patent to Google as prior art to Google's own United States patent application no. 15/597,249. On or about January 21, 2022, the U.S. Patent Office identified the '160 Patent to Google as prior art to Google's own United States patent application no. 16/609,491.

1           166. Google knew or should have known that Google’s actions infringe one or more of the  
2 claims of the ’160 Patent because Google has the technical expertise to understand the scope and  
3 content of the ’160 Patent, because Google was made aware of and reviewed the content of the ’160  
4 Patent before or during the development of the Accused Google Assistant Products and Services,  
5 because Google developed the Accused Google Assistant Products and Services in light of its review  
6 of the Asserted Patents, because Google is a major provider of voice recognition products and services,  
7 and because Google knows the design, function, and operation of the Accused Google Assistant  
8 Products and Services, as well as the nature and extent of their use by others. Additionally, Google  
9 had notice of its infringement of the ’160 Patent at least as of the filing of the initial Complaint and  
10 has continued to infringe the ’160 Patent despite clear notice of its infringement.  
11

12           167. Further, on information and belief, Google has actively induced and/or contributed to  
13 infringement of at least Claim 12 of the ’160 Patent in violation of at least 35 U.S.C. § 271(b) and (c).  
14

15           168. Users of the Accused Google Assistant Products and Services directly infringe at least  
16 Claim 12 of the ’160 Patent when they use the Accused Google Assistant Products and Services in the  
17 ordinary, customary, and intended way.

18           169. On information and belief, Google’s inducements in violation of 35 U.S.C. § 271(b)  
19 include, without limitation and with specific intent to encourage infringement, knowingly inducing  
20 businesses and consumers to use the Accused Google Assistant Products and Services within the  
21 United States in the ordinary, customary, and intended way by, directly or through intermediaries,  
22 supplying the Accused Google Assistant Products and Services to businesses and consumers within  
23 the United States, and instructing and encouraging such businesses and consumers to use the Accused  
24 Google Assistant Products and Services in the ordinary, customary, and intended way, which Google  
25 knew infringes at least Claim 12 of the ’160 Patent, or, alternatively, was willfully blind to the  
26 infringement.  
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1           170. On information and belief, Google's inducements in violation of 35 U.S.C. § 271(b)  
2 further include, without limitation and with specific intent to encourage the infringement, knowingly  
3 inducing Google's customers to commit acts of infringement with respect to the Accused Google  
4 Assistant Products and Services within the United States, by, directly or through intermediaries,  
5 instructing and encouraging such customers to import, make, use, sell, offer to sell, or otherwise  
6 commit acts of infringement with respect to the Accused Google Assistant Products and Services in  
7 the United States, which Google knew infringes at least Claim 12 of the '160 Patent, or, alternatively,  
8 was willfully blind to the infringement.  
9

10           171. On information and belief, in violation of 35 U.S.C. § 271(c), Google's contributory  
11 infringement further includes offering to sell or selling within the United States, or importing into the  
12 United States, components of the patented invention of and/or a material or apparatus for use in  
13 practicing at least Claim 12 of the '160 Patent, constituting a material part of the invention. For  
14 example, Google sells, offers to sell, and/or imports solid state memory and/or processors containing  
15 the specific routines to execute the patented methods and/or embody the claimed system elements.  
16 These components were specifically adapted for infringement and have no substantial noninfringing  
17 uses. On information and belief, Google knows and has known the same to be especially made or  
18 especially adapted for use in an infringement of the '160 Patent, and such components are not a staple  
19 article or commodity of commerce suitable for substantial noninfringing use.  
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22           172. Google is not licensed or otherwise authorized to practice the claims of the '160 Patent.

23           173. Thus, by its acts, Google has injured Dialect and is liable to Dialect for directly and/or  
24 indirectly infringing one or more claims of the '160 Patent, whether literally or under the doctrine of  
25 equivalents, including without limitation Claim 12.  
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1           174. As a result of Google's infringement of the '160 Patent, Dialect has suffered monetary  
2 damages, and seeks recovery, in an amount to be proven at trial, adequate to compensate for Google's  
3 infringement, but in no event less than a reasonable royalty with interest and costs.

4           175. On information and belief, in addition to Google's knowledge of the '160 Patent as set  
5 forth above both prior to and as a result of the filing of the initial Complaint, Google has had, and  
6 continues to have, knowledge that it infringes and the specific intent to infringe, through its deliberate  
7 and intentional infringement or, alternatively, through its willfully blind disregard of the '160 Patent  
8 by knowing there was a high probability of infringement but taking deliberate actions to avoid  
9 confirming that infringement. The specific disclosure of the '160 Patent and multiple demonstrations  
10 of VoiceBox's NLU technology to Google years before the release of the Accused Google Assistant  
11 Products and Services, as well as the citation of the '160 Patent as prior art to Google's own patent  
12 application, and Google's policy of ignoring the intellectual property rights of others support an  
13 inference that Google's managers, engineers, employees, and/or agents were aware or should have  
14 been aware of the '160 Patent, yet willfully continued Google's infringing conduct. The filing of this  
15 action has also made Google aware of the unjustifiably high risk that its actions constituted and  
16 continue to constitute infringement of the '160 Patent. On information and belief, discovery will reveal  
17 additional facts and circumstances from which Google's knowledge and intent to infringe (or willful  
18 indifference), both before and after the filing of this action, may be inferred.

19           176. Accordingly, Google's infringement of the '160 Patent has also been and continues to  
20 be deliberate, intentional, and willful, and this is therefore an exceptional case warranting an award of  
21 enhanced damages and attorneys' fees and costs pursuant to 35 U.S.C. §§ 284 and 285.

22           177. Google's infringement of Dialect's rights under the '160 Patent will continue to  
23 damage Dialect, causing irreparable harm for which there is no adequate remedy at law, unless  
24 enjoined by this Court.  
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**FOURTH COUNT**

**(Infringement of U.S Patent No. 7,693,720)**

178. Dialect incorporates by reference the allegations set forth in Paragraphs 1–177 as though fully set forth herein.

179. The claims of the '720 Patent are valid and enforceable.

180. The claims of the '720 Patent are directed to patentable subject matter. Particularly, the '720 Patent is directed to a novel, tangible voice recognition system. The inventive, tangible claimed structures of the '720 Patent improve on the natural language processing of a natural language utterance by a user. The claimed inventions provide specific concrete solutions to the problem of speech recognition in existing systems.

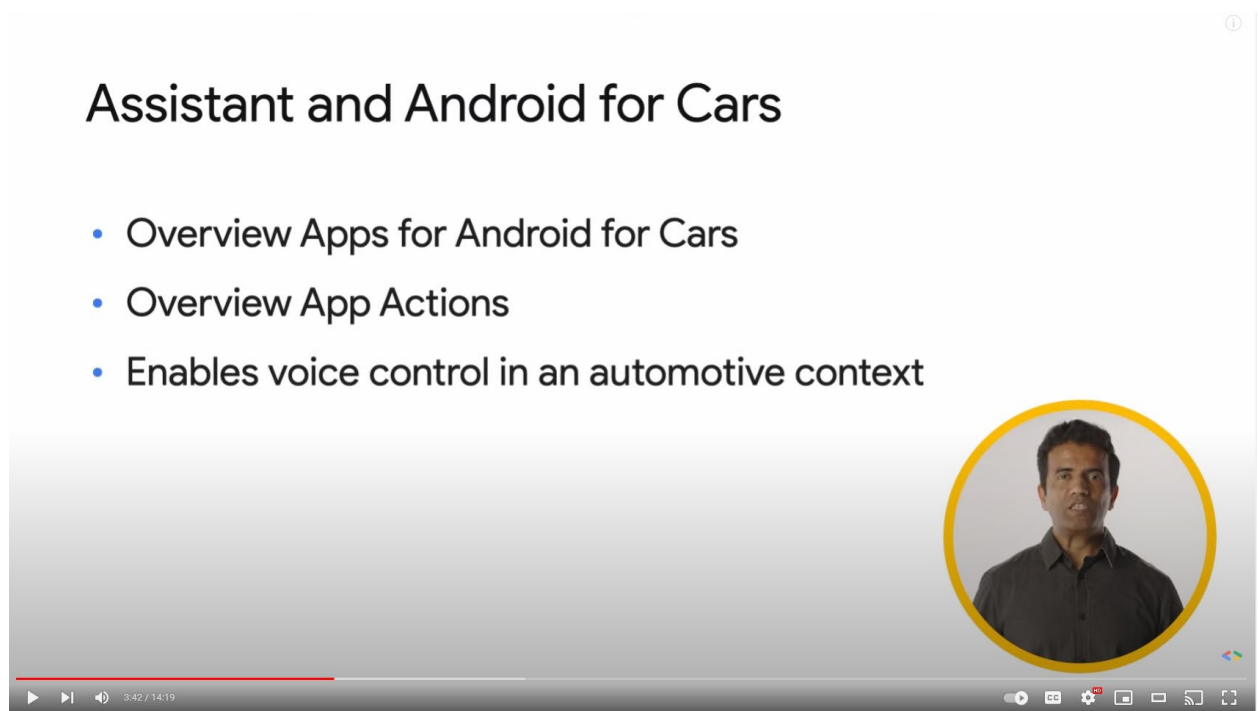
181. In violation of 35 U.S.C. § 271(a) and without authority from Plaintiff, Google has directly infringed by making, using, offering for sale, selling, and/or importing into the state of Delaware, this judicial district, and elsewhere in the United States products and services that embody the invention disclosed and claimed in the '720 Patent, including at least the Google Assistant Platform, operating via smartphones and tablets functioning in Google Assistant driving mode, or in combination with App Actions and Android software, or in combination with Android Auto software, or operating via automobile infotainment systems running Android Automotive OS software (collectively, the “Accused Automotive Products and Services”).

182. Each of the Accused Automotive Products and Services contains elements that are identical or equivalent to each claimed element of the patented invention pointed out by at least Claim 1 of the '720 Patent.

183. Each of the Accused Automotive Products and Services comprises a mobile system responsive to a user generated natural language speech utterance.



1 184. For example, Google describes how “Google Assistant enhances the Android for Cars  
2 experience with voicified apps.”<sup>36</sup>



15 Google further describes Google Assistant as responding to a user generated natural language speech  
16 utterance.<sup>37</sup>

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<sup>36</sup> <https://www.youtube.com/watch?v=MI40ImJmp7w>

<sup>37</sup> <https://support.google.com/assistant/answer/7172842?hl=en>

# 1 What you can ask Google Assistant

2 You can ask Google Assistant for info and for help with everyday tasks.

3 **Important:** Some queries won't work on all devices and in all languages.

4 For ideas about what Google Assistant can help with, ask "What can you do?"

## 5 What Google Assistant can do

### 6 Get local info

- 7 • **Weather:** What's the weather today?
- 8 • **Food:** Find pizza restaurants nearby.
- 9 • **Business hours:** Is Walgreens still open?
- 10 • **Navigation:** Navigate home.

### 11 Plan your day

- 12 • **Traffic:** How's the traffic to work?
- 13 • **Reminders:** Remind me to do laundry this evening. Remind me to call Mom every Sunday.
- 14 • **Calendar events:** When's my first meeting today? Add a meeting to my calendar.
- 15 • **Flights:** Is United flight 1463 on time?

### 16 Ask Google

- 17 • **Game updates:** Who won the Warriors game?
- 18 • **Calculations:** What's 20% of 80?
- 19 • **Dictionary:** What does "gregarious" mean?
- 20 • **Translations:** How do I say "Nice to meet you" in French?
- 21 • **Finance:** How's the S&P 500 doing?
- 22 • **Unit conversions:** How many kilometers in a mile?
- 23 • **Search:** Search for summer vacation ideas.
- 24 • **Image search:** Find pictures of kittens.
- 25 • **Web answer:** How do you remove wine stains from a rug?

26 Google further describes that Google Assistant App Actions are integrated with Android for Cars.<sup>38</sup>

## 27 Integrate with Google Assistant using App Actions

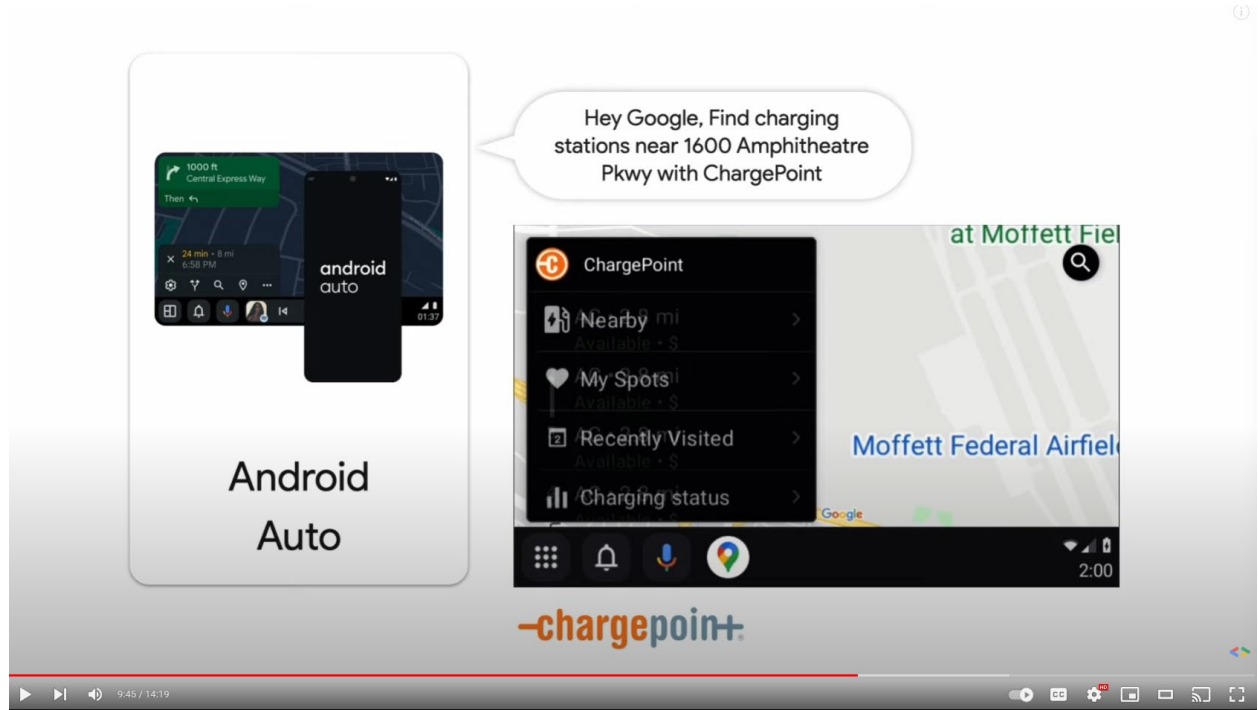
28 Voice-enable your POI app using Assistant to allow users to search for points of interest by asking things like, "Hey Google, find nearby charging stations on ExampleApp". For detailed instructions, see [App Actions for Cars](#).

185. Each of the Accused Automotive Products and Services comprises a speech unit connected to a computer device on a vehicle, wherein the speech unit receives a natural language

<sup>38</sup> <https://developer.android.com/training/cars/apps/poi>

1 speech utterance from a user and converts the received natural language speech utterance into an  
2 electronic signal.

