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PTO/SB/05 (09-04)
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UTILITY PATENT APPLICATION TRANSMITTAL

(Only for new nonprovisional applications under 37 CFR 1.53(b))

Attorney Docket No.	090611-0316777
First Inventor	Philippe Di Cristo
Title	See attached addendum
Express Mail Label No.	

112975 U.S.PTO 11/197504 080505

APPLICATION ELEMENTS

See MPEP chapter 600 concerning utility patent application contents.

1. [X] **Fee Transmittal Form** (e.g., PTO/SB/17)
   (Submit an original and a duplicate for fee processing)
2. [X] **Applicant claims small entity status.** See 37 CFR 1.27.
3. [X] **Specification** [*Total Pages* 69]
   Both the claims and abstract must start on a new page
   (For information on the preferred arrangement, see MPEP 608.01 (a))
4. [X] Drawing(s) (*35 U.S.C. 113*) [*Total Sheets* 8]
5. **Oath or Declaration** [*Total Sheets* 2]
   a. [X] Newly executed (original or copy)
   b. [ ] Copy from a prior application (37 CFR 1.63(d))
   (for continuation/divisional with Box 18 completed)
   i. [ ] DELETION OF INVENTOR(S)
   Signed statement attached deleting inventor(s) name in the prior application, see 37 CFR 1.63(d)(2) and 1.33(b).
6. [X] **Application Data Sheet.** See 37 CFR 1.76
7. [ ] **CD-ROM or CD-R** in duplicate, large table or Computer Program *(Appendix)*
   [ ] Landscape table on CD
8. **Nucleotide and/or Amino Acid Sequence Submission** *(if applicable, all necessary)*
   a. [ ] Computer Readable Form (CRF)
   b. Specification Sequence Listing on:
      i. [ ] CD-ROM or CD-R (2 copies); or
      ii. [ ] Paper
   c. [ ] Statements verifying identity of above copies

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Alexandria VA 22313-1450

ACCOMPANYING APPLICATION PARTS

9. [X] **Assignment Papers** (cover sheet & document(s))
   Name of Assignee VoiceBox Technologies, Inc.
10. [ ] **37 CFR 3.73(b) Statement** *(when there is an assignee)* [ ] Power of Attorney
11. [ ] **English Translation Document** *(if applicable)*
12. [ ] **Information Disclosure Statement** (PTO/SB/08 or PTO-1449
    [ ] Copies of Citations attached
13. [ ] **Preliminary Amendment**
14. [X] **Return Receipt Postcard** (MPEP 503)
    (Should be specifically itemized)
15. [ ] **Certified Copy of Priority Document(s)**
    (if foreign priority is claimed)
16. [ ] **Nonpublication Request** under 35 U.S.C. 122 b)(2)(B)(i). Applicant must attach form PTO/SB/35 or equivalent.
17. [ ] Other: .....

18. If a CONTINUING APPLICATION, *check appropriate box, and supply the requisite information below and in the first sentence of the specification following the title, or in an Application Data Sheet under 37 CFR 1.76:*

[ ] Continuation [ ] Divisional [ ] Continuation-in-part (CIP) of prior application No.: .....

Prior application information: *Examiner* _____ *Art Unit:* _____

19. CORRESPONDENCE ADDRESS

[X] The address associated with Customer Number: 00909 ***OR*** [ ] Correspondence address below

Name					
Address					
City		*State*		*Zip Code*	
Country		*Telephone*		*Fax*	

Signature		*Date*	August 5, 2005
Name (Print/Type)	Sean L. Ingram	*Registration No. (Attorney/Agent)*	48,283

This collection of information is required by 37 CFR 1.53(b). The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

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MICROSOFT EXHIBIT 1039
Microsoft v. Dialect
IPR2025-01193

PTO/SB/17 (12-04)
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Effective on 12/08/2004.
Fees pursuant to the Consolidated Appropriations Act. 2005 (H.R. 4818).

FEE TRANSMITTAL for FY 2005

[X] Applicant claims small entity status. See 37 CFR 1.27

TOTAL AMOUNT OF PAYMENT ($) 725

Complete if Known	
Application Number	TBD
Filing Date	August 5, 2005
First Named Inventor	Philippe Di Cristo
Examiner Name	
Art Unit	
Attorney Docket No.	090611-0316777

METHOD OF PAYMENT (check all that apply)

[ ] Check [ ] Credit Card [ ] Money Order [ ] None [ ] Other (please identify): _____

[X] Deposit Account Deposit Account Number: 033975 Deposit Account Name: Pillsbury Winthrop Shaw Pittman LLP

For the above-identified deposit account, the Director is hereby authorized to: (check all that apply)

[X] Charge fee(s) indicated below
[ ] Charge fee(s) indicated below, **except for the filing fee**
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[X] Credit any overpayments

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FEE CALCULATION

1. BASIC FILING, SEARCH, AND EXAMINATION FEES

	FILING FEES		SEARCH FEES		EXAMINATION FEES		
Application Type	Fee ($)	Small Entity Fee ($)	Fee ($)	Small Entity Fee ($)	Fee ($)	Small Entity Fee ($)	Fee Paid ($)
Utility	300	100	500	250	200	100	500.00
Design	200	100	100	50	130	65	
Plant	200	100	300	150	160	80	
Reissue	300	150	500	250	600	300	
Provisional	200	100	0	0	0	0	

2. EXCESS CLAIM FEES

Fee Description	Fee ($)	Small Entity Fee ($)
Each claim over 20 or, for Reissues, each claim over 20 and more than in the original patent	50	25
Each independent claim over 3 or, for Reissues, each independent claim more than in the original patent	200	100
Multiple dependent claims	360	180

Total Claims	Extra Claims	Fee ($)	Fee Paid ($)	Multiple Dependent Claims Fee ($)	Multiple Dependent Claims Fee Paid ($)
29 - 20 or HP =	9	X 25.00 =	225.00		

HP = highest number of total claims paid for, if greater than 20

Indep. Claims	Extra Claims	Fee ($)	Fee Paid ($)
3 - 3 or HP =	0	X =	0.00

HP = highest number of independent claims paid for, if greater than 3

3. APPLICATION SIZE FEE

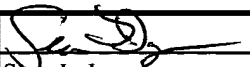
If the specification and drawings exceed 100 sheets of paper, the application size fee due is $250 ($125 for small entity) for each additional 50 sheets or fraction thereof. See 35 U.S.C. 41(a)(1)(G) and 37 CFR 1.16(s).

Total Sheets	Extra Sheets	Number of each additional 50 or fraction thereof	Fee ($)	Fee Paid ($)
77 - 100 =	0 /50=	_____ (round up to a whole number) x	125.00 =	

4. OTHER FEE(S)

	Fee Paid ($)
Non-English Specification, 130 fee (no small entity discount)	
Other: _____	

SUBMITTED BY

Signature		Registration No. (Attorney/Agent) 48,283	Telephone 703.905.2107
Name (Print/Type)	Sean L. Ingram		Date August 5, 2005

This collection of information is required by 37 CFR 1.136. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 30 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

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Addendum

Invention Title

SYSTEMS AND METHODS FOR RESPONDING TO NATURAL LANGUAGE SPEECH UTTERANCE

SYSTEMS AND METHODS FOR RESPONDING TO NATURAL LANGUAGE SPEECH UTTERANCE

BACKGROUND OF THE INVENTION

Field of the Invention

[01] The invention relates to retrieval of information or processing of commands through a speech interface and/or a combination of a speech interface and a non-speech interface. More specifically, the invention provides a fully integrated environment that allows users to submit natural language questions and commands via the speech interface and the non-speech interface. Information may be obtained from a wide range of disciplines, making local and network inquiries to obtain the information and presenting results in a natural manner, even in cases where the question asked or the responses received are incomplete, ambiguous or subjective. The invention may further allow users to control devices and systems either locally or remotely.

Background of the Related Art

[02] A machine's ability to communicate with humans in a natural manner remains a difficult problem. Cognitive research on human interaction shows that verbal communication, such as a person asking a question or giving a command, typically relies heavily on context and domain knowledge of the target person. By contrast, machine-based queries (a query may be a question, a command, a request and/or other types of communications) may be highly structured and may not be inherently natural to the human user. Thus, verbal communications and machine processing of queries taken from the verbal communications may be fundamentally incompatible. Yet the ability to allow a person to make natural language speech-based queries remains a desirable goal.

[03] Speech recognition has steadily improved in accuracy and today is successfully used in a wide range of applications. Natural language processing has been applied to the parsing of speech queries. Yet, current systems do not reliably provide a complete environment for users to submit verbal and/or textual communications through natural language queries that are processed to provide natural responses. There remains a number of significant barriers to creation of a complete speech-based and/or non-speech-based natural language query and response environment.

SUMMARY OF THE INVENTION

[04] According to an aspect of the invention, one object of the invention is to overcome these and other drawbacks of prior systems.

[05] According to one aspect of the invention, users may provide the system with spoken utterances and/or textual communications in a natural language format, including imperfect information such as, incomplete thoughts, incomplete sentences, incomplete phrases, slang terminology, repeated words, word variations, synonyms, or other imperfect information. In order for machines (e.g., computer devices) to properly respond to questions and/or commands that are presented in the natural language format, the questions and/or commands may be parsed and interpreted to formulate machine processable queries and algorithms.

[06] In another aspect of the invention, systems are provided for overcoming the deficiencies of prior systems through the application of a complete speech-based information query, retrieval, presentation and command environment or a combination of speech-based and non-speech-based information query, retrieval, presentation and command environment. This environment makes maximum use of context, prior

information, domain knowledge, and user specific profile data to achieve a natural environment for one or more users submitting queries or commands to multiple domains. Through this integrated approach, a complete speech-based natural language query and response environment may be created. Alternatively, a combination of speech-based and non-speech-based natural language query and response environment may be created. Further, at each step in the process, accommodation may be made for full or partial failure and graceful recovery. The robustness to partial failure is achieved through the use of probabilistic and fuzzy reasoning at several stages of the process. This robustness to partial failure promotes the feeling of a natural response to questions and commands.

[07] According to another aspect of the invention, the system may include a speech unit interface device that receives utterances, including spoken natural language queries, commands and/or other utterances from a user, and a computer device or system that receives input from the speech unit and processes the input (e.g., retrieves information responsive to the query, takes action consistent with the command and performs other functions as detailed herein). The system may further generate a natural language response and/or generate a natural language message, such as an alert message, without any prompting from a user. According to another embodiment of the invention, the non-speech interface may be provided in addition to, or in place of, the speech unit interface. For example, the non-speech interface may communicate non-speech information, such as textual communications, graphical or tabular information, or other non-speech information.

[08] According to one embodiment of the invention, infrastructure may be provided to maintain context information during multimodal interactions, such as speech and/or non-

speech interactions. According to one exemplary embodiment of the invention, context information may be maintained in a multimodal environment by providing communication channels between multimodal devices, or mobile device, and the system. The communication channels allow the system to receive multimodal input such as text-based commands and questions and/or voice commands and questions. According to another embodiment of the invention, the multimodal input may include a string of text, such as keywords, that are received as commands or questions. According to yet another embodiment of the invention, the system may synchronize the context between the multimodal devices and the speech-based units. In order to send a response to the corresponding device, the system may track the source and send the response to the corresponding speech interface or the non-speech interface.

[09] According to an alternative embodiment of the invention, context information may be maintained using a context manager that may be centrally positioned to receive input from multiple sources and to provide output to multiple sources. According to one embodiment, the devices that communicate with the context manager may register through a registration module and may subscribe to one or more events. According to another embodiment of the invention, the context manager may receive input in Context XML form, for example. The other registered devices may be informed of context changes through a context tracking module to enable synchronizing of context across the registered modules. According to one embodiment of the invention, registered modules may be added or removed from the system. The registered modules may include dynamic link libraries (DLLs) that are specific to multimodal devices.

[10] According to yet another alternative embodiment of the invention, context information may be determined from a command or request that is presented in a textual format and/or a command or request that is presented as an utterance and processed using a multi-pass automatic speech recognition module that transcribes the utterance to a text message. The command or request may be compared against a context description grammar to identify a match. Any active grammars in the context description grammar may be scored against the command or request and a best match may be sent to a response generator module. Agents may be associated with corresponding response generator modules and may retrieve the requested information for generation of a response. The agents may update a context stack to enable follow-up requests.

[11] According to another aspect of the invention, the speech unit and/or multimodal device may be incorporated into the computer device or system, or may be separate structures. If separate structures are provided, the speech unit and/or multimodal devices may be connected to the computer device via a wired or wireless connection. If a wireless connection is provided, a base unit may be connected to the computer, internally or externally, to communicate with the speech unit and/or multimodal device.

[12] According to another aspect of the invention, the computer devices or systems may comprise stand alone or networked PCs, personal digital assistants (PDAs), cellular telephones, or other computer devices or systems. For convenience, these and other computer alternatives are referred to as computers. One aspect of the invention comprises software that may be installed onto the computer, where the software may include one or more of the following modules: a non-speech information receiving module; a speech recognition module that captures user utterances; a parser that parses

the utterance; a text to speech engine module that converts the text to speech; a network interface that enables the computer to interface with one or more networks; a non-speech interface module and an event manager for managing events. Preferably, the event manager is in communication with a context description grammar, a user profile module that enables user profiles to be created, modified and accessed, a personality module that enables various personalities to be created and used, an agent module, an update manager, a cognitive model that provides statistical abstracts of user interaction patterns with the system, one or more databases, and other components.

[13] According to another aspect of the invention domain specific behavior and information may be organized into data managers. Data managers are autonomous executables that receive, process and respond to user questions, queries and commands. The data managers provide complete, convenient and re-distributable packages or modules of functionality, typically for a specific domain of application. Data managers may be complete packages of executable code, scripts, links to information, and other forms of communication data that provide a specific package of functionality, usually in a specific domain. In other words, data managers include components for extending the functionality to a new domain. Further, data managers and their associated data may be updated remotely over a network as new behavior is added or new information becomes available. Data managers may use system resources and the services of other, typically more specialized, data managers. Data managers may be distributed and redistributed in a number of ways including on removable storage media, transfer over networks or attached to emails and other messages. An update manager may be used to add new data managers to the system or update existing data managers.

[14] According to another aspect of the invention, license management capabilities allowing the sale of data managers by third parties to one or more users on a one time or subscription basis may be provided. In addition, users with particular expertise may create data managers, update existing data managers by adding new behaviors and information, and making these data managers for other users as agents.

[15] In order to enhance the natural query and response environment, the system may format results to increase understandability to users. Formatting and presentation of results may be based on the context of the questions, the contents of the response being presented, the history of the interaction with the user, the user's preferences and interests and the nature of the domain. By contrast, rigid, highly formatted, or structured presentation of results may be deemed unnatural by many users.