3 186. For example, Google describes how Google Assistant with Android for Cars receives  
4 user requests and converts those into electronic signals.<sup>39</sup>  
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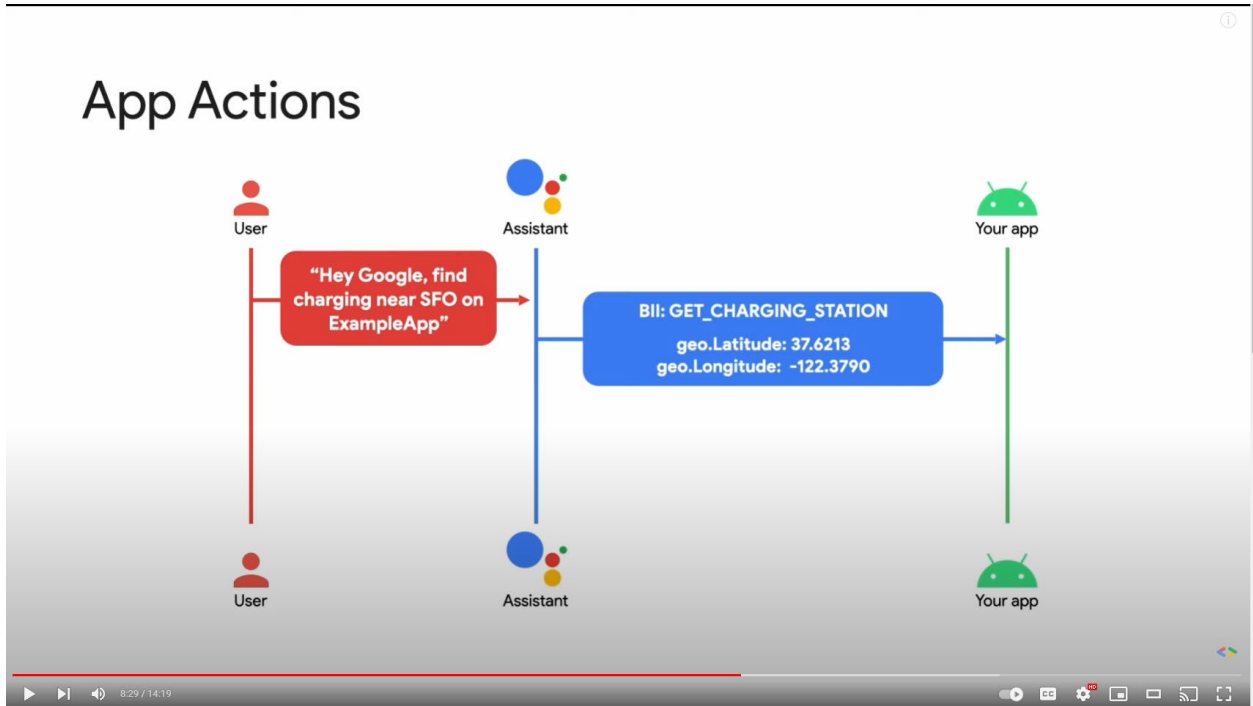
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28 <sup>39</sup> <https://www.youtube.com/watch?v=MI40ImJmp7w>



13 187. Each of the Accused Automotive Products and Services comprises a natural language  
 14 speech processing system connected to the computer device on the vehicle, wherein the natural  
 15 language speech processing system receives, processes, and responds to the electronic signal using  
 16 data received from a plurality of domain agents.

17 188. For example, Google describes how Google Assistant with Android for Cars processes  
 18 the received request to determine the appropriate software module or modules for the request and  
 19 communicates the parameters for that request to the appropriate module or modules, which then  
 20 responds to the query.<sup>40</sup>  
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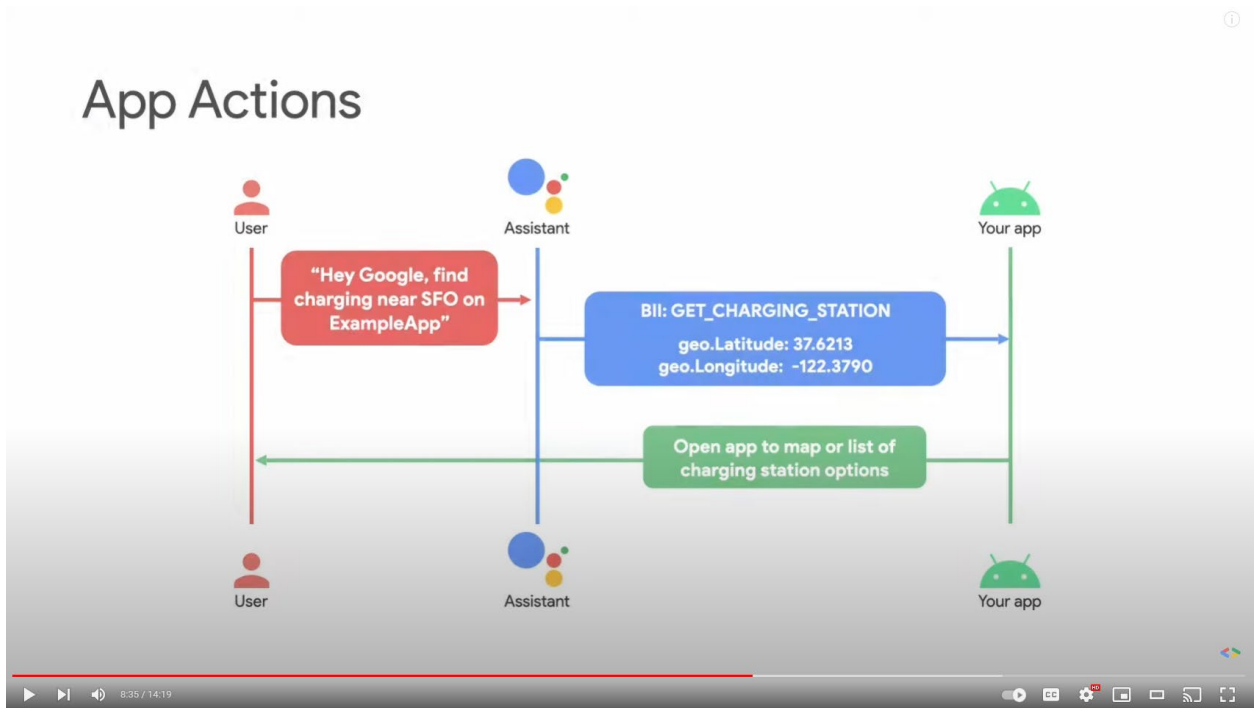
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28 <sup>40</sup> <https://www.youtube.com/watch?v=MI40ImJmp7w>

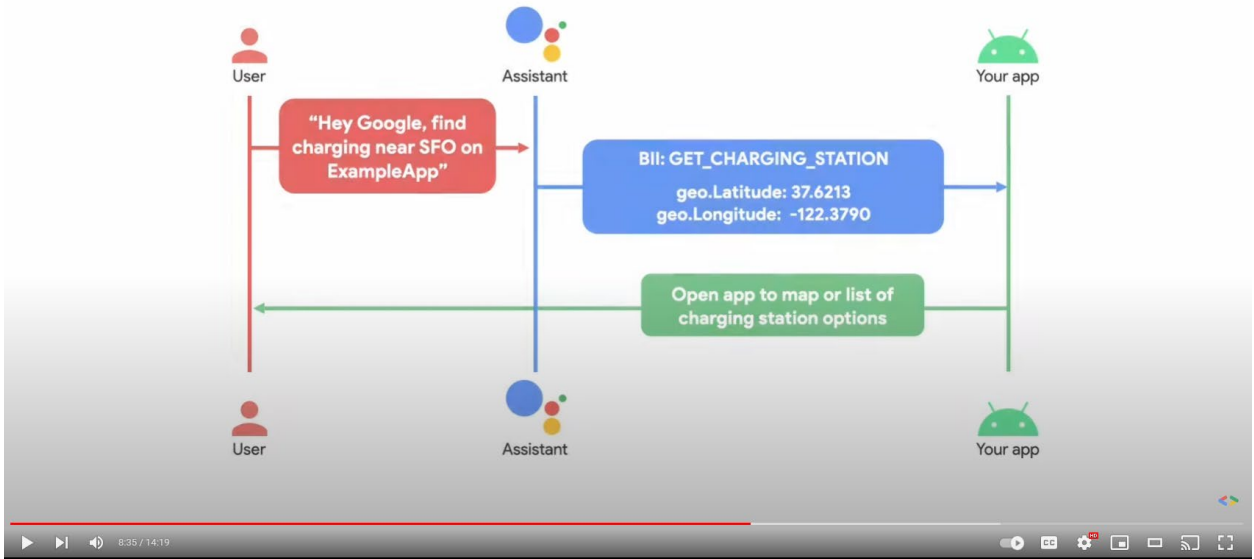


189. Each of the Accused Automotive Products and Services comprises a speech recognition engine that recognizes at least one of words or phrases from the electronic signal using at least the data received from the plurality of domain agents, wherein the data used by the speech recognition engine includes a plurality of dictionary and phrase entries that are dynamically updated based on at least a history of a current dialog and one or more prior dialogs associated with the user.

190. For example, Google describes how Google Assistant with Android for Cars recognizes at least one of words or phrases from the electronic signal, for example SFO, using data received from the appropriate module or modules.<sup>41</sup>

<sup>41</sup> <https://www.youtube.com/watch?v=MI40ImJmp7w>

# App Actions



Further, Google describes how Google Assistant uses “trainingPhrases[]” to match “interests to user input.”<sup>42</sup>

```

trainingPhrases[]    string

Training phrases allow Google's NLU to automatically match intents with user input. The more unique phrases that are provided, the better chance this intent will be matched. The following is the format of training phrase part which are annotated. Note that auto field is optional and the default behavior when auto is not specified is equivalent to auto=false. (<paramName> '<sample text>' auto=<true or false>) auto = true means the part was auto annotated by NLU. auto = false means the part was annotated by the user. This is the default when auto is not specified.
Example: "Book a flight from ($source 'San Francisco' auto=false) to ($dest 'Vancouver)"
    
```

Google further describes how Google Assistant uses previous interactions and the history of the current interaction in interpreting user intent.<sup>43</sup>

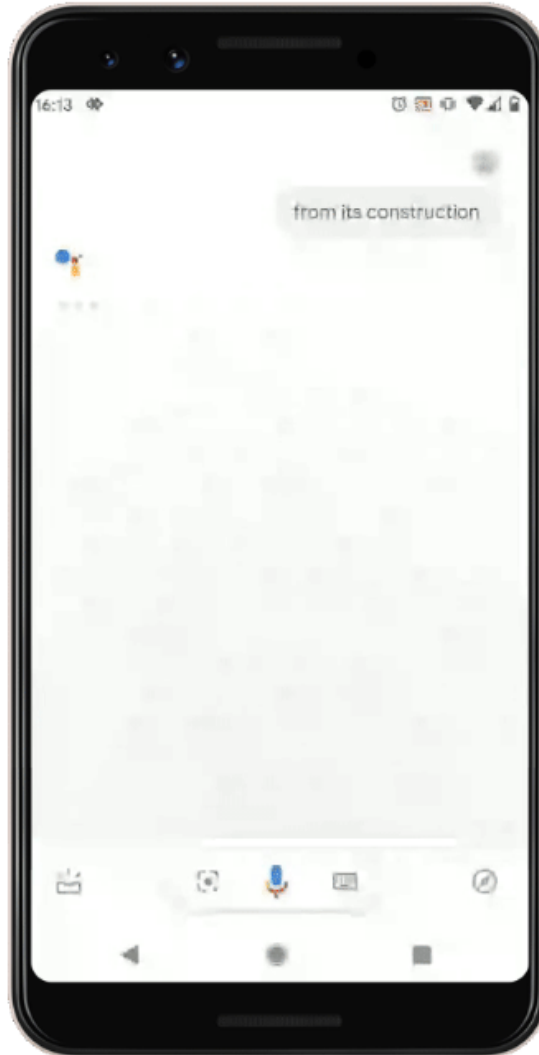
<sup>42</sup> <https://developers.google.com/assistant/actionsdk/reference/rest/Shared.Types/Intent#IntentParameter>

<sup>43</sup> <https://blog.google/products/assistant/loud-and-clear-ai-improving-assistant-conversations/>

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## More natural conversations

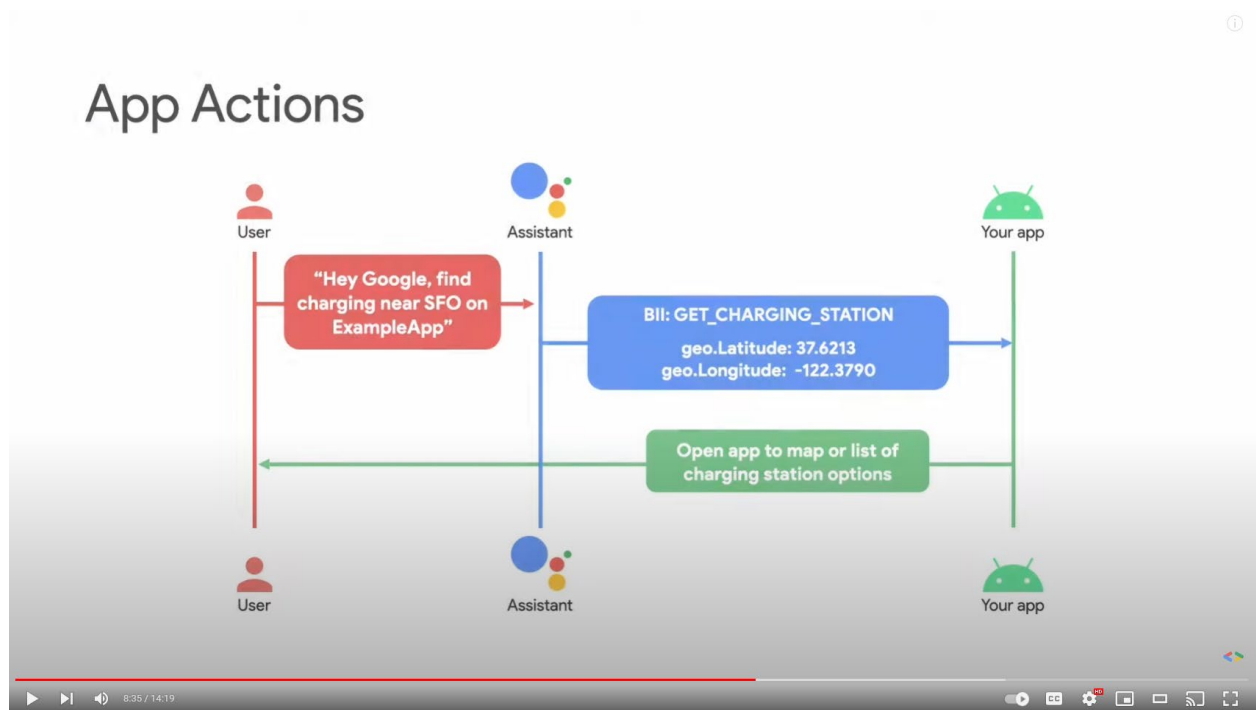
We also applied BERT to further improve the quality of your conversations. Google Assistant uses your previous interactions and understands what's currently being displayed on your smartphone or smart display to respond to any follow-up questions, letting you have a more natural, back-and-forth conversation.



If you're having a conversation with your Assistant about Miami and you want more information, it will know that when you say "show me the nicest beaches" you mean beaches in Miami. Assistant can also understand questions that are referring to what you're looking at on your smartphone or tablet screen, like [who built the first one] or queries that look incomplete like [when] or [from its construction].

191. Each of the Accused Automotive Products and Services comprises a parser that interprets the recognized words or phrases, wherein the parser uses at least the data received from the plurality of domain agents to interpret the recognized words or phrases, wherein the parser interprets the recognized words or phrases by determining a context for the natural language speech utterance; selecting at least one of the plurality of domain agents based on the determined context; and transforming the recognized words or phrases into at least one of a question or a command, wherein the at least one question or command is formulated in a grammar that the selected domain agent uses to process the formulated question or command.

192. For example, Google describes how Google Assistant with Android for Cars interprets the user's words or phrases using data received from the appropriate module or modules. For example, it selects ExampleApp based on the user's request to "find charging near SFO on ExampleApp." It then transforms the request by providing the BII information based on the recognized word SFO into a command formulated in the structure required by ExampleApp.<sup>44</sup>



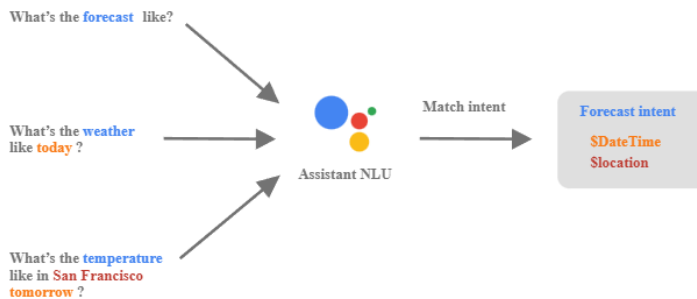
<sup>44</sup> <https://www.youtube.com/watch?v=MI40ImJmp7w>



1 Google further provides other examples in different situations, for example, requesting weather  
2 information.<sup>45</sup>

3 For example, consider an easy user request like, "What's the forecast like today?" Other users might also ask, "What's the  
4 weather like right now?" or "What's the temperature like in San Francisco tomorrow?" Even with this simple question, you  
5 can see that conversational experiences are hard to implement, because interpreting and processing natural language  
6 requires a very robust language parser that's capable of understanding the nuances of language. Your code would have  
7 to handle all these different types of requests (and potentially many more) to carry out the same logic: looking up some  
8 forecast information for a time and location. For this reason, a traditional computer interface requires well-known,  
9 standard input requests to the detriment of the user experience, because it's easier to handle highly structured input.