[16] According to another embodiment of the invention, the system may simulate some aspects of a human "personality". In some cases, the presentation of the response and the terms that are used to provide the response may be randomized to avoid the appearance of rigidly formatted or mechanical responses. The use of other simulated personality characteristics is also desirable. For example, a response that may be upsetting to the user may be presented in a sympathetic manner. Furthermore, results of requests may be long text strings, lists, tables or other lengthy sets of data. Natural presentation of this type of information presents particular challenges because simply reading the long response is generally not preferred. Instead, the system may parse important sections from the response and may initially provide only reports. Determining what parts of a long response are presented may be based on the context of the questions, the contents of the response being presented, the history of the interaction with the user,

the user's preferences and interests and the nature of the domain. At the same time, the system may give the user interactive control over what information to present and how much information to present, to stop the response all together, or to take other actions.

[17] According to another aspect of the invention, the system may process and respond to questions, requests and/or commands. Keywords or context may be used to determine whether the received utterance and/or textual message includes a request or command. For example, utterances may include aspects of questions, requests and/or commands. For example, a user may utter "record my favorite TV program". A request is processed to determine the name, the channel, and time for the users favorite TV program. A command must be executed to set a video recorder to capture this program.

[18] For utterances including questions and/or requests, the system may perform multiple steps that may include one or more of:

- capturing the user's questions and/or requests through speech recognition components that operate in a variety of real-world environments;
- parsing and interpreting the question and/or request;
- determining the domain of expertise and context, invoking the proper resources, including agents;
- formulating one or more requests to one or more local and/or network data sources or sending appropriate commands to local or remote devices or the system itself;
- performing presentation formatting, variable substitutions and transformations to modify the requests to a form that yields desired results from the available sources;

- executing the multiple requests or commands in an asynchronous manner and dealing gracefully with failures;
- extracting or scraping the desired information from the one or more results, which may be returned in any one of a number of different formats;
- evaluating and interpreting the results, including processing of errors to provide one or more results judged to be "best," even if the results are ambiguous, incomplete, or conflicting;
- performing formatting, variable substitutions and transformations to modify the results to a form most easily understood by the user; and
- presenting the compound result, through a text to speech engine or a multimodal interface, to the user in a useful and expected manner.

[19] The above steps may be performed with knowledge of the domain of expertise, the context for the question or command, domain specific information, the history of the user's interactions, user preferences, available information sources or commands, and responses obtained from the sources.

[20] Probabilistic or fuzzy set decision and matching methods may be applied to deal with inconsistent, ambiguous, conflicting and incomplete information or responses. In addition, asynchronous queries may be used to provide rapid and graceful failure of requests or commands that allow the system to robustly return results quickly and in a manner that seems natural to the user.

[21] Many everyday questions are inherently subjective and result in answers that are a matter of opinion or consensus, as much as fact. Such questions are often ad hoc in their

nature, as well. The system, according to another aspect of the invention, may use adaptive, probabilistic, and fuzzy set decision and matching methods to identify the subjective nature of the question and to evaluate a range of possible answers, wherein one or more answers may be selected that most accurately represent the type of result desired by the user.

[22] The context and expected results from a particular question may be highly dependent on the individual asking the question. Therefore, the system may create, store and use personal profile information for each user. Information in the profile may be added and updated automatically as the user uses the system or may be manually added or updated by the user or by others. Domain specific agents may collect, store and use specific profile information, as may be required for optimal operations. Users may create commands for regularly used reports, automatically generated alerts, and other requests and for the formatting and presentation of results. The system may use profile data in interpreting questions, formulating requests, interpreting request results and presenting answers to the user. Examples of information in a user profile includes, history of questions asked, session histories, formatting and presentation preferences, special word spelling, terms of interest, special data sources of interest, age, sex, education, location or address, place of business, type of business, investments, hobbies, sports interests, news interests and other profile data.

[23] According to one aspect of the invention, the system may attempt to provide rapid responses in order to provide a natural question and response environment. The rapid responses may be provided without obtaining additional information. The system may determine agent composition, context and/or domain for a user's question or command,

for example, by using a real-time scoring system or other technique. Based on this determination, the system may trigger one or more agents to respond to the user's question or command. The agents may make one or more requests and rapidly return a formatted response. Thus, users may receive direct responses to a set of questions, each with a different response or context. In some cases, the available information, including the request results, may not adequately answer the questions presented. In such situations, the user may be asked one or more follow-up questions to resolve the ambiguity. Additional requests may then be made before an adequate response is provided. In these cases, the system may use context information, user profile information and/or domain specific information to minimize the interaction with the user required to deliver a response.

[24] If the confidence level of the domain or context score is not high enough to ensure a reliable response, the system may request that the user verify that the question or command is correctly understood. In general, the question may be phrased to indicate the context of the question including all criteria or parameters. If the user confirms that the question is correct, the system may proceed to produce a response. Otherwise, either the user can rephrase the original question, perhaps adding additional information to remove ambiguity, or the system may ask one or more questions to attempt to resolve the ambiguity or other actions may taken.

[25] According to one aspect of the invention, the system may accept any natural language question or command and, as a result, may be subject to ambiguous requests. To assist users in formulating concise questions and commands, the system may support a voice query language. The language may help users clearly specify the keywords or

contexts of the question or command along with the parameters or criteria. The system may provide built in training capabilities to help the user learn the best methods to formulate their questions and commands.

[26] In order to make the responses to user's questions and commands seem more natural, the system may employ one or more dynamically invokable personalities and/or emotional models. Personalities and emotional models have specific characteristics that simulate the behavioral characteristics of real humans. Examples of these characteristics include, sympathy, irritation, and helpfulness and associated emotions. The personality also randomizes aspects of responses, just as a real human would do. This behavior includes randomization of terms used and the order of presentation of information. Characteristics of the personality and/or emotions are invoked using probabilistic or fuzzy set decision and matching methods and using criteria, including the context for the question, the history of the user's interaction, user preferences, information sources available, responses obtained from the sources.

[27] According to another aspect of the invention, special procedures may be employed to present information in the form of long text strings, tables, lists or other long response sets. Simply presenting a long set of information in an ordered manner may not be considered natural or what most users have in mind. The system may use probabilistic or fuzzy set matching methods to extract relevant information and present these subsets first. Further the system may provide commands allowing users to skip through the list, find keywords or key information in the list or stop processing the list altogether.

[28] In addition to the ability to process user questions and commands, the invention may provide local or remote control functions for the system or for other devices. Users

may initiate commands locally or remotely. Several techniques for executing remote operations are possible, for example, the use of a telephone or other audio connection. Other remote command techniques may be used. The processing of these commands may be performed in a nearly identical manner to a question. One difference being that the result of the command is generally an action rather than a response. Examples of control operations supported by the invention include, finding and playing music, film, games or other entertainment media, control of the appliances or other electronic or electro-mechanical devices, security systems control, audio, text and video conferencing (including Voice over IP conferencing), operating integrated messaging environments and other control operations.

[29] By using an optional analog or digital telephone interface or a data network interface, the invention can provide remote control capability of the computer or and auxiliary devices connected to the computer. For example, if the computer is connected via an interface to one or more auxiliary devices, a remote user can use this capability to remotely control or program the operation of the auxiliary device. For example, this enables recording of a television program, checking the status of a home security system, checking voice mail messages, hearing and responding to email messages, and much more. For each user command utterance, the system may execute a number of steps possibly including:

- capturing the user's command through speech recognition that operates in a variety of real-world environments;
- parsing and interpreting the command;

- determining the domain for the command and context, invoking the proper resources, including agents;
- formulating device specific commands for the system or external devices;
- routing commands to the system, or external devices, including external devices connected to data networks;
- receiving and processing results of commands, including errors; and
- optionally, providing responses to users indicating the success or failure of the command, and possibly including state information.

[30] The system may be used in conjunction with a wide range of platform environments. These environments may include, as a peripheral to a PC, a portable or wearable computer or other computer, embedded in a PC or other computer, on a personal digital assistant, such as a PDA with wireless networking capability, in a specialized device such as a bar code scanner or payment terminal, on a wireless telephone, or other platforms. If the invention is used with a mobile or portable device that has position location capability, the location data can be used by the invention as part of the context for user questions. A user may use the system on one or more devices. In this case, history and profile information for the user may be synchronized between the multiple devices on a periodic basis or other basis.

[31] According to another aspect of the invention, the system may be deployed in a network of devices that use a common base of agents, data, information, user profiles and histories. Each user can then interact with, and receive, the same services and applications at any location equipped with the required device on the network. For example, multiple devices on which the invention is deployed, and connected to a

network, can be placed at different locations throughout a home, place of business or other location. In such a case, the system may use the location of the particular device addressed by the user as part of the context for the questions asked.

[32] According to one embodiment of the invention, the system may support multiple users that access the system at different times. According to another embodiment of the invention, the system may support multiple users that access the system during a same session in an interleaved or overlapping manner. The system may recognize the multiple users by name, voice, or other characteristic and may invoke a correct profile for each user. If multiple users are addressing the system in overlapping or interleaved sessions, the system may identify the multiple users and may invoke one or more corresponding profiles. For applications that require security safeguards, the multiple users may be verified using voiceprint matching, password or pass-phrase matching, or other security safeguards.

[33] When multiple users are engaged in interleaved sessions, the system may gracefully resolve conflicts using a probabilistic or fuzzy set decision method for each user. This process may simulate the manner in which a human would address multiple questions from various sources. For example, the system may answer short questions first in time while answering longer questions later in time. Alternatively, the system may answer questions in the order that they are received, among other configurations.

[34] Given the desire for domain specific behavior, user specific behavior and domain specific information, the system, according to another aspect of the invention, may allow both users and content providers to extend the system capabilities, add data to local data sources, and add references to network data sources. To allow coverage of the widest

possible range of topics, the system may allow third party content developers to develop, distribute and sell specialized or domain specific system programs and information. Content may be created though creation of new data managers, scripting existing data managers, adding new data to agents or databases and adding or modifying links to information sources. Distribution of this information is sensitive to the users interests and use history and to their willingness to pay or not.

[35] According to another aspect of the invention, the system may allow users to disseminate their knowledge without programming. The system may include mechanisms that allow users to post and distribute data managers and information in their particular areas of expertise, to improve system capability. Further, users can extend the system and configure it to their own preferences, add information to their profile to define new questions or queries, extend and modify existing questions and queries, add new data sources, update data sources, set preferences and specify presentation parameters for results.

[36] Since the invention may operate in many environments, including environments with background noise, point noise sources and people holding conversations, filtering of speech input may be performed. The invention may use, for example, either one-dimensional or two-dimensional array microphones to receive human speech. The array microphones may be fixed or employ dynamic beam forming techniques. The array pattern may be adjusted to maximize gain in the direction of the user and to null point noise sources. Speech received at the microphones may then be processed with analog or digital filters to optimize the bandwidth, cancel echoes, and notch-out narrow band noise sources. Following filtering, the system may use variable rate sampling to maximize the

fidelity of the encoded speech, while minimizing required bandwidth. This procedure may be particularly useful in cases where the encoded speech is transmitted over a wireless network or link.

[37] Some example applications for the invention includes but are not limited to the following:

- white pages and yellow pages lookups to find, email addresses, telephone numbers, street addresses and other information for businesses and individuals;
- personal address book, calendars and reminders for each user;
- automatic telephone dialing, reading and sending emails and pages by voice and other communications control functions;
- map, location and direction applications;
- movie or other entertainment locator, review information and ticket purchasing;
- television, radio or other home entertainment schedule, review information and device control from a local or remote user;
- weather information for the local area or other locations;
- stock and other investment information including, prices, company reports, profiles, company information, business news stories, company reports, analysis, price alerts, news alerts, portfolio reports, portfolio plans, etc.;
- flight or other scheduled transportation information and ticketing;
- reservations for hotels, rental cars and other travel services;

- local, national and international news information including headlines of interest by subject or location, story summaries, full stories, audio and video retrieval and play for stories.;
- sports scores, news stories, schedules, alerts, statistics, back ground and history information, etc.;
- ability to subscribe interactively to multimedia information channels, including sports, news, business, different types of music and entertainment, applying user specific preferences for extracting and presenting information;
- rights management for information or content used or published;
- horoscopes, daily jokes and comics, crossword puzzle retrieval and display and related entertainment or diversions;
- recipes, meal planning, nutrition information and planning, shopping lists and other home organization related activities;
- as an interface to auctions and online shopping, and where the system can manage payment or an electronic wallet;
- management of network communications and conferencing, including telecommunications, email, instant messaging, Voice over IP communications and conferencing, local and wide area video and audio conferencing, pages and alerts;
- location, selection, management of play lists and play control of interactive entertainment from local or network sources including, video

on demand, digital audio, such as MP3 format material, interactive games, web radio and video broadcasts;

- organization and calendar management for families, businesses and other groups of users including the management of, meetings, appointments, and events; and
- interactive educational programs using local and network material, with lesson material level set based on user's profile, and including, interactive multimedia lessons, religious instruction, calculator, dictionary and spelling, language training, foreign language translation and encyclopedias and other reference material.

[38] It will be appreciated that the foregoing statements of the features of the invention are not intended as exhaustive or limiting, the proper scope thereof being appreciated by reference to this entire disclosure and reasonably apparent variations and extensions thereof.

BRIEF DESCRIPTION OF THE DRAWINGS

[39] The invention will be described by reference to the preferred and alternative embodiments thereof in conjunction with the drawings in which:

[40] FIG. 1 is an overall diagrammatic view according to one embodiment of the invention;

[41] FIG. 2 is a schematic block diagram showing the agent architecture according to one embodiment of the invention;

[42] FIG. 3 is a high level process for receiving natural language speech-based queries and/or commands and generating a response according to one embodiment of the invention;

[43] FIG. 4A is a process for receiving natural language speech-based queries and/or commands and generating a response according to one embodiment of the invention;

[44] FIG. 4B is a process for receiving natural language speech-based commands in order to locally or remotely control functions of devices according to one embodiment of the invention;

[45] FIG. 5 is a process for correctly interpreting a user's utterance according to one embodiment of the invention; and

[46] FIG. 6 is a process for determining the proper domain agents to invoke and the properly formatted queries and/or commands that is to be submitted to the agents according to one embodiment of the invention.

[47] FIG. 7 illustrates a diagram for centrally maintaining context, according to one embodiment of the invention.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS

[48] Barriers to natural human request-response interaction between humans and machines include that natural language queries may be incomplete in their definition. Furthermore, context of previous questions, knowledge of the domain, and/or the user's history of interests and preferences may be needed to properly interpret questions and/or commands. Thus, natural language questions may not be easily transformed to machine processable form. Compounding this problem, natural language questions may be

ambiguous or subjective. In these cases, forming a machine processable query and returning a natural language response may be difficult.

[49] In order for machines (e.g., computer devices) to properly respond to questions or commands that are submitted in a natural language form, machine processable queries and algorithms may be formulated after the natural form questions or commands have been parsed and interpreted. Algorithms describe how the machines should gather data to respond to the questions or commands. Depending on the nature of the questions or commands, there may not be a simple set of queries and algorithms that will return an adequate response. Several queries and algorithms may need to be initiated and even these queries and algorithms may need to be chained or concatenated to achieve a complete response. Further, no single available source may contain the entire set of results needed to generate a complete response. Thus, multiple queries and/or algorithms, perhaps with several parts, may be generated to access multiple data sources that are located both locally or remotely. Not all of the data sources, queries and/or algorithms may return useful results or any results at all.

[50] Useful results that are returned are often embedded in other information and may need to be extracted from the other information. For example, a few key words or numbers may need to be "scraped" from a larger amount of other information in a text string, table, list, page, video stream or other information. At the same time, extraneous information including graphics or pictures may be removed to process the response. In any case, the multiple results must be evaluated and combined to form the best possible response, even in cases where some queries do not return useful results or fail to produce results entirely. In cases where the question is determined to be ambiguous or the result

is inherently subjective, determining the results to present in the response is a complex process. Finally, to maintain a natural interaction, responses need to be returned rapidly to the user. Managing and evaluating complex and uncertain queries, while maintaining real-time performance, is a significant challenge.

[51] The following detailed description refers to the accompanying drawings, and describes exemplary embodiments of the invention. Other embodiments are possible and modifications may be made to the exemplary embodiments without departing from the spirit, functionality and scope of the invention. Therefore, the following detailed descriptions are not meant to limit the invention.

[52] The invention provides a complete speech-based information query, retrieval, processing and presentation environment or a combination of speech-based and non-speech-based information query, retrieval, processing and presentation environment. In addition, the invention may be useful for controlling the system itself and/or external devices. This integrated environment makes maximum use of context, prior information and domain and user specific profile data to achieve a natural environment for one or more users submitting requests or commands in multiple domains. Through this integrated approach, a complete speech-based natural language query, algorithm and response environment or a combination of speech-based and non-speech-based may be created. FIG. 1 shows one exemplary schematic diagram view of a system 90 according to an embodiment of the invention.

[53] The system 90 may include a main unit 98, a speech unit 128, and multi-modal device 155. Alternatively, the system 98 may comprise completely separate systems for main unit 98, speech unit 128 and multi-modal device 155. The event manager 100 may

mediate interactions between other components of the main unit 98. The event manager 100 provides a multi-threaded environment allowing the system 98 to operate on multiple commands or questions from multiple user sessions, without conflict, and in an efficient manner, maintaining real-time response capabilities.

[54] Agents 106 may include a collection of grammars, criteria handlers, and algorithms that are accessed to respond to a set of requests and/or commands. Agents 106 further may contain packages of both generic and domain specific behavior for the system 98. Agents 106 may use nonvolatile storage for data, parameters, history information, and locally stored content provided in the system databases 102 or other local sources. One or more user profiles 110 may be provided that includes user specific data, parameters, and session and history information for determining the behavior of agents 106. One or more personality modules 108 may be provided in a data determining system that includes personality characteristics for agents 106. The update manager 104 manages the automatic and manual loading and updating of agents 106 and their associated data from the Internet 146 or other network through the network interface 116.

[55] According to one embodiment of the invention, the speech-based interface for the system 90 may include one or more speech units 128. Speech units 128 may include one or more microphones, for example array microphone 134, to receive the utterances from the user. The speech received at the microphone 134 may be processed by filter 132 and passed to the speech coder 138 for encoding and compression. In one embodiment, a transceiver module 130 transmits the coded speech to the main unit 98. Coded speech received from the main unit 98 is detected by the transceiver 130, then decoded and decompressed by the speech coder 138 and annunciated by the speaker 136.

[56] According to one embodiment of the invention, the non-speech-based interface for the system 90 may include one or more multi-modal devices 155 that may include mobile devices, stand alone or networked computers, personal digital assistances (PDAs), portable computer devices, or other multi-modal devices.

[57] The speech units 128, multi-modal devices 155 and the main unit 98 may communicate over a communication link. The communication link may include a wired or wireless link. According to one embodiment, the communication link may comprise an RF link. The transceiver 130 on the speech unit may communicate coded speech data bi-directionally over the communication link with the transceiver 126 on the main unit 98. According to another embodiment, RF link may use any standard local area wireless data protocols including the IEEE 802.11, Bluetooth or other standards. Alternatively, an infrared data link conforming to any suitable standard such as IrDA or other infrared standards can be used. In an alternative embodiment, wires connect the speech unit 128 and the main unit 98, eliminating the need for one speech coder 138. Other wired or wireless analog or digital transmission techniques can be used.

[58] According to one embodiment of the invention, coded speech received at the transceiver 126 on the main unit 98 may be passed to the speech coder 122 for decoding and decompression. The decoded speech may be processed by the speech recognition engine 120 using the context description grammar module 112, among other information. Any recognized information may be processed by the parser 118, which transforms information into complete algorithms and questions using data supplied by knowledge agents. Knowledge agents may be selected from the plurality of agents 106 using a grammar stack, wherein the knowledge agents provide information for generating a

response to the question or command. The knowledge agents may then process the commands or questions by creating queries that are submitted to local databases 102 or submitted through the network interface 116 to external data sources over the Internet 146 or external other networks. Algorithms typically result in actions taken by the system 90 itself (i.e., pause or stop), or to a remote device or data source (i.e., download data or program, or control a remote device), through the network interface to the Internet or other data interface.

[59] According to one embodiment of the invention, knowledge agents may return results of questions as responses to users. The responses may be created using the results of information queries, the system personality 108, the user preferences, other data in the user profile 110, and/or other information. Agents 106 may present these results using the speech unit 128. The agents 106 may create a response string, which is sent to the text to speech engine 124. The text to speech engine 124 generates the utterances, which may be encoded and compressed by the speech coder 122. Once coded, the utterances are transmitted from the main unit 98 by the transceiver 126 to the transceiver 130 on the speech unit 128. The utterance is then decoded and decompressed by the speech coder 138 and output by the speaker 136. Alternatively, agents 106 may present the results using multi-modal devices 155.

[60] The non-speech interface 114 may be part of, or separate from, the multi-modal devices 155 and may be used as a substitute or may complement the speech interface. For example, non-speech interface 114 may be used to present and to interact with non-speech (e.g., graphical or tabular) information in a manner more easily digested by the user. According to one embodiment of the invention, multimodal support may be

provided to maintain the context during both voice interaction and interaction through the non-speech interface 114. In one exemplary embodiment, a communication channel may be opened between multimodal devices 155 and the main user interface system 90 to allow multimodal devices 155 to input text commands and questions. The multimodal devices 155 may receive and/or provide one or more types of communications including speech, text, digital audio files, and other communications. According to another embodiment of the invention, multimodal devices 155 may send a string of text or keywords for a command or question. The main interface system 90 may synchronize the context between multimodal device 155 and the speech units 128. In order to send a response to the corresponding device, the main user interface system 90 may track where the input came from so that the response may be sent to a TTS or multi-modal device 155.

[61] According to an alternative embodiment of the invention illustrated in FIG. 7, a context manager 702 may be centrally maintained to allow input from and output to multiple mobile devices 36. Each of the mobile devices may communicate with the context manager 702 to register via registration module 712, wherein registration may indicate events that the mobile devices 36 may subscribe to. The context manager 702 may receive input in Context XML form, for example. The other registered mobile devices 36 may be informed of a context changes through context tracking module 714, thereby synchronizing the context across the registered mobile devices 36. According to one embodiment of the invention, registered mobile devices 36 may be added or removed. The registered mobile devices 36 may be dynamic link libraries (DLLs) that may be specific to the mobile devices 36.

[62] According to yet another alternative embodiment of the invention, context information may be determined from a command or request that is presented as a text message and/or a command or request that is presented as a verbal utterance and processed using a multi-pass automatic speech recognition module that transcribes the verbal utterance to a text message. The multi-pass automatic speech recognition module may use a dictation grammar or a large vocabulary grammar, among other resources, to transcribe the verbal utterance into a text message. On platforms where a dictation grammar is not available, the multi-pass automatic speech recognition may use a virtual dictation grammar that uses decoy words for out-of-vocabulary words. Decoy words may include utility words, nonsense words, isolated syllables, isolated distinct sounds and other decoy words.

[63] According to one embodiment of the invention, the text message may be searched for a particular character, group of characters, word, group of words, and other text combinations. The text combination may be compared against entries in a context description grammar that is associated with each agent 106. If a match is identified between an active grammar in the context description grammar and the command and/or request, then the match may be scored. The agents 106 may be ranked based on the determined score. In generating an aggregate response from the one or more responses received from the agents 106, the ordering of the responses from the individual agents may be determined based on the rank of agents 106. The aggregate response may be generated by a response generator module. Agents 106 may update a context stack, that includes an ordered list of command contexts, to enable follow-up requests.

[64] According to another embodiment of the invention, if a match is not found, or only a partial match is found, between the text message and active grammars, then a knowledge-enhanced speech recognition system may be used to semantically broaden the search. The knowledge-enhanced speech recognition system may be used to determine the intent of the request and/or to correct false recognitions. The knowledge-enhanced speech recognition may access a set of expected contexts that are stored in a context stack to determine a most likely context. The knowledge-enhanced speech recognition may use context specific matchers that are able to identify context such as time, location, numbers, dates, categories (e.g., music, movies, television, addresses, etc.) and other context. The matching may be performed by comparing a character, group of characters, a word, group of words, and other text combinations. Alternatively, or in addition to text based matching, the matching may be performed using phonetic matching, among other techniques. The results of any match may be used to generate a command and/or request that is communicated to agents 106 for additional processing. According to one embodiment of the invention, non-speech interface 114 may show system, state and history information in a more concise manner than is possible through the speech interface. Non-speech interface 114 may be accessed to create or extend capabilities of agents 106. These operations may include scripting of agents, adding data to the agent or databases 102 used by the agent, adding links to information sources, among other operations.

[65] According to another embodiment of the invention, system 90 may include different types of agents 106. For example, generic and domain specific behavior and information may be organized into domain agents. A system agent, on the other hand,

may provide default functionality and basic services. The domain agents provide complete, convenient and re-distributable packages or modules for each application area. In other words, the domain agents include data that is needed to extend or modify the functionality of the system 90 in a current or new domain. Further, domain agents and their associated data can be updated remotely over a network as new behavior is added or new information becomes available. Domain agents may use the services of other, typically more specialized data managers and the system agent 150. Agents are distributed and redistributed in a number of ways including on removable storage media, transfer over networks or attached to emails and other messages. The invention may provide license management capability allowing the sale of data managers by third parties to one or more users on a one time or subscription basis. In addition, users with particular expertise may create data managers, update existing data managers by adding new behaviors and information and making these data managers to other users as agents. A block diagram of an agent architecture according to an embodiment of the invention is shown in FIG. 2.

[66] Agents 106 may receive and return events to the event manager 100. Both system agents 150 and domain agents 156 may receive questions and commands from the parser 118. Based on keywords in the questions and commands and the structures of the questions and commands, the parser may invoke selected agents. Agents use the nonvolatile storage for data, parameters, history information and local content provided in the system databases 102.

[67] According to one embodiment of the invention, when the system starts-up or boots-up, the agent manager 154 may load and initialize the system agent 150 and the one

or more domain agents 156. Agent manager 154 includes knowledge of agents 106 and maps agents 106 to the agent library 158. At shutdown, the agent manager may unload the agents 106. The agent manager 154 also performs license management functions for the domain agents 156 and content in the databases 102.

[68] The system agent 150 manages the criteria handlers 152 that handle specific parameters or values (criteria) used to determine context for questions and commands. According to one embodiment of the invention, criteria handlers 152 include parsing routines that are specialized to recognize particular parts of speech, such as times, locations, movie titles, and other parts of speech. The criteria handlers 152 may identify matching phrases and extract semantic attributes from the phrases. Both the system agent 150 and the domain agents 156 may use the criteria handlers 152. The various domain agents 156 may use the services of the system agent 150 and of other, typically more specialized, domain agents 156. The system agent 150 and the domain agents 156 may use the services of the agent library 158, which contains utilities for commonly used functions. According to one embodiment of the invention, the agent library may be a dynamic link library that implements one or more agents. The agent library may include utilities for text and string handling, network communications, database lookup and management, fuzzy and probabilistic evaluation, text to speech formats, and other utilities.

[69] Domain agents 156 may be data-driven, scripted or created with compiled code. A base of generic agent may be used as the starting point for data-driven or scripted agents. Agents created with compiled code are typically built into dynamically linkable or loadable libraries. Developers of agents can add new functionality to the agent library

158 as required. Details of agent distribution and update, and agent creation or modification are discussed in sections below.

[70] According to another embodiment of the invention, capabilities are provided to distribute and update system agents 150, domain agents 156, agent library 158 components, databases 102, and context description grammar 112 over wireless or wired networks 136, including dial-up networks using the update manager 104. The network interface 116 may provide connections to one or more networks. The update manager 104 may also manage the downloading and installation of core system updates. The agent manager 154 may perform license management functions for the domain agents and the databases. The update manager 104 and agent manager 154 may perform these functions for all agents and database content including, agents and content available to all users or agents and/or content available to selected users. Examples of agent and database components added or updated on a periodic basis include:

- agents for new domains;
- additional domain knowledge for agents;
- new keywords for a domain, which can include names of politicians, athletes, entertainers, names of new movies or songs, etc. who have achieved recent prominence;
- links to a preferred set of information sources for the domains covered including links for, entertainment, news, sports, weather, etc.;
- updates to domain information based on, for example, changes to tax laws, company mergers, changing political boundaries;

- updates to content, including dictionaries, encyclopedias and almanacs; and
- other content and database components.

[71] When a user requires or selects a new domain agent 156 or database element 102, the update manager 104 may connect to their source on the network 146 though the network interface 116, download and install the agent or data. To save system resources and to comply with any license conditions, the update manger 104 may uninstall agents that are no longer in use. In one embodiment of the invention, the update manager 104 may periodically query one or more sources of the licensed agents and database components to locate and download updates to agent executables, scripts or data as they become available. Alternatively, the agent sources may initiate the downloading of agent updates of the registered or licensed agents to the update manager as they become available.

[72] The agent manager 154 may provide license management clients that are capable of executing most any license terms and conditions. When a particular agent 106 and/or database element 102 is selected based on a submitted command, the agent manager 154 verifies that the use of the agent or data element is within the allowed terms and conditions, and if so, invokes the agent or allows access to the data element. License management schemes that can be implemented through the agent manager 154 include outright purchase, subscription for updates, one time or limited time use. Use of shared agents and data elements (such as those down-loaded from web sites maintained by groups of domain experts) may also be managed by the agent manager 154.