10 However, when you build Conversational Actions, Assistant handles the natural language understanding (NLU) for you, so  
11 you can build open-ended, conversational interfaces easily. These interface tools let you understand the vast and varied  
12 nuances of human language and translate that to standard and structured meaning that your apps and services can  
13 understand. Let's take a look at how an Action might handle the previous examples for weather forecast requests.



14 Figure 1. NLU intent matching

15 Google states that its Assistant "gets text out" of the question and identifies "the semantics, i.e. the  
16 meaning, of your question."<sup>46</sup>

17 **Got it. Let's say I ask Assistant something pretty straightforward, like, "Hey Google, where's the  
18 closest dog park?" – how would Assistant understand what I'm saying and respond to my query?**

19 The first step is for Assistant to process that "Hey Google" and realize, "Ah, it looks like this person is  
20 now speaking to me and wants something from me."

21 Assistant picks up the rest of the audio, processes the question and gets text out of it. As it does that, it  
22 tries to understand what your sentence is about. What type of intention do you have?

23 To determine this, Assistant will parse the text of your question with another neural network that tries to  
24 identify the semantics, i.e. the meaning, of your question.

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27 <sup>45</sup> <https://developers.google.com/assistant/conversational/overview>

28 <sup>46</sup> <https://blog.google/products/assistant/ask-a-techspert-assistant-questions/>

1 Google describes the Assistant’s NLU models as understanding context, “meaning it knows exactly  
2 what you’re trying to do with a command.”<sup>47</sup>

### 3 A good conversation is all about context

4 Assistant’s timers are a popular tool, and plenty of us set more than one of them at the same time.  
5 Maybe you’ve got a 10-minute timer for dinner going at the same time as another to remind the kids to  
6 start their homework in 20 minutes. You might fumble and stop mid sentence to correct how long the  
7 timer should be set for, or maybe you don’t use the exact same phrase to cancel it as you did to create it.  
8 Like in any conversation, context matters and Assistant needs to be flexible enough to understand what  
9 you’re referring to when you ask for help.

10 To help with these kinds of conversational complexities, we fully rebuilt Assistant’s NLU models so it can  
11 now more accurately understand context while also improving its “reference resolution” – meaning it  
12 knows exactly what you’re trying to do with a command. This upgrade uses machine learning  
13 technology powered by [state-of-the-art BERT](#), a technology we invented in 2018 and first brought to  
14 [Search](#) that makes it possible to process words in relation to all the other words in a sentence, rather  
15 than one-by-one in order. Because of these improvements, Assistant can now respond nearly 100  
16 percent accurately to alarms and timer tasks. And over time, we’ll bring this capability to other use  
17 cases, so Assistant can learn to better understand you.

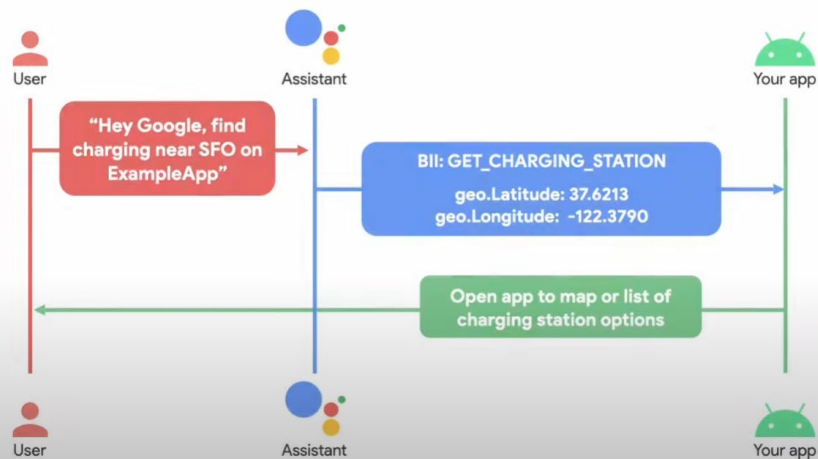
18 193. Each of the Accused Automotive Products and Services comprises an agent  
19 architecture that communicatively couples services of each of an agent manager, a system agent, the  
20 plurality of domain agents, and an agent library that includes one or more utilities that can be used by  
21 the system agent and the plurality of domain agents, wherein the selected domain agent uses the  
22 communicatively coupled services to create a response to the formulated question or command and  
23 format the response for presentation to the user.

24 194. For example, Google describes how Google Assistant with Android for Cars uses the  
25 Google Assistant infrastructure so that the ExampleApp can use the Google Assistant services to create  
26 a response to the user’s command in a format for presentation to the user.<sup>48</sup>

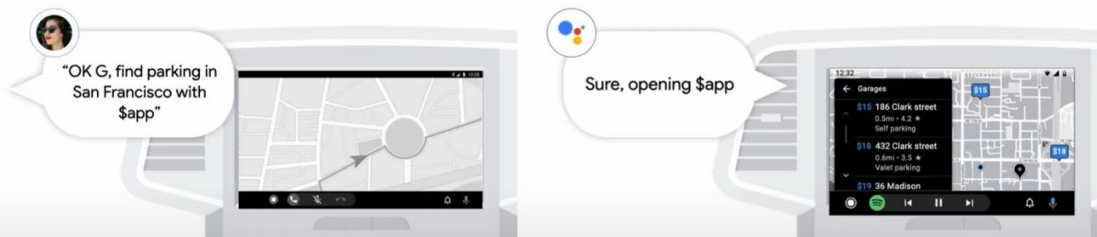
27 <sup>47</sup> <https://blog.google/products/assistant/loud-and-clear-ai-improving-assistant-conversations/>

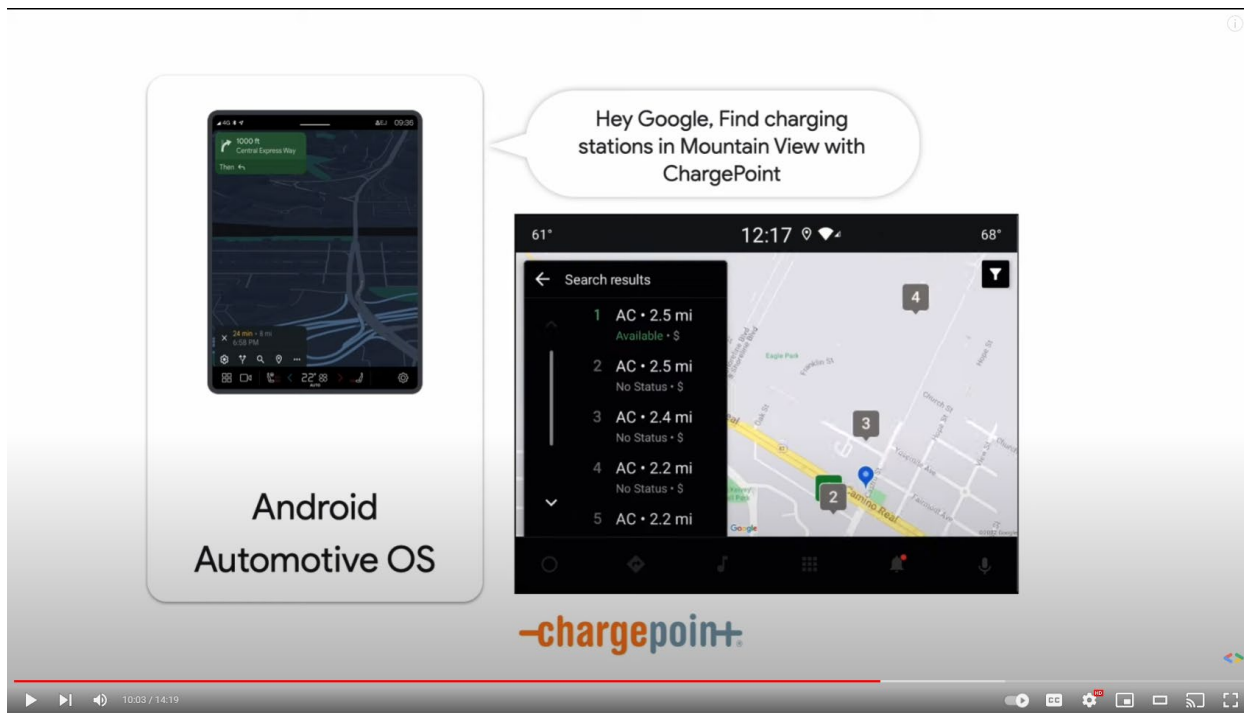
28 <sup>48</sup> <https://www.youtube.com/watch?v=Ml40lmJmp7w>

# App Actions



# Voice Support via App Actions





Further, Google describes how Google Assistant uses its software modules to provide services to formulate the response to the user in a format for presentation.<sup>49</sup>

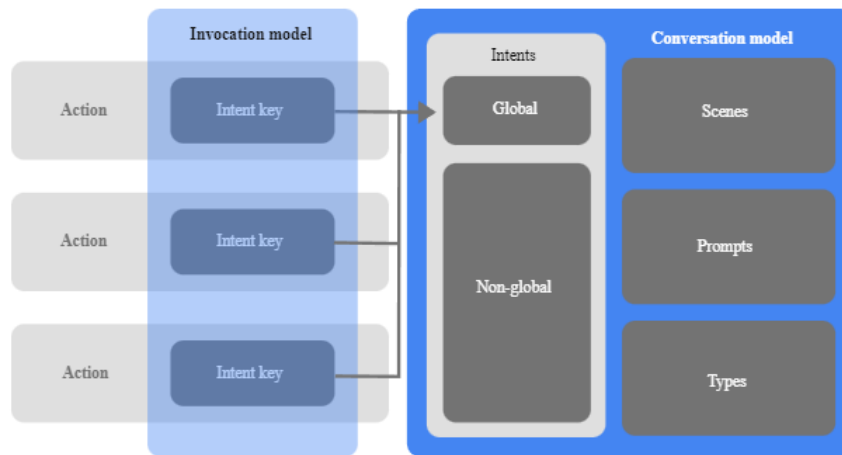
<sup>49</sup> <https://developers.google.com/assistant/conversational/actions>

## Overview

A Conversational Action is a simple object that defines an entry point (referred to as invocation) into a conversation:

- An **invocation** defines how users tell Assistant they want to start a conversation with one of your Actions. An Action's invocation is defined by a single **intent** that gets matched when users request the Action.
- A **conversation** defines how users interact with an Action after it's invoked. You build conversations with **intents**, **types**, **scenes**, and **prompts**.
- In addition, your Actions can delegate extra work to **fulfillment**, which are web services that communicate with your Actions via webhooks. This lets you do data validation, call other web services, carry out business logic, and more.

You bundle one or many Actions together, based on the use cases that are important for your users, into a logical container called an Actions project. Your Actions project contains your entire invocation model (the collection of all your invocations), which lets users start at logical places in your conversation model (all the possible things users can say and all the possible ways you respond back to users).



**Figure 1.** A collection of Actions that serve as entry points into a conversation model. Intents that are eligible for invocation are considered to be *global*.

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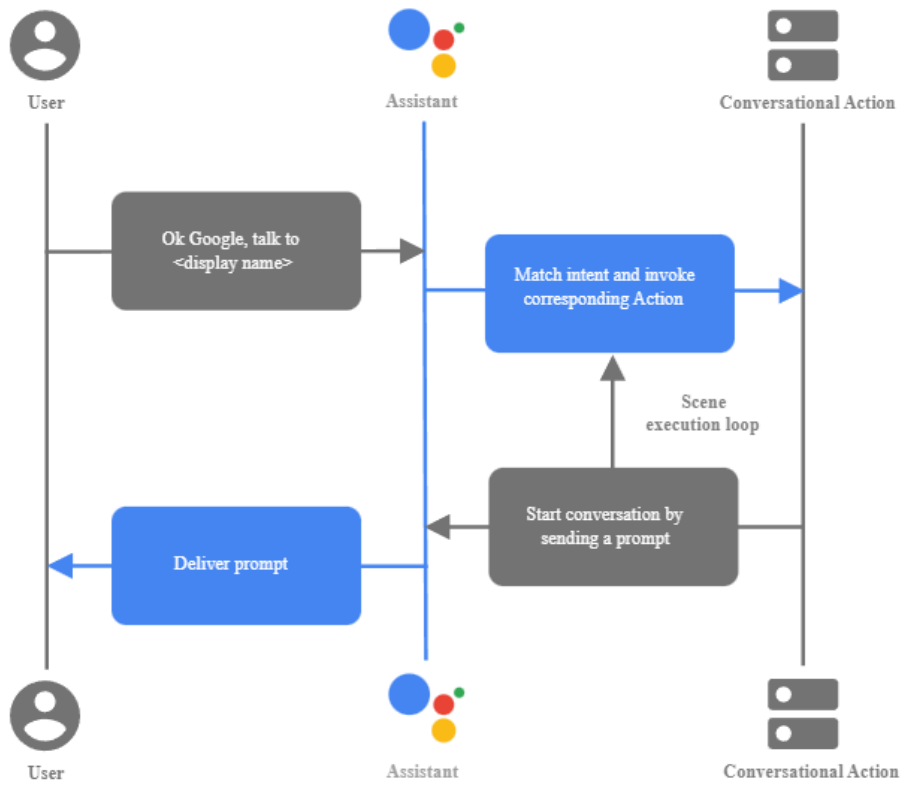


Figure 2. Example of main invocation

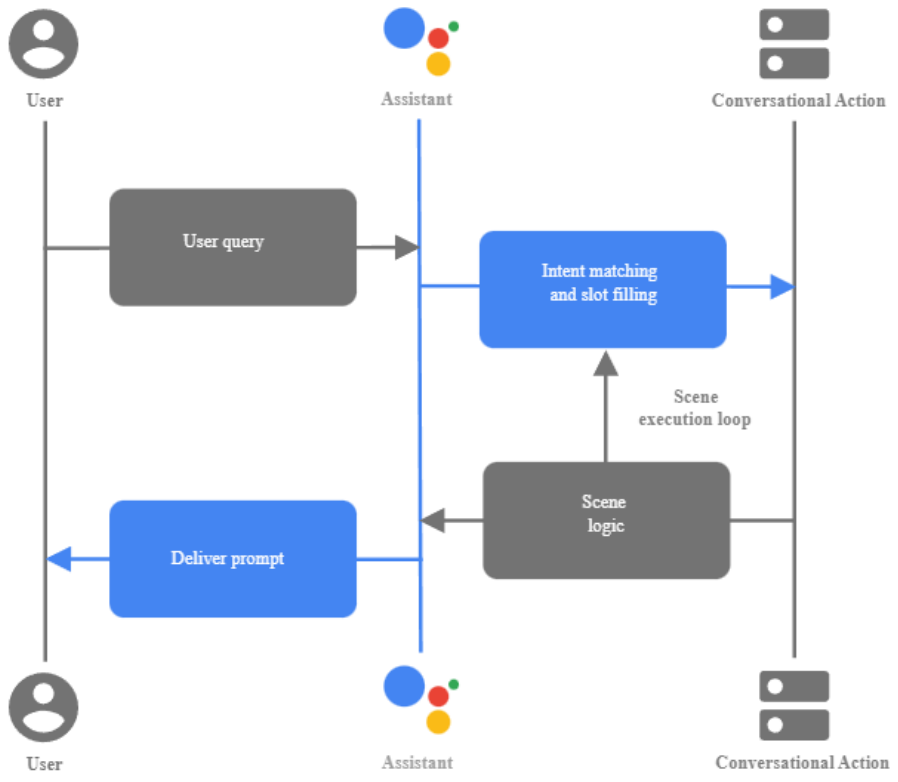
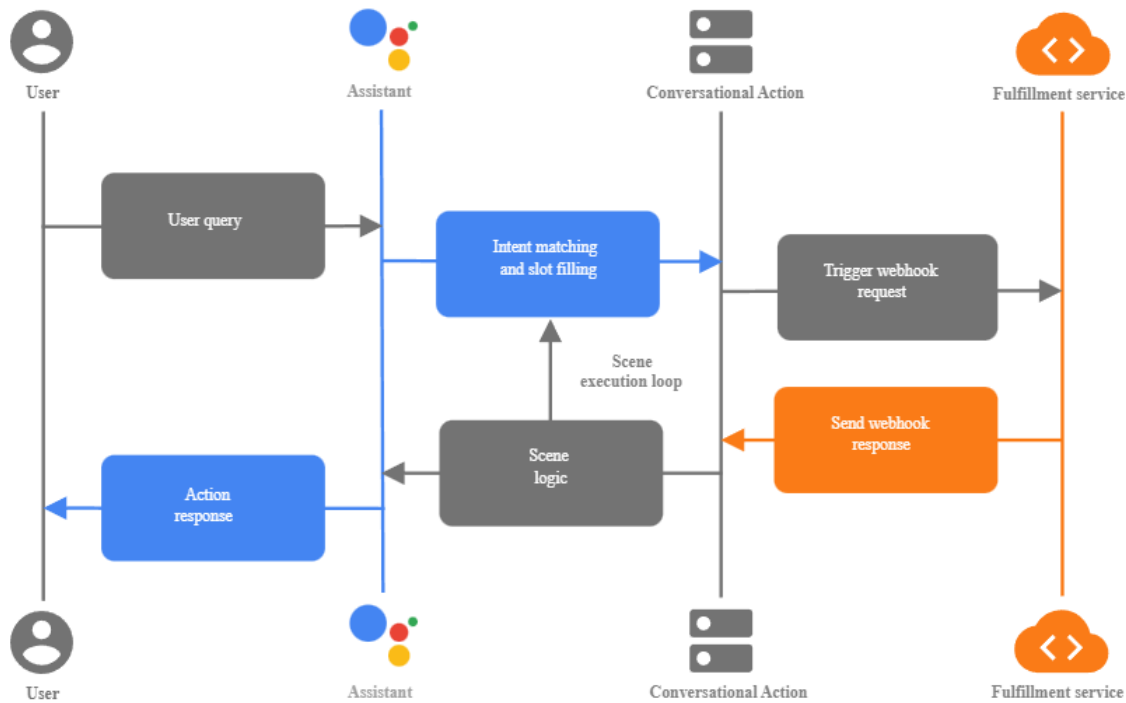


Figure 3. Example of a conversation



**Figure 4.** Example of a conversation

Figure 4 describes how you can use fulfillment to generate prompts, a common way to use fulfillment:

195. Google has known about the '720 Patent since at least 2012, when it was specifically disclosed to Google by VoiceBox.