[73] If questions or commands do not match an agent that is currently loaded on the system, the agent manager 154 may search the network 146 through the network interface 116 to find a source for a suitable agent. Once located, the agent can be loaded under the control of the update manager 104, within the terms and conditions of the license agreement, as enforced by the agent manager.

[74] New commands, keywords, information, or information sources can be added to any domain agent 156 by changing agent data or scripting. These configuration capabilities may allow users and content developers to extend and modify the behavior of existing domain agents 156 or to create new domain agents 156 from a generic agent without the need to create new compiled code. Thus, the modification of the domain agents 156 may range from minor data-driven updates by even the most casual users, such as specifying the spelling of words, to development of complex behavior using the scripting language as would typically be done by a domain expert. The user can create and manage modifications to domain agents 156 through speech interface commands or using non-speech interface 114. User-specific modifications of domain agents 156 are stored in conjunction with the user's profile 110 and accessed by the domain agent 156 at run-time.

[75] The data used to configure data driven agents 156 are structured in a manner to facilitate efficient evaluation and to help developers with organization. These data are used not only by the agents 156, but also by the speech recognition engine 120, the text to speech engine 124, and the parser 118. Examples of some major categories of data include:

1. Content packages include questions or commands. Each command or question or group of commands or questions includes contexts used for creation of one or more requests. The domain agent 156 passes a context description grammar expression to the parser 118 for evaluation of a context or question. An initial or default context is typically supplied for each command or question. The command or question may include a grammar for the management and evaluation of the context stack.

2. Page lists or pointers to other local or network content sources. For each page or content source there is a pointer (e.g. URL, URI, or other pointer) to the page or source. Each page has specific scraping information used to extract the data of interest. The scraping information includes matching patterns, HTML or other format parsing information.

3. A response list, determining the response of the domain agent 156 to a particular command or question given the context, the user profile and the information retrieved. Responses can include diagnostic error messages or requests for more information if the question or command cannot yet be resolved from the known information. Responses can be based on or dependent on thresholds or probabilistic or fuzzy weights for the variables.

4. Substitution lists containing variable substitutions and transformations, often applied by the agents 150, 156 in the formatting of queries and results. For example, a stock domain specific agent 156 would use a substitution list of company trading symbols, company names and commonly used abbreviations. Substitutions and transformations can be performed on commands and questions

to create precise queries, which can be applied against one or more information sources or to results for creating more meaningful output to the user. Substitution lists also include information for optimally dealing with structured information, such as HTTP formatted page parsing and evaluation.

5. Personalities used for responses. Personalities are constructed by combining multiple traits in a weighted manner. Weights can be specified for each agent's domain area to create one or more specific personalities. Examples of personality traits include sarcasm, humor, irritation, and sympathy, and other traits.

6. Public and user specific parameters for sources, substitutions, transformations, variables or criteria. The public parameter lists are part of the agent package 156. The user specific parameters are contained in the user profile 110.

[76] Commands and questions are interpreted, queries formulated, responses created and results presented based on the users personal or user profile 110 values. Personal profiles may include information specific to the individual, their interests, their special use of terminology, the history of their interactions with the system, and domains of interest. The personal profile data may be used by the agents 106, the speech recognition engine 120, the text to speech engine 124, and the parser 118. Preferences can include, special (modified) commands, past behavior or history, questions, information sources, formats, reports, and alerts. User profile data can be manually entered by the user and/or can be learned by the system 90 based on user behavior. User profile values may include:

- spelling preferences;
- date of birth for user, family and friends;
- income level;
- gender;
- occupation;
- location information such as, home address, neighborhood, and business address;
- car type;
- telecommunications and other service providers and services;
- financial and investment information;
- synonyms (i.e., a nick name for someone);
- special spelling;
- keywords;
- transformation or substitution variables;
- domains of interest; and
- other values.

[77] End users may use the data driven agent 156 extension and modification facilities and values stored in user profiles 110 to create special reports, packages of queries, alerts and output formats. A single alert or report can be configured to use multiple data sources and other variable (i.e., time, location) value to determine when alerts should be sent. For example, an alert can be generated by sampling a stock price every 15 minutes and sending an alert if the price drops below some value. To create a report, the user first specifies a set of commands or questions. Next, the user creates or selects a format for

the report. Finally the user may name the report. A report can have variable parameters. For example, users may create a company stock report, and execute the report by stating its name and the company name, which gives the user selected information and in a specified format for that company. In another example, users can create a "morning" report, which presents selected multimedia information from different sources (news, sports, traffic, weather) in the order and formats desired. Alerts and reports can be created using only voice commands and responses, commands and responses through non-speech interface 114, or a combination of the two. To create a report, alert, or other specialized behavior, the user performs a number of steps including:

- specify the command to run a report or alert;
- specify the question or questions, including keywords, used for a query;
- set the criteria for running the report such as on command or when a particular condition is met;
- define preferred information sources;
- define preferences for order of result evaluation by source, value, etc.;
- specify the presentation medium for a report or alert, such as an email, the text to speech engine, a message to a pager, or a text and graphics display; and
- specify the preferred format for the report, such as information to be presented, order of information to be presented, preferred abbreviations or other variable substitutions.

[78] Filtering and noise elimination may be important in facilitating the various functionalities of the system 90. Recognition and parsing of the user's speech is

implemented with good signal to noise ratio at the input to the speech recognition engine 120. To provide acceptable results, a set of acoustic models, an array microphone 134, a filter 132, or other components, may be employed. If a good signal to noise ration cannot be achieved, a noise identification algorithm may be used and the appropriate acoustic model, for example, one that has been trained in conditions similar to the identified noise, may be selected. According to an embodiment of the invention, the microphone array, filters and speech coder 138 are physically separated from the main unit 98 into a speech unit 128, and connected using a wireless link. Since bandwidth on a wireless connection is at a premium, the speech coder dynamically adapts the digitization rate and compression of the captured speech.

[79] The speech unit 128 may use an array of microphones 134 to provide better directional signal capture and noise elimination than can be achieved with a single microphone. The microphone array can be one-dimensional (a linear array) or two-dimensional (a circle, square, triangle or other suitable shape). The beam pattern of the array can be fixed or made adaptive though use of analog or digital phase shifting circuitry. The pattern of the active array is steered to point in the direction of the one or more users speaking. At the same time, nulls can be added to the pattern to notch out point or limited area noise sources. The use of the array microphone also helps reduce the cross talk between output from the text to speech engine 124 through the speaker 136 and detection of the user's speech.

[80] The microphone can be complemented with an analog or digital (i.e., Voice over IP) speech interface. This interface allows a remote user to connect to the system and interact with the system in the same manner possible if they were physically present.

[81] The speech unit 128, according to an embodiment of the invention, may use an analog or digital filter 132 between the array microphone 134 and the speech coder 138. The pass band of the filter is set to optimize the signal to noise ratio at the input to the speech recognition engine 120. In some embodiments, the filter is adaptive, using band shaping combined with notch filtering to reject narrow-band noise. In one embodiment of the invention, the system 90 may employ adaptive echo cancellation in the filter. The echo cancellation helps prevent cross talk between output from the text to speech engine and detection of the user's speech as well as suppression of environmentally caused echoes. Calculations are conducted for comparing the background noise to the signal received from the users speech are used to optimize the band-shaping parameters of the adaptive filter. Those skilled in the art will be familiar with multiple techniques used to construct suitable digital and analog filters.

[82] The speech received by the array microphone 134 and passed through the filter 132 may be sent to the speech digitizer or coder 138. The speech coder 138 may use adaptive lossy audio compression to optimize bandwidth requirements for the transmission of the coded speech to the speech recognition engine 120 over a wireless link. The lossy coding may be optimized to preserve only the components of the speech signal required for optimal recognition. Further, the lossy compression algorithms that may be used may be designed to prevent even momentary gaps in the signal stream, which can cause severe errors in the speech recognition engine. The digitized speech may be buffered in the coder and the coder may adapt the output data rate to optimize the use of the available bandwidth. The use of the adaptive speech coder is particularly

advantageous when a band-limited wireless link is used between the coder and the speech recognition engine.

[83] In an alternative embodiment, the array microphone can be replaced by a set of physically distributed microphones or a headset worn by the user. The distributed microphones can be placed in different parts of a room or in different rooms. The distributed microphones can create a three-dimensional array to improve signal to noise ration. The headset may use a wireless or wired connection.

[84] While the invention is intended to be able to accept most any natural language question or command, ambiguity may be a problem. To assist users formulate concise questions and commands, the system 90 may support a voice query language. The language is structured to allow a variety of queries with minimal ambiguity. Thus, the voice query language helps users clearly specify the keywords or contexts of the question or command along with the parameters or criteria. The language provides a grammar to clearly specify the keyword used to determine the context and a set of one or criteria or parameters. A user asking a question or stating a command in the voice query language is nearly always guaranteed to receive a response.

[85] The voice query language may be sensitive to the contents of the context stack, wherein a context defines a set of questions that can be activated or deactivated during a conversation. According to one embodiment, each agent may designate one context to be the root context that defines base algorithms that the agent implements. Thus, following-on questions can be asked using an abbreviated grammar, since key words and criteria can be inherited from the context stack. For example, the user can simply asked about another keyword if the criteria of the question remain constant.

[86] The system 90, may provide built in training capabilities to help the user learn the best methods to formulate their questions and commands. The interactive training allows users to audibly or visibly see the machine interpretation of their queries and provides suggestions on how to better structure a query. Using the interactive training users can quickly become comfortable with the voice query language and at the same time learn how to optimize the amount of information required with each step of a dialog.

[87] The output of the speech coder 122 may be fed to the speech recognition engine 120. The speech recognition engine 120 recognizes words and phrases, using information in the context description grammar 112, and passes these to the parser 118 for interpretation. The speech recognition engine 120 may determine the user's identity by voice and name for each utterance. Recognized words and phrases may be tagged with this identity in all further processing. Thus, as multiple users engage in overlapping sessions, the tags added by the speech recognition engine 120 to each utterance allows other components of the system 90 to tie that utterance to the correct user and dialog. The user recognition capability may further be used as a security measure for applications, such as auctions or online shopping, where this is required. Voice characteristics of each user may be contained in the user profile 110.

[88] According to one embodiment of the invention, users may start a dialog with the system 90 when they first address it. This can be done by speaking a generic word ("computer") or addressing a specific name ("Fred"), which may be generally tied to a system personality 108. Once the user starts the dialog, it may be recognized by the speech recognition engine 120, using unique characteristics of the user's speech. At the end of a dialog or to interrupt a dialog, the user may utter a dismissal word ("good bye").

[89] According to another embodiment of the invention, the system 90 may employ a speech recognition engine 124 that gains improved word recognition accuracy using data from context description grammar 112, user profiles 110, and the agents 106, among other components. At the same time, the fuzzy set possibilities or prior probabilities for the words in the context description grammar may be dynamically updated to maximize the probability of correct recognition at each stage of the dialog. The probabilities or possibilities may be dynamically updated based on a number of criteria including the application domain, the questions or commands, contexts, the user profile and preferences, user dialog history, the recognizer dictionary and phrase tables, and word spellings, among other criteria.

[90] For uncommon words or new vocabulary words, a user may be given the option to spell the words. The spelling may be done by saying the names or the letters or using a phonetic alphabet. The phonetic alphabet can be a default one or one of the user's choosing.

[91] Alternatively, when a user submits a word that is not recognized at all or is not correctly recognized by the speech recognition engine 120 then the user may be asked to spell the word. The speech recognition engine 120 determines this condition based on confidence level for the scoring process. The word may be looked up in a dictionary and the pronunciation for the word is added to either the dictionary, the agent 106, or the user's profile 110. The word pronunciation can then be associated with the domain, the question, the context and the user. Through this process, the speech recognition engine learns with time and improves in accuracy. To assist users in spelling words, an

individualized phonetic alphabet can be used. Each user can modify the standard phonetic alphabets with words, which they can remember more easily.

[92] Once the words and phrases have been recognized by the speech recognition engine 120, the tokens and user identification is passed to the parser 118. The parser 118 examines the tokens for the questions or commands, context and criteria. The parser 118 determines a context for an utterance by applying prior probabilities or fuzzy possibilities to keyword matching, user profile 110, and dialog history. The context of a question or command determines the domain and thereby, the domain agent 156, if any, to be evoked. For example, a question with the keywords "temperature" implies a context value of weather for the question. The parser dynamically receives keyword and associated prior probability or fuzzy possibility updates from the system agent 150 or an already active domain agent 156. Based on these probabilities or possibilities the possible contexts are scored and the top one or few are used for further processing.

[93] The parser 118 uses a scoring system to determine the most likely context or domain for a user's question and/or command. The score is determined from weighing a number of factors including, the user profile 110, the domain agent's data content and previous context. Based on this scoring, the system 90 invokes the correct agent. If the confidence level of the score is not high enough to ensure a reliable response, the system 90 may ask the user to verify whether the question and/or command is correctly understood.

[94] In general, the question that is asked by the system 90 may be phrased to indicate the context of the question including all criteria or parameters. For example, the question can be in the form of: "Did I understand that you want such-and-such" If the user

confirms that the question is correct, the system proceeds to produce a response. Otherwise, the user can rephrase the original question, perhaps adding additional information to remove ambiguity, or the system can ask one or more questions to attempt to resolve the ambiguity.

[95] Once the context for the question or command has been determined, the parser 118 can invoke the correct agent 156, 150. To formulate a question or command in the regular grammar used by agents, the parser 118 may determine required and optional values for the criteria or parameters. These criteria may have been explicitly supplied by the user or may need to be inferred. The parser 118 may make use of the criteria handlers 152 supplied by the system agent 150. The criteria handlers 152 may provide context sensitive procedures for extracting the criteria or parameters from the user's questions or commands. Some criteria are determined by executing algorithms in the agent, while others may be determined by applying probabilistic of fuzzy reasoning to tables of possible values. Prior probabilities or fuzzy possibilities and associated values are received from a number of sources including the history of the dialog, the user profile 110, and the agent. Based on user responses, the prior probabilities or fuzzy possibilities are updated as the system learns the desired behavior. For a weather context, examples of criteria include, location, date and time. Other criteria can include command criteria (i.e., yes/no, on/off, pause, stop), and spelling. Special criteria handlers are available from the system agent for processing lists, tables, barge-in commands, long strings of text and system commands.

[96] The criteria handlers 152 operate iteratively or recursively on the criteria extracted to eliminate ambiguity. This processing helps reduce the ambiguity in the

user's question or command. For example, if the user has a place name (or other proper noun) in their utterance, the parser 118 can use services of the domain agent 156 to look up tables in the databases 102 for place names or can attempt to determine which word is the proper noun from the syntax of the utterance. In another example, the user asks "what about flight one hundred and twenty too?". The parser and domain agent use flight information in the database and network information along with context to determine the most plausible interpretation among; flight 100 and flight 20 also, flight 100 and flight 22, flight 122, and the like.

[97] Once the context and the criteria are determined, the parser 118 may form the question or command in a standard format or hierarchical data structure used for processing by the agents 150, 156. The parser 118 may fill in all required and some optional tokens for the grammar of the context. Often the tokens must be transformed to values and forms acceptable to the agents. The parser obtains the required transformations from the agents, dialog history or user profile 110. Examples of transformations or substitutions performed by the parser on tokens include:

- substituting a stock symbol for a company name or abbreviation;
- substituting a numerical value for a word or words;
- adding a zip code to an address; and
- changing a place or other name to a commonly used standard abbreviation.

[98] The agents 150, 156 may receive a command or question once the parser 118 has placed it in the required standard format. Based on the context, the parser 118 evokes the correct agent to process the question or command.

[99] Commands can be directed to the system 90 or to an external entity. System commands are generally directed to the system agent 150. Commands for external entities are generally processed by a domain agent 156, which includes the command context and behavior for the external entity.

[100] Specific questions are generally directed to one of the domain agents 156. Based on the question or context and the parameters or criteria, the domain agent creates one or more queries to one or more local or external information sources. Questions can be objective or subjective in nature. Results for objective questions can often be obtained by structured queries to one or more local or network information sources. Even for objective questions, the system 90 may need to apply probabilistic or fuzzy set analysis to deal with cases of conflicting information or incomplete information. Information to answer subjective questions is generally obtained by one or more ad-hoc queries to local or network data sources, followed by probabilistic or fuzzy set evaluation of the one results to determine a best answer.

[101] Once the domain agent 156 has formulated the one or more queries, they may be sent to local and/or network information sources. The queries are performed in an asynchronous manner to account for the fact that sources respond at different speeds or may fail to respond at all. Duplicate queries are sent to different information sources to ensure that at least one source responds with a useful result in a timely manner. Further, if multiple results are received in a timely manner, they can be scored by the system to determine which data is most reliable or appropriate. Examples of data sources accommodated include, HTTP data sources, sources with meta-data in various formats

including XML, entertainment audio, video and game files including MP3, databases using query languages and structured responses such as SQL, and other data sources.

[102] The local information sources can be stored in one or more system databases 102 or can be on any local data storage such as a set of CDs or DVDs in a player or other local data storage. Network information sources can be connected to the Internet 136 or other network and accessed through a series of plug-ins or adaptors, known a pluggable sources, in the network interface 116. The pluggable sources in the network interface 116 may be capable of executing the protocols and interpreting the data formats for the data sources of interest. The pluggable sources may provide information, scrapping data and procedures for each source to the domain agents 156. If a new type of data source is to be used, a new plug-in or adaptor can be added to the network interface 116.

[103] The domain agent 156 evaluates the results of the one or more queries as they arrive. The domain agent 156 scores the relevance of the results based on results already received, the context, the criteria, the history of the dialog, the user profile 110 and domain specific information using probabilistic or fuzzy scoring techniques. Part of the dialog history is maintained in a context stack. The weight of each context for the scoring is based on the relevance of one context to another and the age of the contexts. Other scoring variables can be associated through the context stack. Contexts can also be exclusive, so that previous contexts have no weight in the scoring.

[104] Based on the continuous scoring processes, the domain agent 156 may determine if a single best answer can be extracted. For most questions, the desired result has a set of tokens that must be found to formulate an answer. Once a value has been found for each of these tokens, the results are ready for presentation to the user. For example, for a

question on weather, the tokens can include the date, day of week, predicted high temperature, predicted low temperature, chance of precipitation, expected cloud cover, expected type of precipitation and other tokens. Results processed in this manner include error messages. For subjective questions, this determination is made by determining a most likely answer or answers, extracted by matching of the results received. If no satisfactory answer can be inferred from the results of the query, the agent can do one of the following:

1. Ask the user for more information, typically through the speech interface, and based on the results obtained formulate new queries. This approach is applied when an irresolvable ambiguity arises in the formulation of a response.
2. Formulate new queries based on the results received from the first set of queries. This approach is typically applied in cases where the responses received do not contain all the required information. Information sources to query can inferred from the results already obtained (i.e., links in an HTML document) or from other sources. Using this approach one or more sets of queries and responses can be chained without the need for action by the user.
3. Wait for additional queries to return results.

[105] In any case, the domain agent 156 may continue to make requests and evaluate results until a satisfactory response is constructed. In doing so, the agent can start several overlapping query paths or threads of inquiry, typically mediated by the event manager 100. This technique, combined with the use of asynchronous queries from multiple data sources, provides the real-time response performance required for a natural interaction with the user.

[106] The domain agent 156 may apply conditional scraping operations to each query response as it is received. The conditional scraping actions depend on the context, the criteria, user profile 110, and domain agent coding and data. For each token to be extracted, a scraping criteria 152 may be created using the services of the system agent 150. The scraping criteria use format specific scraping methods including, tables, lists, text, and other scrapping methods. One or more scraping criteria can be applied to a page or results set. Once additional results are received, the domain agent 156 can create new scraping criteria to apply to results already acquired. The conditional scarping process removes extraneous information, such as graphics, which need not be further processed or stored, improving system performance.

[107] The domain agent 156 may strongly influence how the results are presented. For instance, once the domain agent 156 has created a satisfactory response to a question, the agent 156 may format that response for presentation. Typically, the domain agent 156 formats the response into the markup format used by the text to speech engine 124. The domain agent 156 may also format the result presentation using available format templates and based on the context, the criteria, and the user profile 110. Variable substitutions and transformations may be performed by the agent 156 to produce a response best understood and most natural to the user. Further, the order of presentation of tokens and the exact terminology used to create a more natural response to the user may be varied by the agent 156. The domain agent 156 may also select the presentation personality 108 to be used.

[108] The domain agent 156 may select the presentation template, determine order of presentation for tokens and determine variable substitutions and transformations using

probabilistic or fuzzy set decision methods. The template used to form the presentation can be from the domain agent itself or from the user profile 110. The user profile 110 can completely specify the presentation format or can be used to select and then modify an existing presentation format. Selection and formatting of presentation templates can also depend on the presentation personality modules 108. At the same time, the characteristics of the personality used for the response are dynamically determined using probabilities or fuzzy possibilities derived from the context, the criteria, the domain agent itself and the user profile 110.

[109] The domain agent 156 may apply a number of transformations to the tokens before presentation to the user. These variable substitutions and transformations are derived from a number of sources including, domain information carried by the agent, the context, the token values, the criteria, the personality module 108 to be used, and the user profile 110. Examples of variable substitutions and transformations include:

- substitution of words for numbers;
- substitution of names for acronyms or symbols (i.e., trading symbols);
- use of formatting information derived from the information sources (i.e., HTML tags);
- nature of the response including, text, long text, list, table;
- possible missing information or errors;
- units for measurement (i.e., English or metric); and
- preferred terminology from the user profile 110 or presentation personality 108.

[110] The system 90, according to another embodiment of the invention, may provide special purpose presentation capabilities for long text strings, tables, lists and other large results sets. Domain agents 156 may use special formatting templates for such results. The system agent 150 may provide special criteria handlers 152 for presentation and user commands for large results sets. The presentation templates used by the domain agents 156 for large results sets typically include methods for summarizing the results and then allowing the user to query the result in more detail. For example, initially only short summaries such as headlines or key numbers are presented. The user can then query the results set further. The criteria handlers 152 provide users with the capability to browse large results sets. Commands provided by the criteria handlers 152 for large results sets include, stop, pause, skip, rewind, start, and forward.

[111] Some information, in formats such as video, pictures and graphics, may be best presented in a displayed format. The domain agents 156 may apply suitable presentation templates in these cases and present the information through the graphical user interface 114. The system agent 150 provides special criteria handlers 152 for presentation and user commands for display presentation and control.

[112] FIG. 3 illustrates a high level process 300 for receiving natural language speech-based queries and/or commands and generating a response according to an embodiment of the invention. The process 300 comprises of individual steps, several of which may be repetitive in order to accommodate partial failures. The process 300 may begin when a user's utterance is received and processed at 302. The user utterance may be a query and/or a command and may be of a natural language speech-based form. After receiving the natural language query and/or command, the query and/or command may be

processed so that the data is in a more machine understandable format such as in a digital format. Once the utterance has been converted into an understandable format, the utterance may be processed so that at least an approximate meaning of the utterance can be determined at 304. This may be accomplished by, for example, the use of stored dictionaries, phrases, user profiles, domain agent data, and other data. Based on the approximate meaning of the utterance, one or more correctly formatted queries and/or commands may be generated.

[113] A user created query and/or command may require that multiple requests and/or commands may be needed in order to generate the desired response or action. Further, depending upon the context in which the query and/or command has been submitted (e.g., who is the user, what is the subject the query and/or command directed to, at what time or location is the query and/or command being directed to, and other parameters used in defining the query and/or command), a specific format for the query and/or command may be required. For instance, each of the domain agents 156 may require that requests and/or commands be formatted in a specific manner. Thus at 306, one or more properly formatted queries and/or commands may be generated. Operations 304 and 306 may be repeated in order to obtain the correct interpretation of the user utterance and result in the desired response and/or action. Once, the properly formatted queries and/or commands are generated, the appropriate action may be taken at 308. This may require that the properly formatted queries and/or commands be sent to specific domain agent[s], information source[s], device[s], or other appropriate destination[s] that can fulfill the requirements of the query and/or command. Once the appropriate action[s] have been executed, this event may be recorded to, for example, the user's profile, database and/or

one or more agents at 310. Such data may be useful for future user inquires and commands. After the action[s] have been performed, a response, if need be, may be generated and forwarded to the user and/or third parties at 312.

[114] In the case of a query for retrieving data, the response would contain the requested information. In the case of a command, the response may be a confirmation that a specific action[s] has been executed. The response may be in the form of a natural language format. The response may also be formatted to reflect a particular personality or tone to the response in order to make the response more "human." The response may relayed to the user and/or third parties as an audio message and/or a visual message displayed on a user interface.

[115] FIG. 4A is a process 400 for receiving natural language speech-based queries and/or commands and generating a response using the system 90 according to another embodiment of the invention. The process 400 may begin when a user's utterance (i.e., user query and/or command) is captured through speech recognition operating in a variety of real-world environments at 402. Once the utterance is captured, it is parsed and interpreted to determine the query and/or command that is contained in the utterance at 404. Next, the query and/or command are reviewed to determine the domain of expertise required and the context of the query, invoking the proper resources including, for example, agents at 406. The original query and/or command submitted by the user may require that multiple queries and/or commands be generated.

[116] For instance, suppose a user is interested in retrieving the value of her stock portfolio. The user may utter "please get the value of my stock portfolio." The system 90 may review this request together with stored data such as the user's profile and

determine keywords such as "get the value" and "my stock portfolio." The system 90 may then generate queries to determine the stocks in the user's portfolio, the number of shares and the source for current pricing information. These queries may then be sent to one or more agent domains, such as a domain which may access a database containing the user's profile and a domain which accesses stock pricing sources to determine the answers to these questions.

[117] Queries may be sent to these domain agents or sources in order to obtain the desired data. Thus, at operation 408, one or more queries may be formulated and sent to one or more local and/or network data sources and/or appropriate commands may be sent to local or remote devices or the system itself. The queries are then sent to the designated agent[s]. The agents may then, in turn, generate their own queries and/or commands to be sent to, for example, local or remote information sources to retrieve needed data. The agent generated queries and/or commands may be formatted according to the requirements of the target sources and variable substitutions and transformations are performed to modify the queries to a form most likely to yield desired results from the available sources at 410. Once the queries are formatted correctly, they may be executed in an asynchronous manner and dealing gracefully with failures at 412. As a result of the execution of the queries, results may be returned by the domain agents and/or sources. The system 90 may then extract or scrape the desired information from the one or more results, which may be returned in any one of a number of different formats at 414. That is, the results sought by a user may be the summary or the results of further processing of information obtained from several sources for example.

[118] Next, the results may be evaluated and interpreted including processing of errors, and gathering and combining them into a single best result judged to be "best" even if the results are ambiguous, incomplete, or conflicting at 416. Once the best results are determined, any required formatting is performed. At operation 418, variable substitutions and transformations may be used to modify the results. Finally, at operation 420, the compound results may be presented to the user in a useful and expected manner through the text to speech engine 124. The process 400 may be performed while accounting for the domain of expertise required, the context in which the question or command is presented, the domain specific information available, the history of the user's interaction, the user preferences, the information sources or commands that are available, and responses obtained from the sources.

[119] At each stage of the process 400, probabilistic or fuzzy set decision and matching methods may be applied to deal with inconsistent, ambiguous, conflicting and incomplete information or responses. In addition, the use of asynchronous queries that may result in rapid and graceful failure of some queries or commands may allow the system 90 to robustly return results quickly and in a manner that seems natural to the user.

[120] FIG. 4B illustrates a process 450 for receiving natural language speech-based commands in order to locally or remotely control functions of the system 90, or for other devices, according to another embodiment of the invention. The process 450 may begin when a user's utterance (i.e., user query and/or command) is captured through speech recognition operating in a variety of real-world environments at 452. Once the utterance is captured, it is parsed and interpreted to determine the command that is contained in the utterance at operation 454.

[121] Next, at operation 456, the command is reviewed to determine the domain for the command and context, invoking the proper resources including agents. The original command submitted by the user will often require that multiple queries and/or commands be generated. For instance, suppose a user is interested in recording his favorite television program. The user may utter "please record my favorite TV program." The system 90 may review this request together with stored data such as the user's profile and determine keywords such as "record" and "my favorite TV program." The system 90 may then generate queries to determine the name, the channel, and time for the user's favorite TV program. These queries may then be sent to an agent domain, which may access a database containing the user's profile and determine the answers to these questions. A command may then be sent to a video recorder ordering the video recorder to record the selected TV program. Thus, at operation 458, one or more queries may be formulated that are to be sent to one or more local and/or network data sources. Appropriate commands may be sent to local or remote devices or the system itself. Next, at operation 460, the generated commands may be routed to the appropriate system[s] and/or external devices. Once the commands have been executed, results including errors may be received and processed at 462. The results of the executed commands may be optionally presented to the user at operation 464.

[122] Some of the operations depicting in FIG. 4A may be performed using multiple steps that may be repetitive. For instance, in operation 404, the user's utterance is parsed and interpreted in order to determine the meaning of the utterance. System 90 may make an initial interpretation of the utterance based the data stored in, for example, the context description grammar module 112, user profiles, 110, agents 106 and the databases 104.