196. Additionally, on information and belief, Google actively monitors patent activity through information that is available to the public from the United States Patent and Trademark Office and from commercial and foreign government databases (including commercial databases operated by Google). For example, on or about February 2, 2012, the U.S. Patent Office identified the '720 Patent to Google as prior art to Google's own United States patent application no. 12/692,307. On September 7, 2014, Google disclosed the '720 Patent as prior art to its own patent application no. 14/048,199. On or about March 26, 2015, the U.S. Patent Office identified the '720 Patent to Google as prior art to Google's own United States patent application no. 12/914,965.

197. Google knew or should have known that Google's actions infringe one or more of the claims of the '720 Patent because Google has the technical expertise to understand the scope and

1 content of the '720 Patent, because Google was made aware of and reviewed the content of the '720  
2 Patent before or during the development of the Accused Automotive Assistant Products and Services,  
3 because Google developed the Accused Automotive Products and Services in light of its review of the  
4 Asserted Patents, because Google is a major provider of voice recognition products and services, and  
5 because Google knows the design, function, and operation of the Accused Automotive Products and  
6 Services, as well as the nature and extent of their use by others. Additionally, Google had notice of its  
7 infringement of the '720 Patent at least as of the filing of the initial Complaint and has continued to  
8 infringe the '720 Patent despite clear notice of its infringement.  
9

10 198. Further, on information and belief, Google has actively induced and/or contributed to  
11 infringement of at least Claim 1 of the '720 Patent in violation of at least 35 U.S.C. § 271(b), (c), and  
12 (f).  
13

14 199. Users of the Accused Automotive Products and Services directly infringe at least Claim  
15 1 of the '720 Patent when they use the Accused Automotive Products and Services in the ordinary,  
16 customary, and intended way.

17 200. On information and belief, Google's inducements in violation of 35 U.S.C. § 271(b)  
18 include, without limitation and with specific intent to encourage infringement, knowingly inducing  
19 businesses and consumers to use the Accused Automotive Products and Services within the United  
20 States in the ordinary, customary, and intended way by, directly or through intermediaries, supplying  
21 the Accused Automotive Products and Services to businesses and consumers within the United States,  
22 and instructing and encouraging such businesses and consumers to use the Accused Automotive  
23 Products and Services in the ordinary, customary, and intended way, which Google knew infringes at  
24 least Claim 1 of the '720 Patent, or, alternatively, was willfully blind to the infringement.  
25

26 201. On information and belief, Google's inducements in violation of 35 U.S.C. § 271(b)  
27 further include, without limitation and with specific intent to encourage the infringement, knowingly  
28



1 inducing Google's customers to commit acts of infringement with respect to the Accused Automotive  
2 Products and Services within the United States, by, directly or through intermediaries, instructing and  
3 encouraging such customers to import, make, use, sell, offer to sell, or otherwise commit acts of  
4 infringement with respect to the Accused Automotive Products and Services in the United States,  
5 which Google knew infringes at least Claim 1 of the '720 Patent, or, alternatively, was willfully blind  
6 to the infringement.  
7

8         202. On information and belief, in violation of 35 U.S.C. § 271(c), Google's contributory  
9 infringement further includes offering to sell or selling within the United States, or importing into the  
10 United States, components of the patented invention of and/or a material or apparatus for use in  
11 practicing at least Claim 1 of the '720 Patent, constituting a material part of the invention. For example,  
12 Google sells, offers to sell, and/or imports solid state memory and/or processors containing the specific  
13 routines that embody the claimed system elements when executed and/or that execute the patented  
14 methods. These components were specifically adapted for infringement and have no substantial  
15 noninfringing uses. On information and belief, Google knows and has known the same to be especially  
16 made or especially adapted for use in an infringement of the '720 Patent, and such components are not  
17 a staple article or commodity of commerce suitable for substantial noninfringing use.  
18

19         203. On information and belief, in violation of 35 U.S.C. § 271(f)(1), Google's infringement  
20 further includes without authority supplying or causing to be supplied in or from the United States all  
21 or a substantial portion of the components of the patented invention of at least Claim 1 of the '720  
22 Patent, where such components are uncombined in whole or in part, in such manner as to actively  
23 induce the combination of such components outside of the United States in a manner that would  
24 infringe the patent if such combination occurred within the United States.  
25

26         204. On information and belief, in violation of 35 U.S.C. § 271(f)(2), Google's infringement  
27 further includes without authority supplying or causing to be supplied in or from the United States  
28

1 components of the patented invention of at least Claim 1 of the '720 Patent that are especially made  
2 or especially adapted for use in the invention and not staple articles or commodities of commerce  
3 suitable for substantial noninfringing use, where such components are uncombined in whole or in part,  
4 knowing that such components are so made or adapted and intending that such components will be  
5 combined outside of the United States in a manner that would infringe the patent if such combination  
6 occurred within the United States.  
7

8 205. Google is not licensed or otherwise authorized to practice the claims of the '720 Patent.

9 206. Thus, by its acts, Google has injured Dialect and is liable to Dialect for directly and/or  
10 indirectly infringing one or more claims of the '720 Patent, whether literally or under the doctrine of  
11 equivalents, including without limitation Claim 1.  
12

13 207. As a result of Google's infringement of the '720 Patent, Dialect has suffered monetary  
14 damages, and seeks recovery, in an amount to be proven at trial, adequate to compensate for Google's  
15 infringement, but in no event less than a reasonable royalty with interest and costs.  
16

17 208. On information and belief, in addition to Google's knowledge of the '720 Patent as set  
18 forth above both prior to and as a result of the filing of the initial Complaint, Google has had, and  
19 continues to have, knowledge that it infringes and the specific intent to infringe, through its deliberate  
20 and intentional infringement or, alternatively, through its willfully blind disregard of the '720 Patent  
21 by knowing there was a high probability of infringement but taking deliberate actions to avoid  
22 confirming that infringement. The specific disclosure of the '720 Patent and multiple demonstrations  
23 of VoiceBox's NLU technology to Google years before the release of the Accused Automotive  
24 Products and Services and Google's policy of ignoring the intellectual property rights of others  
25 supports an inference that Google's managers, engineers, employees, and/or agents were aware or  
26 should have been aware of the '720 Patent, yet willfully continued Google's infringing conduct. The  
27 filing of this action has also made Google aware of the unjustifiably high risk that its actions  
28

1 constituted and continue to constitute infringement of the '720 Patent. On information and belief,  
2 discovery will reveal additional facts and circumstances from which Google's knowledge and intent  
3 to infringe (or willful indifference), both before and after the filing of this action, may be inferred.

4 209. Accordingly, Google's infringement of the '720 Patent has also been and continues to  
5 be deliberate, intentional, and willful, and this is therefore an exceptional case warranting an award of  
6 enhanced damages and attorneys' fees and costs pursuant to 35 U.S.C. §§ 284 and 285.

7 210. Google's infringement of Dialect's rights under the '720 Patent will continue to  
8 damage Dialect, causing irreparable harm for which there is no adequate remedy at law, unless  
9 enjoined by this Court.  
10

#### 11 **FIFTH COUNT**

#### 12 **(Infringement of U.S Patent No. 8,015,006)**

13 211. Dialect incorporates by reference the allegations set forth in Paragraphs 1–210 as  
14 though fully set forth herein.  
15

16 212. The claims of the '006 Patent are valid and enforceable.

17 213. The claims of the '006 Patent are directed to patentable subject matter. Particularly, the  
18 '006 Patent is directed to a novel, tangible voice recognition system. The inventive, tangible claimed  
19 structures of the '006 Patent improve on the natural language processing of a natural language  
20 utterance by a user. The claimed inventions provide specific concrete solutions to the problem of  
21 speech recognition in existing systems.  
22

23 214. In violation of 35 U.S.C. § 271(a) and without authority from Plaintiff, Google has  
24 directly infringed by making, using, offering for sale, selling, and/or importing into the state of  
25 Delaware, this judicial district, and elsewhere in the United States products and services that embody  
26 the invention disclosed and claimed in the '006 Patent, including at least the Accused Google Assistant  
27 Products and Services.  
28

1           215. Each of the Accused Google Assistant Products and Services contains elements that  
2 are identical or equivalent to each claimed element of the patented invention pointed out by at least  
3 Claim 5 of the '006 Patent.

4           216. Each of the Accused Google Assistant Products and Services comprises a method for  
5 processing natural language speech utterances with context-specific domain agents.  
6

7           217. For example, Google describes Google Assistant as responding to a user generated  
8 natural language speech utterance according to the context of a user's request.<sup>50</sup>

9 **What you can ask Google Assistant**

10 You can ask Google Assistant for info and for help with everyday tasks.

11 **Important:** Some queries won't work on all devices and in all languages.

12 For ideas about what Google Assistant can help with, ask "What can you do?"

13 **What Google Assistant can do**

14 **Get local info**

- 15 • **Weather:** What's the weather today?
- 16 • **Food:** Find pizza restaurants nearby.
- 17 • **Business hours:** Is Walgreens still open?
- 18 • **Navigation:** Navigate home.

19 **Plan your day**

- 20 • **Traffic:** How's the traffic to work?
- 21 • **Reminders:** Remind me to do laundry this evening. Remind me to call Mom every Sunday.
- 22 • **Calendar events:** When's my first meeting today? Add a meeting to my calendar.
- 23 • **Flights:** Is United flight 1463 on time?

24 **Ask Google**

- 25 • **Game updates:** Who won the Warriors game?
- 26 • **Calculations:** What's 20% of 80?
- 27 • **Dictionary:** What does "gregarious" mean?
- 28 • **Translations:** How do I say "Nice to meet you" in French?
- **Finance:** How's the S&P 500 doing?
- **Unit conversions:** How many kilometers in a mile?
- **Search:** Search for summer vacation ideas.
- **Image search:** Find pictures of kittens.
- **Web answer:** How do you remove wine stains from a rug?

25           218. Each of the Accused Google Assistant Products and Services comprises receiving, at a  
26 speech unit coupled to a processing device, a natural language speech utterance that contains a request.  
27

28 <sup>50</sup> <https://support.google.com/assistant/answer/7172842?hl=en>

1           219. For example, Google describes Google Assistant as receiving user generated natural  
2 language speech utterances containing at least one request at a device running Google Assistant.<sup>51</sup>

### 3           What you can ask Google Assistant

4           You can ask Google Assistant for info and for help with everyday tasks.

5           **Important:** Some queries won't work on all devices and in all languages.

6           For ideas about what Google Assistant can help with, ask "What can you do?"

### 7           What Google Assistant can do

#### 8           Get local info

- 9           • **Weather:** What's the weather today?
- 10           • **Food:** Find pizza restaurants nearby.
- 11           • **Business hours:** Is Walgreens still open?
- 12           • **Navigation:** Navigate home.

#### 13           Plan your day

- 14           • **Traffic:** How's the traffic to work?
- 15           • **Reminders:** Remind me to do laundry this evening. Remind me to call Mom every Sunday.
- 16           • **Calendar events:** When's my first meeting today? Add a meeting to my calendar.
- 17           • **Flights:** Is United flight 1463 on time?

#### 18           Ask Google

- 19           • **Game updates:** Who won the Warriors game?
- 20           • **Calculations:** What's 20% of 80?
- 21           • **Dictionary:** What does "gregarious" mean?
- 22           • **Translations:** How do I say "Nice to meet you" in French?
- 23           • **Finance:** How's the S&P 500 doing?
- 24           • **Unit conversions:** How many kilometers in a mile?
- 25           • **Search:** Search for summer vacation ideas.
- 26           • **Image search:** Find pictures of kittens.
- 27           • **Web answer:** How do you remove wine stains from a rug?

28           Google further describes its Assistant as "process[ing] the question and get[ting] text out of it."<sup>52</sup>

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<sup>51</sup> *Id.*

<sup>52</sup> <https://blog.google/products/assistant/ask-a-techspert-assistant-questions/>

1 **Got it. Let's say I ask Assistant something pretty straightforward, like, "Hey Google, where's the**  
 2 **closest dog park?" – how would Assistant understand what I'm saying and respond to my query?**

3 The first step is for Assistant to process that "Hey Google" and realize, "Ah, it looks like this person is  
 4 now speaking to me and wants something from me."

5 Assistant picks up the rest of the audio, processes the question and gets text out of it. As it does that, it  
 6 tries to understand what your sentence is about. What type of intention do you have?

7 220. Each of the Accused Google Assistant Products and Services comprises recognizing,  
 8 at a speech recognition engine coupled to the processing device, one or more words or phrases  
 9 contained in the utterance using information in one or more dictionary and phrase tables.

10 221. For example, Google describes Google Assistant as using "trainingPhrases[]" to "allow  
 11 Google's NLU to automatically" match words or phrases found in the user input.<sup>53</sup>

trainingPhrases[]	<p>string</p> <p>Training phrases allow Google's NLU to automatically match intents with user input. The more unique phrases that are provided, the better chance this intent will be matched. The following is the format of training phrase part which are annotated. Note that auto field is optional and the default behavior when auto is not specified is equivalent to auto=false. (&lt;paramName&gt; '&lt;sample text&gt;' auto=&lt;true or false&gt;) auto = true means the part was auto annotated by NLU. auto = false means the part was annotated by the user. This is the default when auto is not specified. Example: "Book a flight from (\$source 'San Francisco' auto=false) to (\$dest 'Vancouver')"</p>
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 18 Google further describes its Assistant as using "define[d] custom training phrases" to "augment[] the  
 19 Assistant NLU."<sup>54</sup>

- 20
- **User intents** let you extend Assistant's ability to understand user requests that are specific to your brand and services. You define custom training phrases within an intent, which in turn generates an intent's language model. That language model augments the Assistant NLU, increasing its ability to understand even more.
  - **System intents** have training data or other non-conversational input signals defined by Assistant. This means you don't need to define training phrases for these intents. Assistant matches these intents in a standard way, during well-known system events such as main invocation or when users don't provide any input.
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28 <sup>53</sup> <https://developers.google.com/assistant/actionsdk/reference/rest/Shared.Types/Intent>

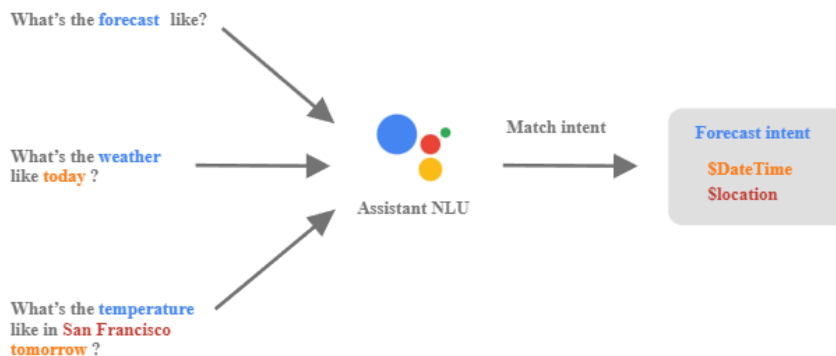
<sup>54</sup> <https://developers.google.com/assistant/conversational/intents>

222. Each of the Accused Google Assistant Products and Services comprises parsing, at a parser coupled to the processing device, information relating to the utterance to determine a meaning associated with the utterance and a context associated with the request contained in the utterance, wherein the parsed information includes the one or more recognized words or phrases.

223. For example, Google describes Google Assistant as determining a context for the request in the natural language utterance based on one or more keywords.<sup>55</sup>

For example, consider an easy user request like, "What's the forecast like today?" Other users might also ask, "What's the weather like right now?" or "What's the temperature like in San Francisco tomorrow?" Even with this simple question, you can see that conversational experiences are hard to implement, because interpreting and processing natural language requires a very robust language parser that's capable of understanding the nuances of language. Your code would have to handle all these different types of requests (and potentially many more) to carry out the same logic: looking up some forecast information for a time and location. For this reason, a traditional computer interface requires well-known, standard input requests to the detriment of the user experience, because it's easier to handle highly structured input.

However, when you build Conversational Actions, Assistant handles the natural language understanding (NLU) for you, so you can build open-ended, conversational interfaces easily. These interface tools let you understand the vast and varied nuances of human language and translate that to standard and structured meaning that your apps and services can understand. Let's take a look at how an Action might handle the previous examples for weather forecast requests.



Google states that its Assistant “gets text out” of the question and identifies “the semantics, i.e. the meaning, of your question.”<sup>56</sup>

<sup>55</sup> <https://developers.google.com/assistant/conversational/overview>

<sup>56</sup> <https://blog.google/products/assistant/ask-a-techspert-assistant-questions/>

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**Got it. Let's say I ask Assistant something pretty straightforward, like, "Hey Google, where's the closest dog park?" – how would Assistant understand what I'm saying and respond to my query?**

The first step is for Assistant to process that "Hey Google" and realize, "Ah, it looks like this person is now speaking to me and wants something from me."

Assistant picks up the rest of the audio, processes the question and gets text out of it. As it does that, it tries to understand what your sentence is about. What type of intention do you have?

To determine this, Assistant will parse the text of your question with another neural network that tries to identify the semantics, i.e. the meaning, of your question.

224. Each of the Accused Google Assistant Products and Services comprises formulating, at the parser, the request contained in the utterance in accordance with a grammar used by a domain agent associated with the determined context.

225. For example, Google describes Google Assistant as formulating requests contained in the user utterance in accordance with a specific structure for a weather query.<sup>57</sup>

For example, you could create a weather agent that recognizes and responds to end-user questions about the weather. You would likely define an intent for questions about the weather forecast. If an end-user says "What's the forecast?", Dialogflow would match that end-user expression to the forecast intent. You can also define your intent to extract useful information from the end-user expression, like a time or location for the desired weather forecast. This extracted data is important for your system to perform a weather query for the end-user.



Google further describes how the request contained in the user utterance can “include parameters that partially or entirely fill” parameters for a request.<sup>58</sup>

<sup>57</sup> <https://cloud.google.com/dialogflow/es/docs/intents-overview>  
<sup>58</sup> [https://developers.google.com/assistant/conversational/build/conversation#slot\\_value\\_mapping](https://developers.google.com/assistant/conversational/build/conversation#slot_value_mapping)



1 In many cases, a previous intent match can include parameters that partially or entirely fill a corresponding scene's slot  
2 values. In these cases, all slots filled by intent parameters map to the scene's slot filling if the slot name matches the  
intent parameter name.

3 For example, if a user matches an intent to order a beverage by saying "I want to order a large vanilla coffee", existing  
4 slots for size, flavor, and beverage type are considered filled in the corresponding scene if that scene defines same slots.

5 226. Each of the Accused Google Assistant Products and Services comprises determining  
6 one or more required values and one or more optional values associated with formulating the request  
7 in the grammar used by the domain agent.

8 227. For example, Google describes Google Assistant as supporting the determination of  
9 values associated with formulating the request, and it further describes supporting partial matches for  
10 optional values.<sup>59</sup>

11  
12 When the NLU engine detects a parameter match in user input, it extracts the value as a typed parameter, so you can  
13 carry out logic with it in a scene. If an intent parameter has the same name as a scene slot, the Assistant runtime  
14 automatically fills the scene slot with the value from the intent parameter. See the [slot value mapping](#) documentation for  
more information.

15 Intent parameters also support "partial" matches. For example, if you specify a type of `DateTime` and the user only  
16 provides a date, the NLU still extracts the partial value as a parameter.

17 228. Each of the Accused Google Assistant Products and Services comprises extracting one  
18 or more criteria and one or more parameters from one or more keywords contained in the one or more  
19 recognized words or phrases, wherein the parser extracts the one or more criteria and the one or more  
20 parameters using procedures sensitive to the determined context.

21 229. For example, Google describes Google Assistant as extracting a detected parameter in  
22 a user input.<sup>60</sup>

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<sup>59</sup> <https://developers.google.com/assistant/conversational/intents>

<sup>60</sup> <https://developers.google.com/assistant/conversational/actions>

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1. When users say something, the Assistant NLU matches the input to an appropriate intent. An intent is matched if the *language model* for that intent can closely or exactly match the user input. You define the language model by specifying *training phrases*, or examples of things users might want to say. Assistant takes these training phrases and expands upon them to create the intent's language model.
2. When the Assistant NLU matches an intent, it can extract *parameters* that you need from the input. These parameters have *types* associated with them, such as a date or number. You annotate specific parts of an intent's training phrases to specify what parameters you want to extract.
3. A *scene* then processes the matched intent. You can think of scenes as the logic executors of an Action, doing the heavy lifting and carrying out logic necessary to drive a conversation forward. Scenes run in a loop, providing a flexible execution lifecycle that lets you do things like validate intent parameters, do slot filling, send prompts back to the user, and more.
4. When a scene is done executing, it typically sends a prompt back to users to continue the conversation or can end the conversation if appropriate.

230. Each of the Accused Google Assistant Products and Services comprises inferring one or more further criteria and one or more further parameters associated with the request using a dynamic set of prior probabilities or fuzzy possibilities.

231. For example, Google describes Google Assistant as inferring context for a request using previous interactions and the history of the current interaction.<sup>61</sup>

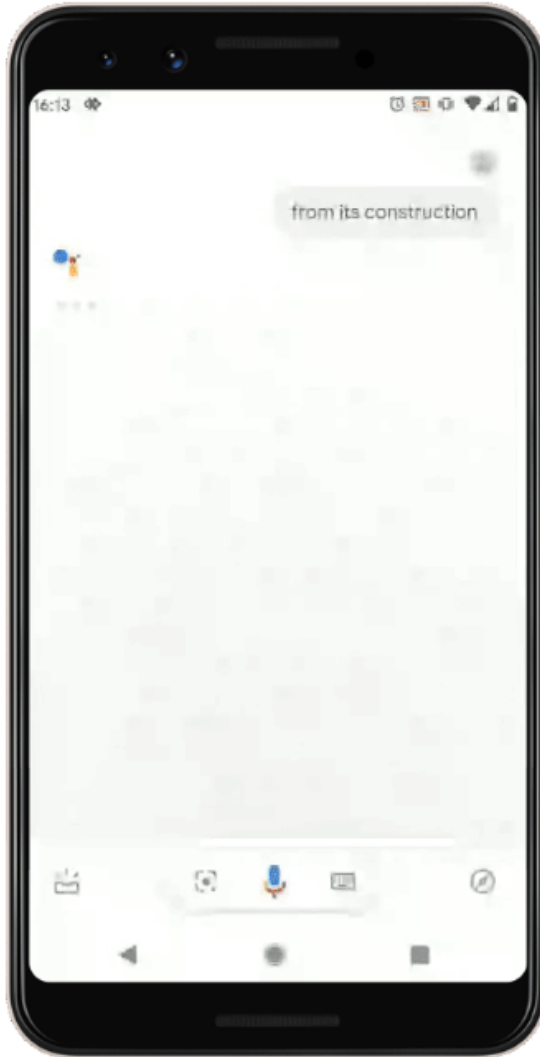
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<sup>61</sup> <https://blog.google/products/assistant/loud-and-clear-ai-improving-assistant-conversations/>

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## More natural conversations

We also applied BERT to further improve the quality of your conversations. Google Assistant uses your previous interactions and understands what's currently being displayed on your smartphone or smart display to respond to any follow-up questions, letting you have a more natural, back-and-forth conversation.

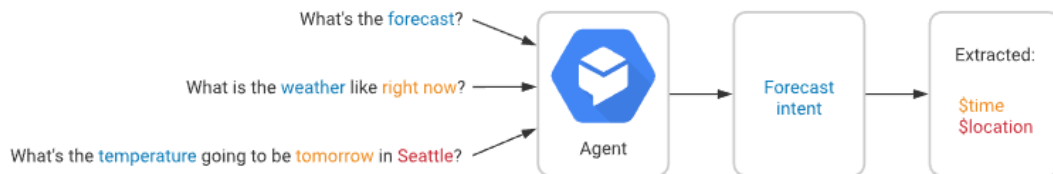


If you're having a conversation with your Assistant about Miami and you want more information, it will know that when you say "show me the nicest beaches" you mean beaches in Miami. Assistant can also understand questions that are referring to what you're looking at on your smartphone or tablet screen, like [who built the first one] or queries that look incomplete like [when] or [from its construction].

1           232. Each of the Accused Google Assistant Products and Services comprises transforming  
 2 the one or more extracted criteria, the one or more extracted parameters, the one or more inferred  
 3 criteria, and the one or more inferred parameters into one or more tokens having a format compatible  
 4 with the grammar used by the domain agent, wherein the one or more tokens include all the required  
 5 values and one or more of the optional values associated with formulating the request in the grammar  
 6 used by the domain agent.

8           233. For example, Google describes Google Assistant as formulating requests in accordance  
 9 with a specific structure for a weather query.<sup>62</sup>

10 For example, you could create a weather agent that recognizes and responds to end-user questions about the weather.  
 11 You would likely define an intent for questions about the weather forecast. If an end-user says "What's the forecast?",  
 12 Dialogflow would match that end-user expression to the forecast intent. You can also define your intent to extract useful  
 13 information from the end-user expression, like a time or location for the desired weather forecast. This extracted data is  
 14 important for your system to perform a weather query for the end-user.



17 Google further describes how the request contained in the user utterance can “include parameters that  
 18 partially or entirely fill” parameters for a request.<sup>63</sup>

20 In many cases, a previous intent match can include parameters that partially or entirely fill a corresponding scene's slot  
 21 values. In these cases, all slots filled by intent parameters map to the scene's slot filling if the slot name matches the  
 22 intent parameter name.

23 For example, if a user matches an intent to order a beverage by saying "I want to order a large vanilla coffee", existing  
 24 slots for size, flavor, and beverage type are considered filled in the corresponding scene if that scene defines same slots.

25 Google further provides examples of how Google Assistant can transform variety of parameters and  
 26 criteria into a formatted query.<sup>64</sup>

27 <sup>62</sup> <https://cloud.google.com/dialogflow/es/docs/intents-overview>

28 <sup>63</sup> [https://developers.google.com/assistant/conversational/build/conversation#slot\\_value\\_mapping](https://developers.google.com/assistant/conversational/build/conversation#slot_value_mapping)

<sup>64</sup> [https://developers.google.com/assistant/df-asdk/discovery/implicit#syntax\\_Requirements](https://developers.google.com/assistant/df-asdk/discovery/implicit#syntax_Requirements)

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English ⌵ 🗨️

### Action invocation phrases ⌵

Invocation phrases help users find and implicitly or explicitly invoke your Action.

- How long does it take to get from **\$origin-stop** to **\$destination-stop** on the **\$route** ?
- How long does the **\$route** **\$vehicle-type** from **\$origin-stop** to **\$destination-stop** take?
- How long does the **\$route** from **\$origin-stop** to **\$destination-stop** take?
- \$origin-stop**
- How long does the **\$agency** from **\$origin-stop** to **\$destination-stop** usually take?
- What is the average time for the **\$agency** from **\$origin-stop** to **\$destination-stop** on **\$date** ?
- What is the travel time from **\$origin-stop** to **\$destination-stop** ?
- What is the average time from **\$origin-stop** to **\$destination-stop** ?
- How long does the **\$vehicle-type** from **\$origin-stop** to **\$destination-stop** take?
- How long is the **\$agency** from **\$origin-stop** to **\$destination-stop** supposed to take?
- How long does the **\$time** **\$vehicle-type** from **\$origin-stop** to **\$destination-stop** take
- What is the average travel time from **\$origin-stop** to **\$destination-stop** ?
- How long does it take to get from **\$origin-stop** to **\$destination-stop** **\$date** **\$time-period** ?
- How long does it take to get from **\$origin-stop** to **\$destination-stop** ?

[EDIT IN DIALOGFLOW](#) 🔗

<b>Parameters</b>	origin-stop, destination-stop, date, time-period, agency, time, vehicle-type, route <span>⌵</span>
<b>Fulfillment</b>	Conversational <span>⌵</span>
<b>Links</b>	None <span>⌵</span>
<b>User engagement</b>	None <span>⌵</span>

234. Each of the Accused Google Assistant Products and Services comprises processing the formulated request with the domain agent associated with the determined context to generate a response to the utterance.

1           235. For example, Google describes Google Assistant as invoking Google Maps to generate  
2 a response to a query.<sup>65</sup>

3           In this case, it will figure out that it's a question it needs to search for – it's not you asking to turn on your  
4 lights or anything like that. And since this is a location-based question, if your settings allow it, Assistant  
5 can send the geographic data of your device to Google Maps to return the results of which dog park is  
6 near you.

7           236. Each of the Accused Google Assistant Products and Services comprises presenting the  
8 generated response to the utterance via the speech unit.

9           237. For example, Google describes Google Assistant as providing the results “in the  
10 appropriate format for your device.”<sup>66</sup>

11           Then Assistant will sort its possible answers based on things like how sure it is that it understood you  
12 correctly and how relevant its various potential answers are. It will decide on the best answer, then  
13 provide it in the appropriate format for your device. It might be just a *speaker*, in which case it can give  
14 you spoken information. If you have a display in front of you, it could show you a map with walking  
15 directions.

16           238. Google has known about the '006 Patent since at least 2012, when it was specifically  
17 disclosed to Google by VoiceBox.

18           239. On information and belief, Google actively monitors patent activity through  
19 information that is available to the public from the United States Patent and Trademark Office and  
20 from commercial and foreign government databases (including commercial databases operated by  
21 Google). For example, on or about October 6, 2014, the U.S. Patent Office identified the '209 Patent,  
22 to which the '006 Patent claims priority, to Google as prior art to Google's own United States patent  
23 application no. 13/888,770. On information and belief, Google was thereafter aware of the related '006  
24 Patent. On September 26, 2016, Google disclosed the '006 Patent as prior art to its own patent  
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28 <sup>65</sup> <https://blog.google/products/assistant/ask-a-techspert-assistant-questions/>

<sup>66</sup> <https://blog.google/products/assistant/ask-a-techspert-assistant-questions/>

1 application no. 14/095,095. On December 9, 2016, Google disclosed the '006 Patent as prior art to its  
2 own patent application no. 15/384,004.

3           240. Google knew or should have known that Google's actions infringe one or more of the  
4 claims of the '006 Patent because Google has the technical expertise to understand the scope and  
5 content of the '006 Patent, because Google was made aware of and reviewed the content of the '006  
6 Patent before or during the development of the Accused Google Assistant Products and Services,  
7 because Google developed the Accused Google Assistant Products and Services in light of its review  
8 of the Asserted Patents, because Google is a major provider of voice recognition products and services,  
9 and because Google knows the design, function, and operation of the Accused Google Assistant  
10 Products and Services, as well as the nature and extent of their use by others. Additionally, Google  
11 had notice of its infringement of the '006 Patent at least as of the filing of the initial Complaint and  
12 has continued to infringe the '006 Patent despite clear notice of its infringement.