A real-time scoring system or other techniques may be applied to the interpretation results in order to generate a domain or a context score. If the confidence level of the domain or context score is not high enough to ensure a reliable response, the system 90 can request that the user verify the question or command is correctly understood. In general, the question may be phrased to indicate the context of the question including all criteria or parameters. If the user confirms that the question is correct, the system 90 may proceed to produce a response. Otherwise, either the user can rephrase the original question, perhaps adding additional information to remove ambiguity, or the system may ask one or more questions to attempt to resolve the ambiguity or other actions may taken.

[123] FIG. 5 illustrates a process 500 for correctly interpreting a user's utterance according to one embodiment of the invention. The process 500 generally represents operations 402 and 404 of process 400. Initially the user's utterance is inputted into the system 90 at operation 502. The input is then interpreted using, for example, various stored data such as user profiles, agent data, dictionary and phrases, and other relevant data. The interpretation is then scored using, for instance, a weighted scoring system as described previously at 506. Once a score is obtained, the confidence level of the interpretation may be analyzed to determine if it is satisfactory at operation 508. In other words, a determination is made whether the score given to the interpretation exceeds a certain value. If the confidence level is determined to be unsatisfactory, then a request may be submitted to the user requesting that the user verify the interpretation at 510 and 512. If the user is unsatisfied with the interpretation, he/she may be asked to rephrase the utterance and/or provide additional information at 514. Once the user provides the rephrased utterance and/or additional information, the process 500 returns to the

beginning at operation 502. If, on the other hand, the user is satisfied with the interpretation, then the process 400 for receiving natural language speech-based queries and/or commands, and generating a response, may continue at operation 516. Once the meaning of the utterance has been determined, the appropriate domain agent[s] and the query and/or commands may be properly formatted for the agent[s].

[124] FIG. 6 illustrates a process 600 for determining the proper domain agent[s] to invoke and the proper format for queries and/or commands that are submitted to the agents 106, as generally depicted in steps 406-408 of FIG. 4A. In order to formulate a question or command in the regular grammar used by agents 106, a determination may be made as to the required and optional values for the criteria or parameters of the queries and/or commands. These criteria may have been explicitly supplied by the user or may need to be inferred. Thus, the properly interpreted query and/or command that is generated by, for example, operations 404 and 454 of FIGS. 4A and 4B, is parsed at operation 602.

[125] The content of the properly interpreted query and/or command is then analyzed to determine the criteria and/or parameters of the properly interpreted query and/or command at 604. A context sensitive procedure for extracting the criteria or parameters from the properly interpreted query and/or command may be used. Some criteria are determined by executing algorithms in the agent, while others may be determined by applying probabilistic of fuzzy reasoning to tables of possible values. Prior probabilities or fuzzy possibilities and associated values are received from a number of sources including the history of the dialog, the user profile 110, and the agent.

[126] Based on user responses, the prior probabilities or fuzzy possibilities are updated as the system 90 learns the desired behavior. For a weather context, examples of criteria include, location, date and time. Other criteria can include command criteria (i.e., yes/no, on/off, pause, stop), and spelling. The process for determining criteria may be iterative or recursive in order to eliminate ambiguity in the user's question or command. For example, if the user has a place name (or other proper noun) in their utterance, tables in the databases 102 may be reviewed for place names or an attempt may be made to determine which word is the proper noun from the syntax of the utterance. In another example, the user asks "what about flight one hundred and twenty too?" In such a situation, flight information in the database and network information along with context may be used to determine the most plausible interpretation among; flight 100 and flight 20 also, flight 100 and flight 22, flight 122, and the like. Once the parameters and criteria for the query and/or command have been established, the proper agents 106 may be selected at 606.

[127] After selecting the agents 106, at operation 608, a properly formatted query and/or command that will be submitted to the agents 106 may be determined. The query and/or command may be in a standard format or may be a hierarchical data structure used for processing by the agent 106. In order to submit the properly formatted query and/or command to the agent 106, all of the required, and some optional tokens, for the grammar of the context may be filled in. Often the tokens must be transformed to values and forms acceptable to the agents. The required transformations may be obtained from the agents, dialog history or user profile 110. Examples of transformations or substitutions that may

be performed were provided above. Once the properly formatted queries and/or commands are generated, the process (e.g., process 400) may continue at 610.

[128] While specific embodiments of the invention have been described above, it will be appreciated that the invention may be practiced otherwise than as described. For example, the invention may take the form of a computer program containing one or more sequences of machine-readable instructions describing a method as disclosed above, or a data storage medium (e.g. semiconductor memory, magnetic or optical disk) having such a computer program stored therein.

[129] The descriptions above are intended to be illustrative, not limiting. Thus, it will be apparent to one skilled in the art that modifications may be made to the invention as described without departing from the scope of the claims set out below.

We claim:

1. A system for processing speech and non-speech communications, comprising:

a terminal device that receives the speech and the non-speech communications;

a transcription module that transcribes the speech and the non-speech communications to create a speech-based textual message and a non-speech-based textual message;

a merging module that merges the speech-based textual message and the non-speech-based textual message to generate a query;

a search module that searches the query for text combinations;

a comparison module that compares the text combinations to entries in a context description grammar;

a plurality of domain agents that are associated with the context description grammar;

a scoring module that provides relevance scores based on results from the comparison module;

a domain agent selector that selects domain agents based on results from the scoring module; and

a response generating module that communicates with the selected domain agents to obtain content that is gathered by the selected domain agents and that generates a response from the content, wherein the content is arranged in a selected order based on results from the scoring module.

2. The system according to claim 1, wherein the response generating module generates an aggregate response that includes the content gathered by the selected domain agents.

3. The system according to claim 1, wherein the terminal device includes (i) a personal digital assistant, (ii) a cellular telephone, (iii) a portable computer, (iv) a desktop computer, or any combination of (i) to (iv).

4. The system according to claim 1, wherein the terminal device receives follow-up speech and non-speech communications and wherein the transcription module transcribes the follow-up speech and non-speech communications to create a follow-up speech-based textual message and a follow-up non-speech-based textual message.

5. The system according to claim 5, wherein the merging module merges the follow-up speech-based textual message and the follow-up non-speech-based textual message to generate a follow-up query.

6. The system according to claim 1, further comprising a personality module that facilitates formatting the response.

7. The system according to claim 1, further comprising a context stack that includes one or more contexts that are selected based on the query.

8. The system according to claim 7, wherein the scoring module determines the one or more contexts based on at least applying prior probabilities or fuzzy possibilities to (i) keyword matching, (ii) user profiles, (iii) a dialog history, or any combination of (i) to (iii).

9. The system according to claim 1, wherein at least one of the domain agents creates and directs a request to at least one of a local information source and a network information source.

10. The system according to claim 1, wherein at least one of the domain agents creates and directs a command to a remote or local device.

11. The system according to claim 5, wherein at least one of the domain agents evaluates multiple queries from multiple sources.

12. The system according to claim 5, wherein the follow-up query is associated with a same context as the query.

13. A method of processing speech and non-speech communications, comprising:

receiving the speech and non-speech communications;

transcribing the speech and non-speech communications to create a speech-based textual message and a non-speech-based textual message;

merging the speech-based textual message and the non-speech-based textual message to generate a query;

searching the query for text combinations;

comparing the text combinations to entries in a context description grammar;

accessing a plurality of domain agents that are associated with the context description grammar;

generating a relevance score based on results from comparing the text combinations to entries in the context description grammar;

selecting one or more domain agents based on results from the relevance score;

obtaining content that is gathered by the selected domain agents; and

generating a response from the content, wherein the content is arranged in a selected order based on results from the relevance score.

14. The method according to claim 13, further comprising generating an aggregate response that includes the content that is gathered by the selected domain agents.

15. The method according to claim 13, further comprising:

receiving a follow-up speech and non-speech communications;

transcribing the follow-up speech and non-speech communications to create a follow-up speech-based textual message and a follow-up non-speech-based textual message; and

merging the follow-up speech-based textual message and the follow-up non-speech-based textual message to generate a follow-up query.

16. The method according to claim 13, further comprising a personality module that communicates the response to a user.

17. The method according to claim 13, further comprising generating a context stack that includes one or more contexts that are selected based on the query.

18. The method according to claim 17, wherein the one or more contexts are generated based on applying prior probabilities or fuzzy possibilities to (i) keyword matching, (ii) user profiles, (iii) a dialog history, or any combination of (i) to (iii).

19. A multimodal system for processing speech and non-speech communications, comprising:

a terminal device that receives one or more types of input;

a transcription module that transcribes the one or more types of input into one or more textual messages;

a merging module that merges the one or more textual messages to generate a query;

a search module that searches the query for text combinations;

a comparison module that compares the text combinations to entries in a context description grammar;

a plurality of domain agents that are associated with the context description grammar;

a scoring module that provides relevance scores based on results from the comparison module;

a domain agent selector that selects domain agents based on results from the scoring module; and

a response generating module that communicates with the selected domain agents to obtain content that is gathered by the selected domain agents and that generates a response from the content, wherein the content is arranged in a selected order based on results from the scoring module;

wherein the terminal device delivers the response using one or more types of output.

20. The multimodal system according to claim 19, wherein the one or more types of input includes (i) speech, (ii) text, (iii) digital audio files, or any combination of (i) to (iii).

21. The multimodal system according to claim 19, wherein the one or more types of output includes (i) speech, (ii) text, (iii) digital audio files, or any combination of (i) to (iii).

22. The multimodal system according to claim 19, wherein the response generating module generates an aggregate response that includes the content gathered by

the selected domain agents and wherein the terminal device delivers the aggregate response using the one or more types of output.

23. The multimodal system according to claim 19, wherein the terminal device includes (i) a personal digital assistant, (ii) a cellular telephone, (iii) a portable computer, (iv) a desktop computer, or any combination of (i) to (iv).

24. The multimodal system according to claim 19, wherein the terminal device receives one or more types of follow-up input, wherein the transcription module transcribes the one or more types of follow-up input to create one or more follow-up textual messages, and wherein the one or more types of follow-up input are different from the one or more types of input.

25. The multimodal system according to claim 24, wherein the terminal device that receives the one or more types of follow-up input is different from the terminal device that receives the one or more types of input.

26. The multimodal system according to claim 24, wherein the merging module merges the one or more follow-up textual messages to generate a follow-up query.

27. The multimodal system according to claim 19, further comprising a personality module that facilitates formatting the response.

28. The multimodal system according to claim 19, further comprising a context stack that includes one or more contexts that are selected based on the query.

29. The multimodal system according to claim 28, wherein the scoring module determines the one or more contexts based on at least applying prior probabilities or fuzzy possibilities to (i) keyword matching, (ii) user profiles, (iii) a dialog history, or any combination of (i) to (iii).

ABSTRACT

Systems and methods are provided for receiving speech and non-speech communications of natural language questions and/or commands, transcribing the speech and non-speech communications to textual messages, and executing the questions and/or commands. The invention applies context, prior information, domain knowledge, and user specific profile data to achieve a natural environment for one or more users presenting questions or commands across multiple domains. The systems and methods creates, stores and uses extensive personal profile information for each user, thereby improving the reliability of determining the context of the speech and non-speech communications and presenting the expected results for a particular question or command.

FIG. 1

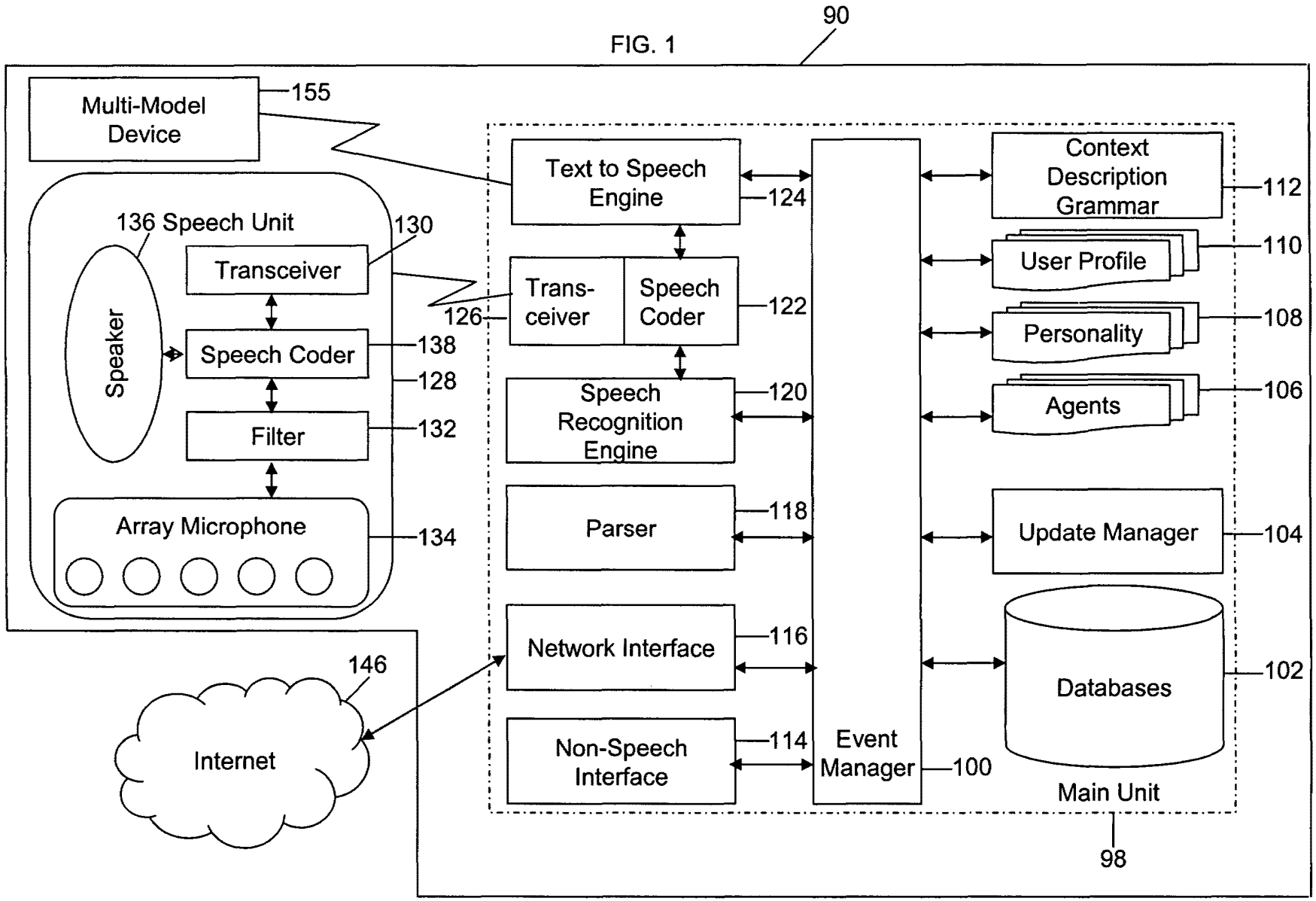

90
Multi-Model Device
155
136 Speech Unit
130
Transceiver
Speaker
Speech Coder
138
128
Filter
132
Array Microphone
134
126
Trans-ceiver
Speech Coder
122
Text to Speech Engine
124
Speech Recognition Engine
120
Parser
118
Network Interface
116
Non-Speech Interface
114
Event Manager
100
Context Description Grammar
112
User Profile
110
Personality
108
Agents
106
Update Manager
104
Databases
102
Main Unit
98
146
Internet