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15           241. Further, on information and belief, Google has actively induced and/or contributed to  
16 infringement of at least Claim 1 of the '006 Patent in violation of at least 35 U.S.C. § 271(b) and (c).

17           242. Users of the Accused Google Assistant Products and Services directly infringe at least  
18 Claim 1 of the '006 Patent when they use the Accused Google Assistant Products and Services in the  
19 ordinary, customary, and intended way.

20           243. On information and belief, Google's inducements in violation of 35 U.S.C. § 271(b)  
21 include, without limitation and with specific intent to encourage infringement, knowingly inducing  
22 businesses and consumers to use the Accused Google Assistant Products and Services within the  
23 United States in the ordinary, customary, and intended way by, directly or through intermediaries,  
24 supplying the Accused Google Assistant Products and Services to businesses and consumers within  
25 the United States, and instructing and encouraging such businesses and consumers to use the Accused  
26 Google Assistant Products and Services in the ordinary, customary, and intended way, which Google  
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1 knew infringes at least Claim 1 of the '006 Patent, or, alternatively, was willfully blind to the  
2 infringement.

3           244. On information and belief, Google's inducements in violation of 35 U.S.C. § 271(b)  
4 further include, without limitation and with specific intent to encourage the infringement, knowingly  
5 inducing Google's customers to commit acts of infringement with respect to the Accused Google  
6 Assistant Products and Services within the United States, by, directly or through intermediaries,  
7 instructing and encouraging such customers to import, make, use, sell, offer to sell, or otherwise  
8 commit acts of infringement with respect to the Accused Google Assistant Products and Services in  
9 the United States, which Google knew infringes at least Claim 1 of the '006 Patent, or, alternatively,  
10 was willfully blind to the infringement.  
11

12           245. On information and belief, in violation of 35 U.S.C. § 271(c), Google's contributory  
13 infringement further includes offering to sell or selling within the United States, or importing into the  
14 United States, components of the patented invention of and/or a material or apparatus for use in  
15 practicing at least Claim 1 of the '006 Patent, constituting a material part of the invention. For example,  
16 Google sells, offers to sell, and/or imports solid state memory and/or processors containing the specific  
17 routines to execute the patented methods. These components were specifically adapted for  
18 infringement and have no substantial noninfringing uses. On information and belief, Google knows  
19 and has known the same to be especially made or especially adapted for use in an infringement of the  
20 '006 Patent, and such components are not a staple article or commodity of commerce suitable for  
21 substantial noninfringing use.  
22

23           246. Google is not licensed or otherwise authorized to practice the claims of the '006 Patent.  
24

25           247. Thus, by its acts, Google has injured Dialect and is liable to Dialect for directly and/or  
26 indirectly infringing one or more claims of the '006 Patent, whether literally or under the doctrine of  
27 equivalents, including without limitation Claim 1.  
28



1           248. As a result of Google's infringement of the '006 Patent, Dialect has suffered monetary  
2 damages, and seeks recovery, in an amount to be proven at trial, adequate to compensate for Google's  
3 infringement, but in no event less than a reasonable royalty with interest and costs.

4           249. On information and belief, in addition to Google's knowledge of the '006 Patent as set  
5 forth above both prior to and as a result of the filing of the initial Complaint, Google has had, and  
6 continues to have, knowledge that it infringes and the specific intent to infringe, through its deliberate  
7 and intentional infringement or, alternatively, through its willfully blind disregard of the '006 Patent  
8 by knowing there was a high probability of infringement but taking deliberate actions to avoid  
9 confirming that infringement. The specific disclosure of the '006 Patent and multiple demonstrations  
10 of VoiceBox's NLU technology to Google years before the release of the Accused Google Assistant  
11 Products and Services and Google's policy of ignoring the intellectual property rights of others  
12 supports an inference that Google's managers, engineers, employees, and/or agents were aware or  
13 should have been aware of the '006 Patent, yet willfully continued Google's infringing conduct. The  
14 filing of this action has also made Google aware of the unjustifiably high risk that its actions  
15 constituted and continue to constitute infringement of the '006 Patent. On information and belief,  
16 discovery will reveal additional facts and circumstances from which Google's knowledge and intent  
17 to infringe (or willful indifference), both before and after the filing of this action, may be inferred.

18           250. Accordingly, Google's infringement of the '006 Patent has also been and continues to  
19 be deliberate, intentional, and willful, and this is therefore an exceptional case warranting an award of  
20 enhanced damages and attorneys' fees and costs pursuant to 35 U.S.C. §§ 284 and 285.

21           251. Google's infringement of Dialect's rights under the '006 Patent will continue to  
22 damage Dialect, causing irreparable harm for which there is no adequate remedy at law, unless  
23 enjoined by this Court.  
24  
25  
26  
27  
28

**SIXTH COUNT**

**(Infringement of U.S Patent No. 8,447,607)**

252. Dialect incorporates by reference the allegations set forth in Paragraphs 1–251 as though fully set forth herein.

253. The claims of the '607 Patent are valid and enforceable.

254. The claims of the '607 Patent are directed to patentable subject matter. Particularly, the '607 Patent is directed to a novel, tangible voice recognition system. The inventive, tangible claimed structures of the '607 Patent improve on the natural language processing of a natural language utterance by a user. The claimed inventions provide specific concrete solutions to the problem of speech recognition in existing systems.

255. In violation of 35 U.S.C. § 271(a) and without authority from Plaintiff, Google has directly infringed by making, using, offering for sale, selling, and/or importing into the state of Delaware, this judicial district, and elsewhere in the United States products and services that embody the invention disclosed and claimed in the '607 Patent, including at least the Accused Google Assistant Products and Services.

256. Each of the Accused Google Assistant Products and Services contains elements that are identical or equivalent to each claimed element of the patented invention pointed out by at least Claim 14 of the '607 Patent.

257. Each of the Accused Google Assistant Products and Services comprises a device for processing natural language inputs, comprising one or more processors.

258. For example, Google describes Google Assistant, which runs on devices that comprise one or more processors, as responding to a user generated natural language speech utterance.<sup>67</sup>

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<sup>67</sup> <https://support.google.com/assistant/answer/7172842?hl=en>

1 **What you can ask Google Assistant**

2 You can ask Google Assistant for info and for help with everyday tasks.

3 **Important:** Some queries won't work on all devices and in all languages.

4 For ideas about what Google Assistant can help with, ask "What can you do?"

5 **What Google Assistant can do**

6 **Get local info**

- 7 • **Weather:** What's the weather today?
- 8 • **Food:** Find pizza restaurants nearby.
- 9 • **Business hours:** Is Walgreens still open?
- 10 • **Navigation:** Navigate home.

11 **Plan your day**

- 12 • **Traffic:** How's the traffic to work?
- 13 • **Reminders:** Remind me to do laundry this evening. Remind me to call Mom every Sunday.
- 14 • **Calendar events:** When's my first meeting today? Add a meeting to my calendar.
- 15 • **Flights:** Is United flight 1463 on time?

16 **Ask Google**

- 17 • **Game updates:** Who won the Warriors game?
- 18 • **Calculations:** What's 20% of 80?
- 19 • **Dictionary:** What does "gregarious" mean?
- 20 • **Translations:** How do I say "Nice to meet you" in French?
- 21 • **Finance:** How's the S&P 500 doing?
- 22 • **Unit conversions:** How many kilometers in a mile?
- 23 • **Search:** Search for summer vacation ideas.
- 24 • **Image search:** Find pictures of kittens.
- 25 • **Web answer:** How do you remove wine stains from a rug?

26           259. Each of the Accused Google Assistant Products and Services comprises receiving a  
27 natural language utterance from a user.

28           260. For example, Google describes Google Assistant as receiving user generated natural  
language speech utterances containing at least one request.<sup>68</sup>

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<sup>68</sup> *Id.*

1 **What you can ask Google Assistant**

2 You can ask Google Assistant for info and for help with everyday tasks.

3 **Important:** Some queries won't work on all devices and in all languages.

4 For ideas about what Google Assistant can help with, ask "What can you do?"

5 **What Google Assistant can do**

6 **Get local info**

- 7 • **Weather:** What's the weather today?
- 8 • **Food:** Find pizza restaurants nearby.
- 9 • **Business hours:** Is Walgreens still open?
- 10 • **Navigation:** Navigate home.

11 **Plan your day**

- 12 • **Traffic:** How's the traffic to work?
- 13 • **Reminders:** Remind me to do laundry this evening. Remind me to call Mom every Sunday.
- 14 • **Calendar events:** When's my first meeting today? Add a meeting to my calendar.
- 15 • **Flights:** Is United flight 1463 on time?

16 **Ask Google**

- 17 • **Game updates:** Who won the Warriors game?
- 18 • **Calculations:** What's 20% of 80?
- 19 • **Dictionary:** What does "gregarious" mean?
- 20 • **Translations:** How do I say "Nice to meet you" in French?
- 21 • **Finance:** How's the S&P 500 doing?
- 22 • **Unit conversions:** How many kilometers in a mile?
- 23 • **Search:** Search for summer vacation ideas.
- 24 • **Image search:** Find pictures of kittens.
- 25 • **Web answer:** How do you remove wine stains from a rug?

26 Google further describes its Assistant as “process[ing] the question and get[ting] text out of it.”<sup>69</sup>

27 **Got it. Let's say I ask Assistant something pretty straightforward, like, "Hey Google, where's the closest dog park?" – how would Assistant understand what I'm saying and respond to my query?**

28 The first step is for Assistant to process that "Hey Google" and realize, "Ah, it looks like this person is now speaking to me and wants something from me."

Assistant picks up the rest of the audio, processes the question and gets text out of it. As it does that, it tries to understand what your sentence is about. What type of intention do you have?

<sup>69</sup> <https://blog.google/products/assistant/ask-a-techspert-assistant-questions/>

1           261. Each of the Accused Google Assistant Products and Services comprises identifying the  
2 user who provided the natural language utterance.

3           262. For example, Google describes Google Assistant as using Voice Match to identify a  
4 user by their voice.<sup>70</sup>


## 6 Access Google Assistant with your voice

7 You can get hands-free help from Google Assistant on your phone or watch by saying "Hey  
8 Google." "Hey Google" requires Voice Match to recognize it's you.

9 If you're using a speaker or Smart Display with Google Assistant built-in, [learn how to use Voice  
10 Match to link your voice](#) to the device.


11 [Android](#)   [iPhone & iPad](#)

### 12 Turn on Google Assistant

- 13 1. On your Android phone or tablet, open the Google Assistant app .
- 14 2. If Google Assistant is off, you'll get the option to turn it on at the bottom. Tap **Turn on**.
  - [Learn how to set up Google Assistant on your phone or tablet](#).

15 [Turn off Google Assistant](#) 

### 17 Turn on "Hey Google" and teach Google Assistant to recognize 18 your voice

- 19 1. On your Android phone or tablet, open the Google Assistant app  and say, "Assistant  
20 settings."
- 21 2. Under "Popular settings," tap **Hey Google & Voice Match**.
- 22 3. Turn on **Hey Google**.
  - If you don't find **Hey Google**, turn on **Google Assistant**.
  - **Tip:** If you're signed in to a Google Workspace for Education account on your device and  
23 can't turn on "Hey Google," the admin might have turned off settings that are needed for  
24 "Hey Google" to work. Please contact your admin for more details.
- 25 4. Follow the prompts to set up Voice Match so Google Assistant can recognize when you say  
26 "Hey Google."

**Tip:** If you want to get hands-free help from Google Assistant while your Android phone or  
27 tablet is locked, make sure your Assistant on lock screen setting is turned on.

28 <sup>70</sup> <https://support.google.com/assistant/answer/7394306>

1           263. Each of the Accused Google Assistant Products and Services comprises generating a  
2 speech-based transcription based on a personal cognitive model associated with the user and a general  
3 cognitive model, wherein the personal cognitive model includes information on one or more prior  
4 interactions between the device and the user, and wherein the general cognitive model includes  
5 information on one or more prior interactions between the device and a plurality of users.  
6

7           264. For example, Google describes Google Assistant as generating a speech based  
8 transcription based, in part, on interactions with previous users and their satisfaction with similar  
9 responses.<sup>71</sup>

10           **To make it a little more complicated: If I were to ask something a bit more ambiguous, like, “Hey**  
11 **Google, what is the most popular dog?” – how would it know if I meant dog breed, dog name or the**  
12 **most popular famous dog?**

13           In the first example, Assistant has to understand that you’re looking for a location (“where is”) and what  
14 you’re looking for (“a dog park”), so it makes sense to use Maps to help. In this, Assistant would  
15 recognize it’s a more open-ended question and call upon Search instead. What this really comes down  
16 to is identifying the best interpretation. One thing that is helpful is that Assistant can rank how satisfied  
17 previous users were with similar responses to similar questions – that can help it decide how certain it  
18 is of its interpretation. Ultimately, that question would go to Search, and the results would be proposed  
19 to you with whatever formatting is best for your device.

20           Google further describes Google Assistant as processing “audio of someone speaking” and “turn it  
21 into text.”<sup>72</sup>

22           For Assistant, a deep neural network can receive an input, like the audio of someone speaking, and  
23 process that information across a stack of layers to turn it into text. This is what we call “speech  
24 recognition.” Then, the text is processed by another stack of layers to parse it into pieces of information  
25 that help the Assistant understand what you need and help you by displaying a result or taking an action  
26 on your behalf. This is what we call “natural language processing.”

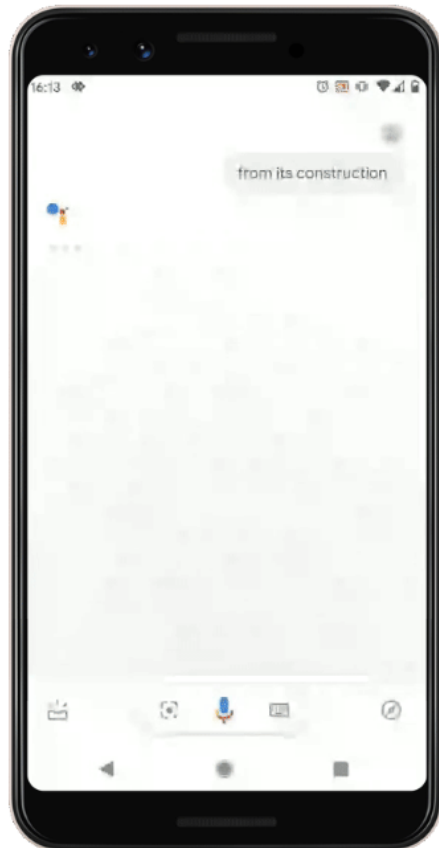
27 \_\_\_\_\_  
28 <sup>71</sup> <https://blog.google/products/assistant/ask-a-techspert-assistant-questions/>

<sup>72</sup> <https://blog.google/products/assistant/ask-a-techspert-assistant-questions/>

1 Google further describes how Google Assistant uses previous interactions with the user in processing  
2 the user's natural language utterance.<sup>73</sup>

### 3 More natural conversations

4 We also applied BERT to further improve the quality of your conversations. Google Assistant uses your  
5 previous interactions and understands what's currently being displayed on your smartphone or smart  
6 display to respond to any follow-up questions, letting you have a more natural, back-and-forth  
7 conversation.



22

23 If you're having a conversation with your Assistant about Miami and you want more information, it will  
24 know that when you say "show me the nicest beaches" you mean beaches in Miami. Assistant can also  
25 understand questions that are referring to what you're looking at on your smartphone or tablet screen,  
26 like [who built the first one] or queries that look incomplete like [when] or [from its construction].

27

28 <sup>73</sup> <https://blog.google/products/assistant/loud-and-clear-ai-improving-assistant-conversations/>

1           265. Each of the Accused Google Assistant Products and Services comprises identifying,  
2 from among a plurality of entries that are in a context stack and that are each indicative of context, an  
3 entry that matches information in the speech-based transcription.