FIG. 2

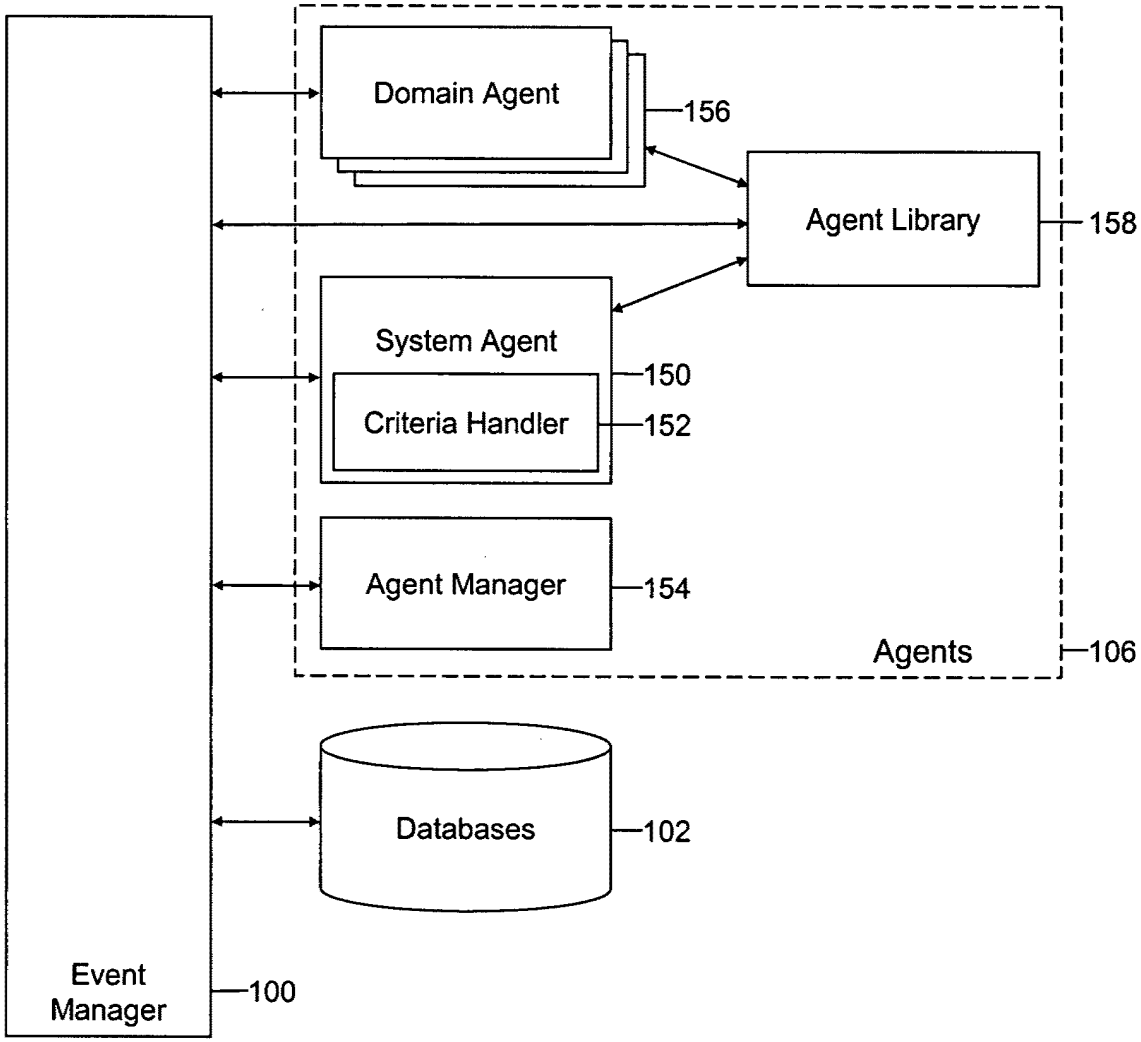

Domain Agent
156
Agent Library
158
System Agent
150
Criteria Handler
152
Agent Manager
154
Agents
106
Databases
102
Event Manager
100

FIG. 3

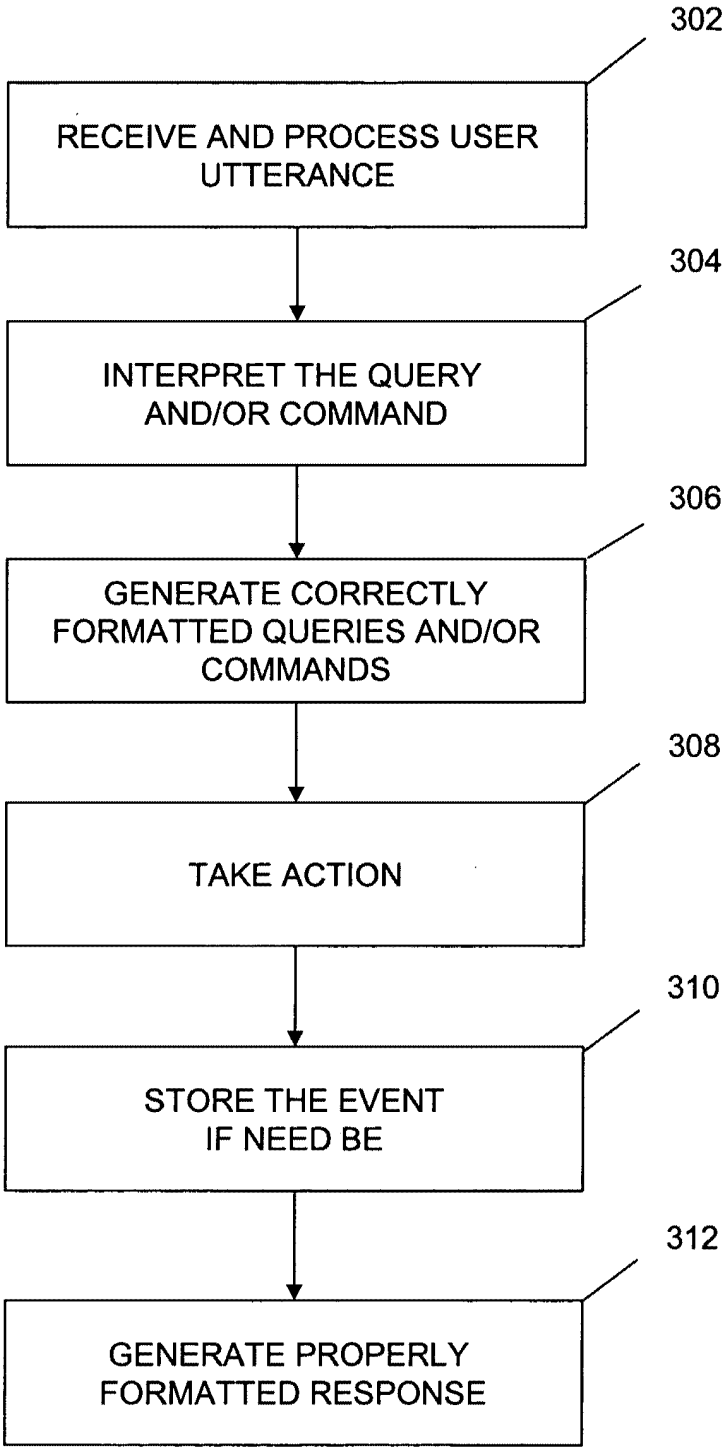

300
302
RECEIVE AND PROCESS USER UTTERANCE
304
INTERPRET THE QUERY AND/OR COMMAND
306
GENERATE CORRECTLY FORMATTED QUERIES AND/OR COMMANDS
308
TAKE ACTION
310
STORE THE EVENT IF NEED BE
312
GENERATE PROPERLY FORMATTED RESPONSE

FIG. 4A

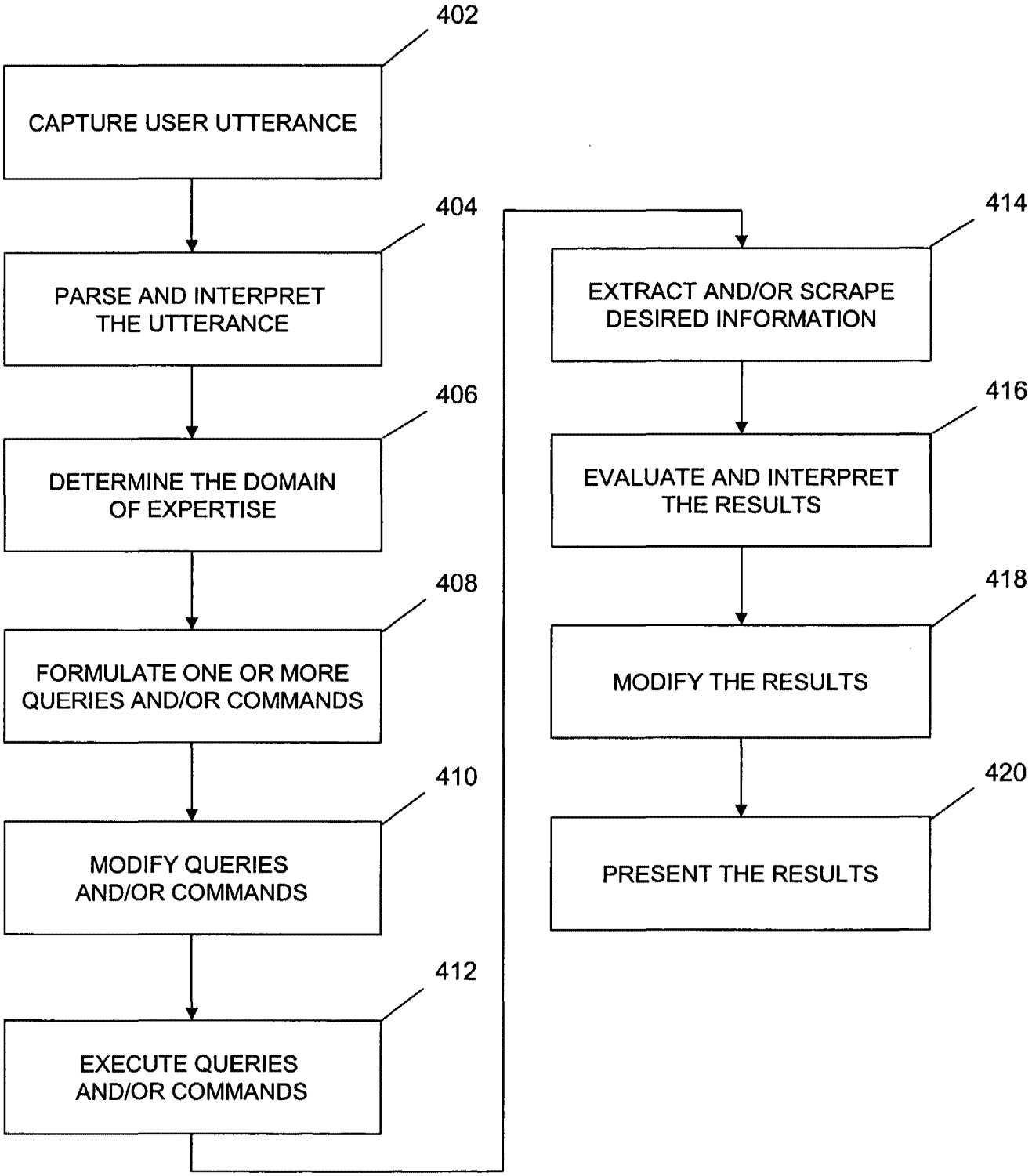

400
402
CAPTURE USER UTTERANCE
404
PARSE AND INTERPRET THE UTTERANCE
406
DETERMINE THE DOMAIN OF EXPERTISE
408
FORMULATE ONE OR MORE QUERIES AND/OR COMMANDS
410
MODIFY QUERIES AND/OR COMMANDS
412
EXECUTE QUERIES AND/OR COMMANDS
414
EXTRACT AND/OR SCRAPE DESIRED INFORMATION
416
EVALUATE AND INTERPRET THE RESULTS
418
MODIFY THE RESULTS
420
PRESENT THE RESULTS

FIG. 4B

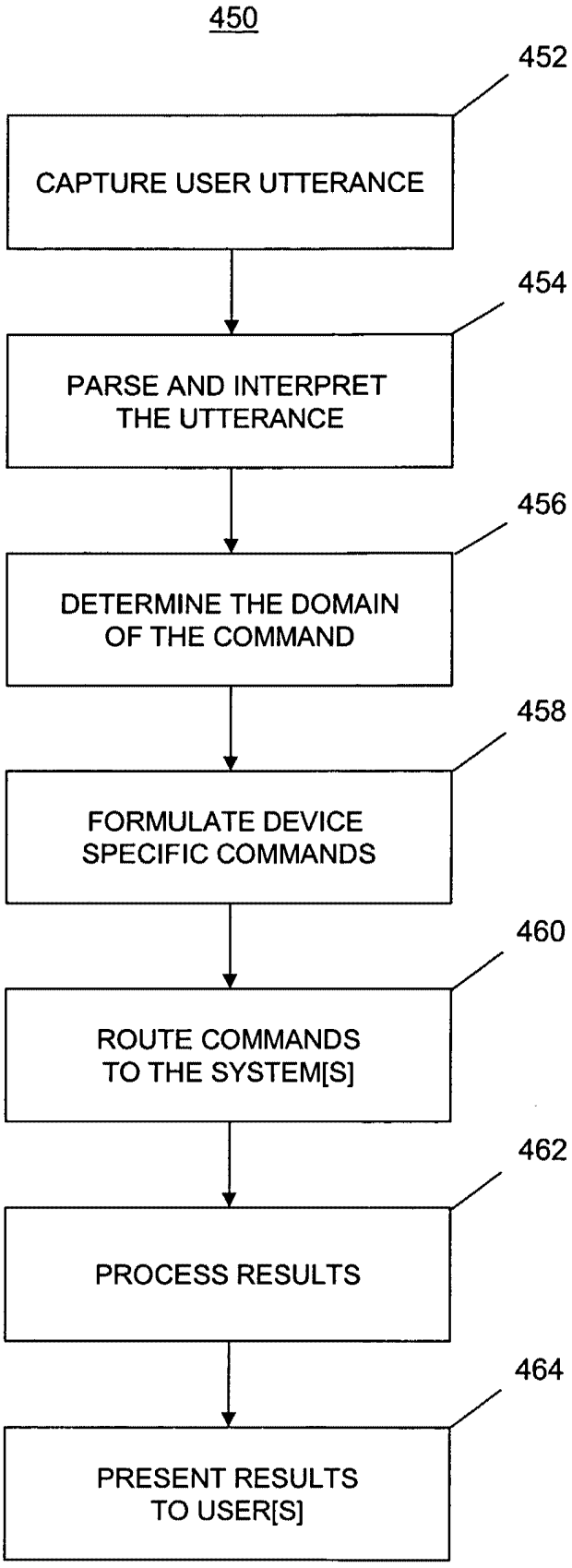

450
452
CAPTURE USER UTTERANCE
454
PARSE AND INTERPRET THE UTTERANCE
456
DETERMINE THE DOMAIN OF THE COMMAND
458
FORMULATE DEVICE SPECIFIC COMMANDS
460
ROUTE COMMANDS TO THE SYSTEM[S]
462
PROCESS RESULTS
464
PRESENT RESULTS TO USER[S]