4           266. For example, Google describes Google Assistant as determining the meaning of the  
5 user's question from parsing the context of the utterance and determining the correct software module  
6 or modules to invoke based on the information in the parsed utterance.<sup>74</sup>

8           **Got it. Let's say I ask Assistant something pretty straightforward, like, "Hey Google, where's the  
9 closest dog park?" – how would Assistant understand what I'm saying and respond to my query?**

10           The first step is for Assistant to process that "Hey Google" and realize, "Ah, it looks like this person is  
now speaking to me and wants something from me."

11           Assistant picks up the rest of the audio, processes the question and gets text out of it. As it does that, it  
12 tries to understand what your sentence is about. What type of intention do you have?

13           To determine this, Assistant will parse the text of your question with another neural network that tries to  
identify the semantics, i.e. the meaning, of your question.

14           In this case, it will figure out that it's a question it needs to search for – it's not you asking to turn on your  
15 lights or anything like that. And since this is a location-based question, if your settings allow it, Assistant  
can send the geographic data of your device to Google Maps to return the results of which dog park is  
16 near you.

17           Then Assistant will sort its possible answers based on things like how sure it is that it understood you  
18 correctly and how relevant its various potential answers are. It will decide on the best answer, then  
provide it in the appropriate format for your device. It might be just a [speaker](#), in which case it can give  
19 you spoken information. If you have a display in front of you, it could show you a map with walking  
directions.

20           **To make it a little more complicated: If I were to ask something a bit more ambiguous, like, "Hey  
21 Google, what is the most popular dog?" – how would it know if I meant dog breed, dog name or the  
most popular famous dog?**

22           In the first example, Assistant has to understand that you're looking for a location ("where is") and what  
23 you're looking for ("a dog park"), so it makes sense to use Maps to help. In this, Assistant would  
recognize it's a more open-ended question and call upon Search instead. What this really comes down  
24 to is identifying the best interpretation. One thing that is helpful is that Assistant can rank how satisfied  
previous users were with similar responses to similar questions – that can help it decide how certain it  
25 is of its interpretation. Ultimately, that question would go to Search, and the results would be proposed  
to you with whatever formatting is best for your device.

26  
27  
28 <sup>74</sup> <https://blog.google/products/assistant/ask-a-techspert-assistant-questions/>



1           267. Each of the Accused Google Assistant Products and Services comprises identifying a  
2 domain agent associated with the entry in the context stack.

3           268. For example, Google describes Google Assistant as selecting, for example, either Maps  
4 or Search to respond to requests associated with the determined context.<sup>75</sup>

5  
6           **To make it a little more complicated: If I were to ask something a bit more ambiguous, like, “Hey  
7 Google, what is the most popular dog?” – how would it know if I meant dog breed, dog name or the  
8 most popular famous dog?**

9 In the first example, Assistant has to understand that you’re looking for a location (“where is”) and what  
10 you’re looking for (“a dog park”), so it makes sense to use Maps to help. In this, Assistant would  
11 recognize it’s a more open-ended question and call upon Search instead. What this really comes down  
12 to is identifying the best interpretation. One thing that is helpful is that Assistant can rank how satisfied  
13 previous users were with similar responses to similar questions – that can help it decide how certain it  
14 is of its interpretation. Ultimately, that question would go to Search, and the results would be proposed  
15 to you with whatever formatting is best for your device.

16 Google’s own research papers describe understanding user utterances by, in part, “detecting the  
17 domain of the utterance.”<sup>76</sup>

### 18           **1. Introduction**

19 In traditional goal-oriented dialogue systems, user utterances  
20 are typically understood in terms of hand-designed semantic  
21 frames comprised of domains, intents and slots [1]. Under-  
22 standing the user utterance involves (i) detecting the domain of  
23 the utterance, (ii) classifying the intent of the utterance based on

24           269. Each of the Accused Google Assistant Products and Services comprises determining a  
25 request based on the speech-based transcription.

26           270. For example, Google describes Google Assistant as determining the request contained  
27 in the user’s utterance.<sup>77</sup>

28 <sup>75</sup> <https://blog.google/products/assistant/ask-a-techspert-assistant-questions/>

<sup>76</sup> <https://research.google.com/pubs/archive/553ee0ffc2c91cbb340860b5f109a3f413438de2.pdf>

<sup>77</sup> <https://blog.google/products/assistant/ask-a-techspert-assistant-questions/>

1 **To make it a little more complicated: If I were to ask something a bit more ambiguous, like, “Hey**  
 2 **Google, what is the most popular dog?” – how would it know if I meant dog breed, dog name or the**  
 3 **most popular famous dog?**

4 In the first example, Assistant has to understand that you’re looking for a location (“where is”) and what  
 5 you’re looking for (“a dog park”), so it makes sense to use Maps to help. In this, Assistant would  
 6 recognize it’s a more open-ended question and call upon Search instead. What this really comes down  
 7 to is identifying the best interpretation. One thing that is helpful is that Assistant can rank how satisfied  
 8 previous users were with similar responses to similar questions – that can help it decide how certain it  
 is of its interpretation. Ultimately, that question would go to Search, and the results would be proposed  
 to you with whatever formatting is best for your device.

9 271. Each of the Accused Google Assistant Products and Services comprises  
 10 communicating the request to the domain agent, wherein the domain agent is configured to generate a  
 11 response to the user.

12 272. For example, Google describes Google Assistant as invoking Maps to respond “in the  
 13 appropriate format for your device.”<sup>78</sup>  
 14

15 **Got it. Let’s say I ask Assistant something pretty straightforward, like, “Hey Google, where’s the**  
 16 **closest dog park?” – how would Assistant understand what I’m saying and respond to my query?**

17 The first step is for Assistant to process that “Hey Google” and realize, “Ah, it looks like this person is  
 18 now speaking to me and wants something from me.”

19 Assistant picks up the rest of the audio, processes the question and gets text out of it. As it does that, it  
 20 tries to understand what your sentence is about. What type of intention do you have?

21 To determine this, Assistant will parse the text of your question with another neural network that tries to  
 22 identify the semantics, i.e. the meaning, of your question.

23 In this case, it will figure out that it’s a question it needs to search for – it’s not you asking to turn on your  
 24 lights or anything like that. And since this is a location-based question, if your settings allow it, Assistant  
 25 can send the geographic data of your device to Google Maps to return the results of which dog park is  
 26 near you.

27 Then Assistant will sort its possible answers based on things like how sure it is that it understood you  
 28 correctly and how relevant its various potential answers are. It will decide on the best answer, then  
 provide it in the appropriate format for your device. It might be just a [speaker](#), in which case it can give  
 you spoken information. If you have a display in front of you, it could show you a map with walking  
 directions.

<sup>78</sup> <https://blog.google/products/assistant/ask-a-techspert-assistant-questions/>

1           273. Google has known about the '607 Patent since at least 2012, when the patent  
2 application that would issue as the '607 Patent was disclosed to Google by VoiceBox.

3           274. Additionally, on information and belief, Google actively monitors patent activity  
4 through information that is available to the public from the United States Patent and Trademark Office  
5 and from commercial and foreign government databases (including commercial databases operated by  
6 Google). For example, on May 27, 2015, Google disclosed the '607 Patent as prior art to its own patent  
7 application no. 14/723,305. On February 4, 2016, Google disclosed the '607 Patent as prior art to its  
8 own patent application no. 15/051,778. On or about January 21, 2022, the U.S. Patent Office identified  
9 the '607 Patent to Google as prior art to Google's own United States patent application no. 16/609,491.  
10

11           275. Google knew or should have known that Google's actions infringe one or more of the  
12 claims of the '607 Patent because Google has the technical expertise to understand the scope and  
13 content of the '607 Patent, because Google was made aware of and reviewed the content of the '607  
14 Patent before or during the development of the Accused Google Assistant Products and Services,  
15 because Google developed the Accused Google Assistant Products and Services in light of its review  
16 of the Asserted Patents, because Google is a major provider of voice recognition products and services,  
17 and because Google knows the design, function, and operation of the Accused Google Assistant  
18 Products and Services, as well as the nature and extent of their use by others. Additionally, Google  
19 had notice of its infringement of the '607 Patent at least as of the filing of the initial Complaint and  
20 has continued to infringe the '607 Patent despite clear notice of its infringement.  
21  
22

23           276. Further, on information and belief, Google has actively induced and/or contributed to  
24 infringement of at least Claim 14 of the '607 Patent in violation of at least 35 U.S.C. § 271(b), (c), and  
25 (f).  
26  
27  
28

1           277. Users of the Accused Google Assistant Products and Services directly infringe at least  
2 Claim 14 of the '607 Patent when they use the Accused Google Assistant Products and Services in the  
3 ordinary, customary, and intended way.

4           278. On information and belief, Google's inducements in violation of 35 U.S.C. § 271(b)  
5 include, without limitation and with specific intent to encourage infringement, knowingly inducing  
6 businesses and consumers to use the Accused Google Assistant Products and Services within the  
7 United States in the ordinary, customary, and intended way by, directly or through intermediaries,  
8 supplying the Accused Google Assistant Products and Services to businesses and consumers within  
9 the United States, and instructing and encouraging such businesses and consumers to use the Accused  
10 Google Assistant Products and Services in the ordinary, customary, and intended way, which Google  
11 knew infringes at least Claim 14 of the '607 Patent, or, alternatively, was willfully blind to the  
12 infringement.  
13

14           279. On information and belief, Google's inducements in violation of 35 U.S.C. § 271(b)  
15 further include, without limitation and with specific intent to encourage the infringement, knowingly  
16 inducing Google's customers to commit acts of infringement with respect to the Accused Google  
17 Assistant Products and Services within the United States, by, directly or through intermediaries,  
18 instructing and encouraging such customers to import, make, use, sell, offer to sell, or otherwise  
19 commit acts of infringement with respect to the Accused Google Assistant Products and Services in  
20 the United States, which Google knew infringes at least Claim 14 of the '607 Patent, or, alternatively,  
21 was willfully blind to the infringement.  
22

23           280. On information and belief, in violation of 35 U.S.C. § 271(c), Google's contributory  
24 infringement further includes offering to sell or selling within the United States, or importing into the  
25 United States, components of the patented invention of and/or a material or apparatus for use in  
26 practicing at least Claim 14 of the '607 Patent, constituting a material part of the invention. For  
27  
28

1 example, Google sells, offers to sell, and/or imports solid state memory and/or processors containing  
2 the specific routines that embody the claimed steps to be performed by the patented device and/or  
3 execute the patented methods. These components were specifically adapted for infringement and have  
4 no substantial noninfringing uses. On information and belief, Google knows and has known the same  
5 to be especially made or especially adapted for use in an infringement of the '607 Patent, and such  
6 components are not a staple article or commodity of commerce suitable for substantial noninfringing  
7 use.  
8

9         281. On information and belief, in violation of 35 U.S.C. § 271(f)(1), Google's infringement  
10 further includes without authority supplying or causing to be supplied in or from the United States all  
11 or a substantial portion of the components of the patented invention of at least Claim 14 of the '607  
12 Patent, where such components are uncombined in whole or in part, in such manner as to actively  
13 induce the combination of such components outside of the United States in a manner that would  
14 infringe the patent if such combination occurred within the United States.  
15

16         282. On information and belief, in violation of 35 U.S.C. § 271(f)(2), Google's infringement  
17 further includes without authority supplying or causing to be supplied in or from the United States  
18 components of the patented invention of at least Claim 14 of the '607 Patent that are especially made  
19 or especially adapted for use in the invention and not staple articles or commodities of commerce  
20 suitable for substantial noninfringing use, where such components are uncombined in whole or in part,  
21 knowing that such components are so made or adapted and intending that such components will be  
22 combined outside of the United States in a manner that would infringe the patent if such combination  
23 occurred within the United States.  
24

25         283. Google is not licensed or otherwise authorized to practice the claims of the '607 Patent.  
26  
27  
28

1           284. Thus, by its acts, Google has injured Dialect and is liable to Dialect for directly and/or  
2 indirectly infringing one or more claims of the '607 Patent, whether literally or under the doctrine of  
3 equivalents, including without limitation Claim 14.

4           285. As a result of Google's infringement of the '607 Patent, Dialect has suffered monetary  
5 damages, and seeks recovery, in an amount to be proven at trial, adequate to compensate for Google's  
6 infringement, but in no event less than a reasonable royalty with interest and costs.

7           286. On information and belief, in addition to Google's knowledge of the '607 Patent as set  
8 forth above both prior to and as a result of the filing of the initial Complaint, Google has had, and  
9 continues to have, knowledge that it infringes and the specific intent to infringe, through its deliberate  
10 and intentional infringement or, alternatively, through its willfully blind disregard of the '607 Patent  
11 by knowing there was a high probability of infringement but taking deliberate actions to avoid  
12 confirming that infringement. The specific disclosure of the '607 Patent and multiple demonstrations  
13 of VoiceBox's NLU technology to Google, as well as the citation of the '607 Patent as prior art to  
14 Google's own patent applications, and Google's policy of ignoring the intellectual property rights of  
15 others support an inference that Google's managers, engineers, employees, and/or agents were aware  
16 or should have been aware of the '607 Patent, yet willfully continued Google's infringing conduct.  
17 The filing of this action has also made Google aware of the unjustifiably high risk that its actions  
18 constituted and continue to constitute infringement of the '607 Patent. On information and belief,  
19 discovery will reveal additional facts and circumstances from which Google's knowledge and intent  
20 to infringe (or willful indifference), both before and after the filing of this action, may be inferred.

21           287. Accordingly, Google's infringement of the '607 Patent has also been and continues to  
22 be deliberate, intentional, and willful, and this is therefore an exceptional case warranting an award of  
23 enhanced damages and attorneys' fees and costs pursuant to 35 U.S.C. §§ 284 and 285.



1           295. For example, Google describes Google Assistant as responding to a user generated  
2 natural language speech utterance, wherein the recognized words are insufficient alone to respond to  
3 the user.<sup>79</sup>

## 4           What you can ask Google Assistant

5           You can ask Google Assistant for info and for help with everyday tasks.

6           **Important:** Some queries won't work on all devices and in all languages.

7           For ideas about what Google Assistant can help with, ask "What can you do?"

### 8           What Google Assistant can do

#### 9           Get local info

- 10          • **Weather:** What's the weather today?
- 11          • **Food:** Find pizza restaurants nearby.
- 12          • **Business hours:** Is Walgreens still open?
- 13          • **Navigation:** Navigate home.

#### 14          Plan your day

- 15          • **Traffic:** How's the traffic to work?
- 16          • **Reminders:** Remind me to do laundry this evening. Remind me to call Mom every Sunday.
- 17          • **Calendar events:** When's my first meeting today? Add a meeting to my calendar.
- 18          • **Flights:** Is United flight 1463 on time?

#### 19          Ask Google

- 20          • **Game updates:** Who won the Warriors game?
- 21          • **Calculations:** What's 20% of 80?
- 22          • **Dictionary:** What does "gregarious" mean?
- 23          • **Translations:** How do I say "Nice to meet you" in French?
- 24          • **Finance:** How's the S&P 500 doing?
- 25          • **Unit conversions:** How many kilometers in a mile?
- 26          • **Search:** Search for summer vacation ideas.
- 27          • **Image search:** Find pictures of kittens.
- 28          • **Web answer:** How do you remove wine stains from a rug?

Google specifically identifies example utterances for which the words alone are insufficient to completely determine the request.<sup>80</sup>

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<sup>79</sup> <https://support.google.com/assistant/answer/7172842?hl=en>

<sup>80</sup> <https://blog.google/products/assistant/ask-a-techspert-assistant-questions/>



1 **To make it a little more complicated: If I were to ask something a bit more ambiguous, like, “Hey**  
2 **Google, what is the most popular dog?” – how would it know if I meant dog breed, dog name or the**  
3 **most popular famous dog?**

4 In the first example, Assistant has to understand that you’re looking for a location (“where is”) and what  
5 you’re looking for (“a dog park”), so it makes sense to use Maps to help. In this, Assistant would  
6 recognize it’s a more open-ended question and call upon Search instead. What this really comes down  
7 to is identifying the best interpretation. One thing that is helpful is that Assistant can rank how satisfied  
8 previous users were with similar responses to similar questions – that can help it decide how certain it  
is of its interpretation. Ultimately, that question would go to Search, and the results would be proposed  
to you with whatever formatting is best for your device.

9 296. Each of the Accused Google Assistant Products and Services comprises one or more  
10 physical processors programmed with one or more computer program instructions which, when  
11 executed, cause the one or more physical processors to: generate a first context stack associated with  
12 a first device, the first context stack comprising context information that corresponds to a plurality of  
13 prior utterances.  
14

15 297. For example, Google describes Google Assistant, which runs on one or more physical  
16 processors, as storing past activity associated with a device to provide more personalized responses.<sup>81</sup>  
17

## 18 Delete your Google Assistant activity

19 Your Google Assistant stores your past activity to do things like remember your interests and  
20 give more personalized responses. You can find or delete your past activity at any time.

21 Learn more about how we secure and protect your data in the [Google Safety Center](#) .

22 298. Each of the Accused Google Assistant Products and Services comprises synchronizing  
23 the first context stack with a second context stack associated with a second device such that the context  
24 information of the first context stack is updated based on related context information of the second  
25 context stack.  
26  
27

28 <sup>81</sup> <https://support.google.com/assistant/answer/7108295>

1           299. For example, Google describes Google Assistant as syncing activity across multiple  
2 devices in a home.<sup>82</sup>

## 3 4 Share a home and devices in the Google Home 5 app

6 **Important:** If you use the Nest app and haven't migrated to a Google Account, you [manage](#)  
7 [homes](#) and [people who share access](#) to your home with the Nest app.

8 To organize and manage your devices in the Google Home app, you can create a home. Then,  
9 you can invite home members who will share control of the home and its devices. For example,  
10 you can put your grouped living room speakers, office lights, and thermostat into a home, and  
11 invite your family to be members of that home.

12 Google further describes that devices, such as Smart Displays, Smart Clocks, and speakers, can be  
13 grouped within a home.<sup>83</sup>

## 14 Group your Google Assistant devices

15 You can create groups of speakers, Smart Displays, and Smart Clocks so all of your devices play  
16 the same audio throughout your house.

17 This feature doesn't work on Bose or Sonos speakers that have the Google Assistant.

### 18 What you need

19 You need two or more of the devices listed below. You can group speakers, Smart Displays, and  
20 Smart Clocks in any combination.

- 21 • Google Home
- 22 • Google Nest Speakers
- 23 • Chromecast (2nd generation and above)
- 24 • Smart Displays with Google Assistant
- 25 • Chromecast Audio
- 26 • Speakers with Chromecast built-in
- 27 • Smart Clock

28 <sup>82</sup> <https://support.google.com/googlenest/answer/9155535>

<sup>83</sup> <https://support.google.com/assistant/answer/9210727?hl=en>

1 Google further describes that Voice Match and media can be used such that “YouTube videos or some  
2 TV shows or movies” can be synchronized across devices so that a user can “continue playback from  
3 [their] last saved spot.”<sup>84</sup>  
4

## 5 Voice Match and media on shared Google Nest 6 or Home devices

7 A Google Nest or Home speaker or display is often shared among household members. When  
8 each person in your household uses Voice Match, all of you will enjoy a more customized media  
9 experience.

10 When you set up Voice Match on a shared speaker or display, you can do things like:

- 11 • Choose your own default music services.
- 12 • Get a personalized music experience based on your listening history, liked songs, and other  
13 details of your past interaction with the music service.
- 14 • Control your own private library for the music service, which allows you to access your saved  
15 songs and playlists.
- 16 • Can ask to play recommended YouTube videos or some TV shows or movies from a linked  
17 streaming service, which allows you to continue playback from your last saved spot.

18 300. Each of the Accused Google Assistant Products and Services comprises receiving a  
19 natural language utterance associated with a command or request.

20 301. For example, Google describes Google Assistant as receiving user generated natural  
21 language speech utterances containing at least one request.<sup>85</sup>  
22  
23  
24  
25  
26

---

27 <sup>84</sup> <https://support.google.com/googlenest/answer/7342711>

28 <sup>85</sup> *Id.*

1 **What you can ask Google Assistant**

2 You can ask Google Assistant for info and for help with everyday tasks.

3 **Important:** Some queries won't work on all devices and in all languages.

4 For ideas about what Google Assistant can help with, ask "What can you do?"

5 **What Google Assistant can do**

6 **Get local info**

- 7 • **Weather:** What's the weather today?
- 8 • **Food:** Find pizza restaurants nearby.
- 9 • **Business hours:** Is Walgreens still open?
- 10 • **Navigation:** Navigate home.

11 **Plan your day**

- 12 • **Traffic:** How's the traffic to work?
- 13 • **Reminders:** Remind me to do laundry this evening. Remind me to call Mom every Sunday.
- 14 • **Calendar events:** When's my first meeting today? Add a meeting to my calendar.
- 15 • **Flights:** Is United flight 1463 on time?

16 **Ask Google**

- 17 • **Game updates:** Who won the Warriors game?
- 18 • **Calculations:** What's 20% of 80?
- 19 • **Dictionary:** What does "gregarious" mean?
- 20 • **Translations:** How do I say "Nice to meet you" in French?
- 21 • **Finance:** How's the S&P 500 doing?
- 22 • **Unit conversions:** How many kilometers in a mile?
- 23 • **Search:** Search for summer vacation ideas.
- 24 • **Image search:** Find pictures of kittens.
- 25 • **Web answer:** How do you remove wine stains from a rug?

26 302. Each of the Accused Google Assistant Products and Services comprises determining  
27 one or more words of the natural language utterance by performing speech recognition on the natural  
28 language utterance.

303. For example, Google describes Google Assistant as “process[ing] the question and  
get[ting] text out of it.”<sup>86</sup>

<sup>86</sup> <https://blog.google/products/assistant/ask-a-techspert-assistant-questions/>

1 **Got it. Let's say I ask Assistant something pretty straightforward, like, "Hey Google, where's the**  
2 **closest dog park?" – how would Assistant understand what I'm saying and respond to my query?**

3 The first step is for Assistant to process that "Hey Google" and realize, "Ah, it looks like this person is  
4 now speaking to me and wants something from me."

5 Assistant picks up the rest of the audio, processes the question and gets text out of it. As it does that, it  
6 tries to understand what your sentence is about. What type of intention do you have?

7 304. Each of the Accused Google Assistant Products and Services comprises determining  
8 the command or request based on the one or more words and the updated context information.

9 305. For example, Google describes Google Assistant as determining media playback  
10 related commands and requests, such as "Next song," or "What's playing," which are processed using  
11 updated information from the shared home devices.<sup>87</sup>

### 13 Use single or multiple voice queries

14 **Note:** If you have [Look and Talk](#) (English only) or [quick phrases](#) (US English only) enabled on  
15 your Nest Hub Max, you can also activate Google Assistant without "Hey Google."

#### 16 Single voice queries

17 Simply say "Ok Google" or "Hey Google" before any of the voice queries below.

#### 18 Multiple voice queries

19 Learn how to [ask your Assistant to do multiple things at once](#) (US English only).

### 20 Listen to media

#### 21 Music

22 **To do this:**

23 **Say "Hey Google," then:**

24  
25  
26  
27  
28 <sup>87</sup> <https://support.google.com/googlenest/answer/7207759?hl=en#zippy=%2Cmusic>

Play next song	"Next" "Skip" "Next song"
What's playing	"What's playing?" "What song is playing?" "What artist is playing?"

306. On information and belief, Google has known about the '652 Patent since at least the filing of the underlying patent application in 2013 as a continuation of the '607 Patent, which was specifically disclosed to Google by VoiceBox in 2012.

307. Additionally, on information and belief, Google actively monitors patent activity through information that is available to the public from the United States Patent and Trademark Office and from commercial and foreign government databases (including commercial databases operated by Google). For example, on May 27, 2015, Google disclosed the '607 Patent, to which the '652 Patent claims priority, as prior art to its own patent application no. 14/723,305. On information and belief, Google thereafter monitored the prosecution of the applications continuing from the '607 Patent, including the application leading to the '652 Patent, and was aware of the '652 Patent at or soon after its issuance from the U.S. Patent Office. On or about January 21, 2022, the U.S. Patent Office identified the '652 Patent to Google as prior art to Google's own United States patent application no. 16/609,491.

308. Google knew or should have known that Google's actions infringe one or more of the claims of the '652 Patent because Google has the technical expertise to understand the scope and content of the '652 Patent, because Google was made aware of and reviewed the content of the '607 Patent before or during the development of the Accused Google Assistant Products and Services, because Google knew of the '652 Patent since at least the publication of the underlying patent application in 2013, because Google developed the Accused Google Assistant Products and Services

1 in light of its review of the Asserted Patents, because Google is a major provider of voice recognition  
2 products and services, and because Google knows the design, function, and operation of the Accused  
3 Google Assistant Products and Services, as well as the nature and extent of their use by others.  
4 Additionally, Google had notice of its infringement of the '652 Patent at least as of the filing of the  
5 initial Complaint and has continued to infringe the '652 Patent despite clear notice of its infringement.  
6

7 309. Further, on information and belief, Google has actively induced and/or contributed to  
8 infringement of at least Claim 1 of the '652 Patent in violation of at least 35 U.S.C. § 271(b), (c), and  
9 (f).

10 310. Users of the Accused Google Assistant Products and Services directly infringe at least  
11 Claim 1 of the '652 Patent when they use the Accused Google Assistant Products and Services in the  
12 ordinary, customary, and intended way.

13 311. On information and belief, Google's inducements in violation of 35 U.S.C. § 271(b)  
14 include, without limitation and with specific intent to encourage infringement, knowingly inducing  
15 businesses and consumers to use the Accused Google Assistant Products and Services within the  
16 United States in the ordinary, customary, and intended way by, directly or through intermediaries,  
17 supplying the Accused Google Assistant Products and Services to businesses and consumers within  
18 the United States, and instructing and encouraging such businesses and consumers to use the Accused  
19 Google Assistant Products and Services in the ordinary, customary, and intended way, which Google  
20 knew infringes at least Claim 1 of the '652 Patent, or, alternatively, was willfully blind to the  
21 infringement.  
22

23 312. On information and belief, Google's inducements in violation of 35 U.S.C. § 271(b)  
24 further include, without limitation and with specific intent to encourage the infringement, knowingly  
25 inducing Google's customers to commit acts of infringement with respect to the Accused Google  
26 Assistant Products and Services within the United States, by, directly or through intermediaries,  
27  
28

1 instructing and encouraging such customers to import, make, use, sell, offer to sell, or otherwise  
2 commit acts of infringement with respect to the Accused Google Assistant Products and Services in  
3 the United States, which Google knew infringes at least Claim 1 of the '652 Patent, or, alternatively,  
4 was willfully blind to the infringement.

5  
6 313. On information and belief, in violation of 35 U.S.C. § 271(c), Google's contributory  
7 infringement further includes offering to sell or selling within the United States, or importing into the  
8 United States, components of the patented invention of and/or a material or apparatus for use in  
9 practicing at least Claim 1 of the '652 Patent, constituting a material part of the invention. For example,  
10 Google sells, offers to sell, and/or imports the claimed one or more physical processors programmed  
11 with one or more computer program instructions which embody the claimed steps to be performed by  
12 the processors and/or execute the patented methods. These components were specifically adapted for  
13 infringement and have no substantial noninfringing uses. On information and belief, Google knows  
14 and has known the same to be especially made or especially adapted for use in an infringement of the  
15 '652 Patent, and such components are not a staple article or commodity of commerce suitable for  
16 substantial noninfringing use.

17  
18 314. On information and belief, in violation of 35 U.S.C. § 271(f)(1), Google's infringement  
19 further includes without authority supplying or causing to be supplied in or from the United States all  
20 or a substantial portion of the components of the patented invention of at least Claim 1 of the '652  
21 Patent, where such components are uncombined in whole or in part, in such manner as to actively  
22 induce the combination of such components outside of the United States in a manner that would  
23 infringe the patent if such combination occurred within the United States.

24  
25 315. On information and belief, in violation of 35 U.S.C. § 271(f)(2), Google's infringement  
26 further includes without authority supplying or causing to be supplied in or from the United States  
27 components of the patented invention of at least Claim 1 of the '652 Patent that are especially made  
28



1 or especially adapted for use in the invention and not staple articles or commodities of commerce  
2 suitable for substantial noninfringing use, where such components are uncombined in whole or in part,  
3 knowing that such components are so made or adapted and intending that such components will be  
4 combined outside of the United States in a manner that would infringe the patent if such combination  
5 occurred within the United States.  
6

7 316. Google is not licensed or otherwise authorized to practice the claims of the '652 Patent.

8 317. Thus, by its acts, Google has injured Dialect and is liable to Dialect for directly and/or  
9 indirectly infringing one or more claims of the '652 Patent, whether literally or under the doctrine of  
10 equivalents, including without limitation Claim 1.

11 318. As a result of Google's infringement of the '652 Patent, Dialect has suffered monetary  
12 damages, and seeks recovery, in an amount to be proven at trial, adequate to compensate for Google's  
13 infringement, but in no event less than a reasonable royalty with interest and costs.  
14

15 319. On information and belief, in addition to Google's knowledge of the '652 Patent as set  
16 forth above both prior to and as a result of the filing of the initial Complaint, Google has had, and  
17 continues to have, knowledge that it infringes and the specific intent to infringe, through its deliberate  
18 and intentional infringement or, alternatively, through its willfully blind disregard of the '652 Patent  
19 by knowing there was a high probability of infringement but taking deliberate actions to avoid  
20 confirming that infringement. The specific disclosure of the '607 Patent to and multiple  
21 demonstrations of VoiceBox's NLU technology Google and its knowledge of the '652 Patent years  
22 before the release of the Accused Google Assistant Products and Services and Google's policy of  
23 ignoring the intellectual property rights of others supports an inference that Google's managers,  
24 engineers, employees, and/or agents were aware or should have been aware of the '652 Patent, yet  
25 willfully continued Google's infringing conduct. The filing of this action has also made Google aware  
26 of the unjustifiably high risk that its actions constituted and continue to constitute infringement of the  
27  
28

1 '652 Patent. On information and belief, discovery will reveal additional facts and circumstances from  
2 which Google's knowledge and intent to infringe (or willful indifference), both before and after the  
3 filing of this action, may be inferred.

4 320. Accordingly, Google's infringement of the '652 Patent has also been and continues to  
5 be deliberate, intentional, and willful, and this is therefore an exceptional case warranting an award of  
6 enhanced damages and attorneys' fees and costs pursuant to 35 U.S.C. §§ 284 and 285.

7 321. Google's infringement of Dialect's rights under the '652 Patent will continue to  
8 damage Dialect, causing irreparable harm for which there is no adequate remedy at law, unless  
9 enjoined by this Court.  
10

11 **NOTICE**

12 322. Plaintiff has complied with the notice requirement of 35 U.S.C. § 287 and has not and  
13 does not currently distribute, sell, offer for sale, or make products embodying the Asserted Patents.  
14

15 **PRAYER FOR RELIEF**

16 WHEREFORE, Plaintiff prays for judgment and seeks relief from Defendants as  
17 follows:  
18

- 19
- 20 a. For judgment that Google has infringed and continues to infringe the claims of the '209,  
21 '738, '160, '720, '006, '607, and '652 Patents;
  - 22 b. For a permanent injunction against Google and its respective officers, directors, agents,  
23 servants, affiliates, employees, divisions, branches, subsidiaries, parents, and all other  
24 acting in active concert therewith from infringement of the '209, '738, '160, '720, '006,  
25 '607, and '652 Patents;
  - 26 c. For an accounting of all damages sustained by Plaintiff as a result of Google's acts of  
27 infringement;  
28

- d. In the event Google is not permanently enjoined, for a mandatory future royalty payable on each and every future sale by Google of a product or service that is found to infringe one or more of the Asserted Patents and on all future products and services which are not colorably different from products and services found to infringe;
- e. For a judgment and order finding that Google’s infringement is willful and/or egregious and awarding to Plaintiff enhanced damages pursuant to 35 U.S.C. § 284;
- f. For a judgment and order requiring Google to pay Plaintiff’s damages, costs, expenses, and pre- and post-judgment interest for its infringement of the ’209, ’738, ’160, ’720, ’006, ’607, and ’652 Patents as provided under 35 U.S.C. § 284;
- g. For a judgment and order finding that this is an exceptional case within the meaning of 35 U.S.C. § 285 and awarding to Plaintiff its reasonable attorneys’ fees; and
- h. For such other and further relief in law and in equity as the Court may deem just and proper.

**DEMAND FOR JURY TRIAL**

Pursuant to Rule 38(b) of the Federal Rules of Civil Procedure, Plaintiff demands a trial by jury in this action for all issues triable by a jury.

Dated: September 4, 2024

Respectfully Submitted,  
*/s/ Garland Stephens*

Garland T. Stephens (pro hac vice)  
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