FIG. 5

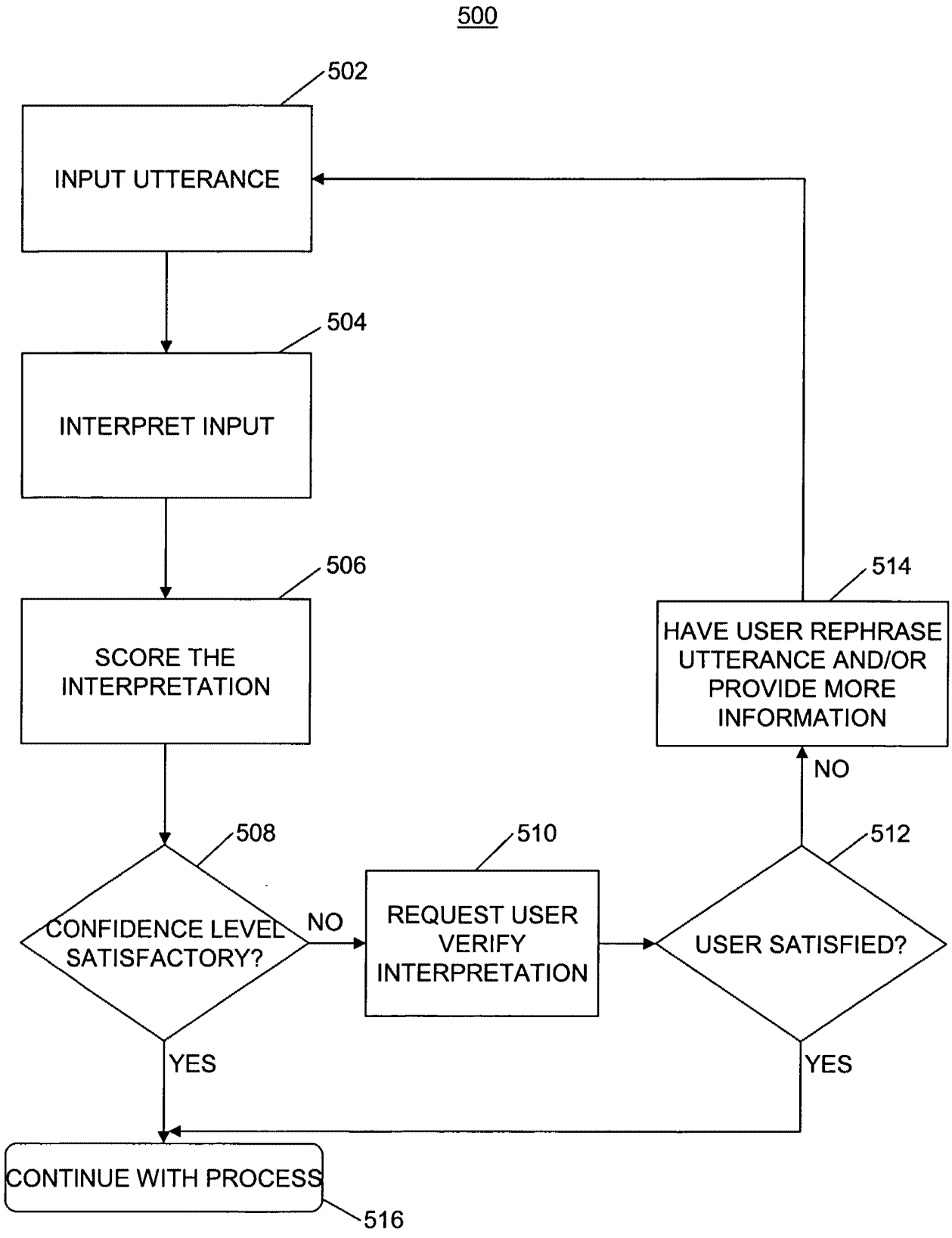

500
502
INPUT UTTERANCE
504
INTERPRET INPUT
506
SCORE THE INTERPRETATION
508
CONFIDENCE LEVEL SATISFACTORY?
NO
510
REQUEST USER VERIFY INTERPRETATION
512
USER SATISFIED?
NO
514
HAVE USER REPHRASE UTTERANCE AND/OR PROVIDE MORE INFORMATION
YES
YES
CONTINUE WITH PROCESS
516

FIG. 6

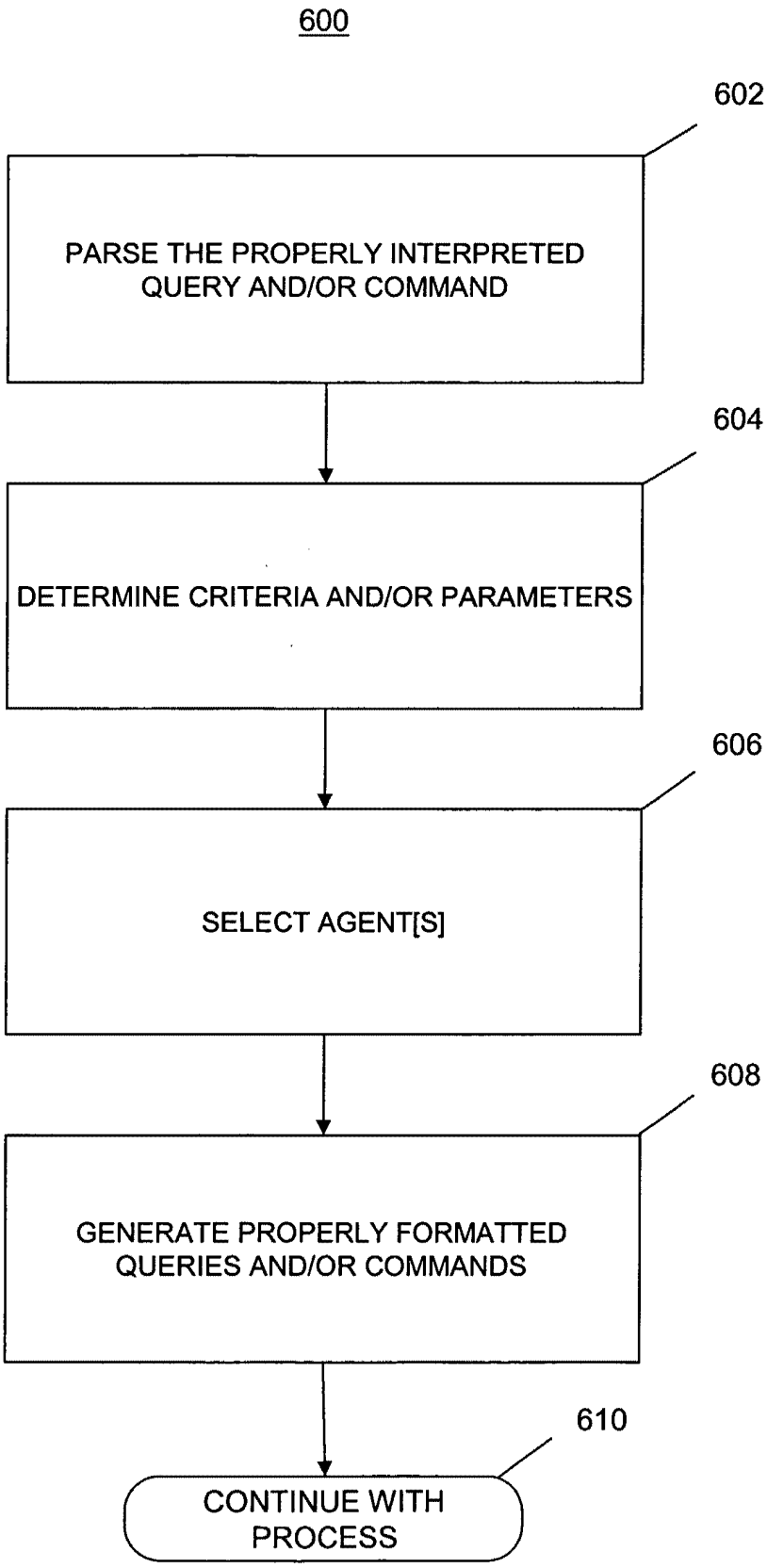
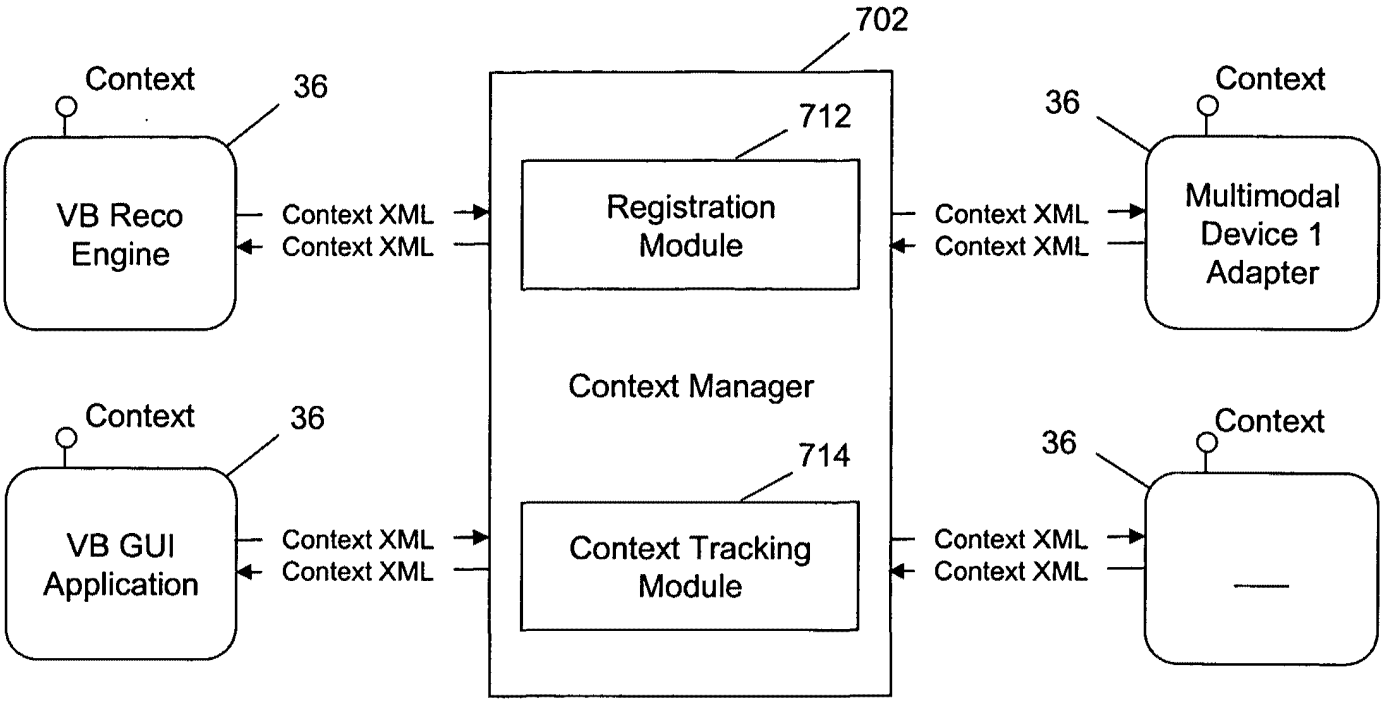

600
602
PARSE THE PROPERLY INTERPRETED QUERY AND/OR COMMAND
604
DETERMINE CRITERIA AND/OR PARAMETERS
606
SELECT AGENT[S]
608
GENERATE PROPERLY FORMATTED QUERIES AND/OR COMMANDS
610
CONTINUE WITH PROCESS

FIG. 7


700
702
Context
36
VB Reco Engine
Context XML
Context XML
712
Registration Module
Context XML
Context XML
36
Context
Multimodal Device 1 Adapter
Context Manager
Context
36
VB GUI Application
Context XML
Context XML
714
Context Tracking Module
Context XML
Context XML
36
Context

Attorney Docket No. 090611-0316777

COMBINED DECLARATION AND POWER OF ATTORNEY FOR PATENT APPLICATION

As the below named inventors, we hereby declare that:

Our residences, post office addresses and citizenships are as stated next to our names;

We believe that we are the original, first and joint inventors of the subject matter which is claimed and for which a patent is sought on the invention entitled:

"SYSTEMS AND METHODS FOR RESPONDING TO NATURAL LANGUAGE SPEECH UTTERANCE"

the specification of which is attached hereto.

We have reviewed and understand the contents of the above-identified specification, including the claims, as amended by any amendment referred to above;

We acknowledge the duty to disclose to the U.S. Patent and Trademark Office all information which is known to us to be material to the patentability of said invention in accordance with 37 C.F.R. § 1.56;

We do not know and do not believe said invention was ever known or used in the United States of America before our invention thereof, or patented or described in any printed publication in any country before our invention thereof or more than one year prior to said application; that said invention was not in public use or on sale in the United States of America more than one year prior to said application; that said invention has not been patented or made the subject of an inventor's certificate issued before the date of said application in any country foreign to the United States of America on any application filed by us or our legal representatives or assigns more than six months prior to said application;

We hereby claim the benefit under 35 U.S.C. §119(e) of any United States provisional application(s) listed below:

_____ (Application Number) _____ (Filing Date) (day, month, year)

30543305v1

make all rightful oaths and declarations relating to said invention, execute and deliver any and all papers that may be necessary or desirable to perfect the title to this invention in said Assignee, its successors, legal representatives or assigns, and to testify in any judicial or administrative proceeding and generally do everything possible to aid the said Assignee to obtain and enforce said Letters Patent in the United States or any foreign country when requested so to do by said Assignee.

Signature of Inventor:
Inventor's Name: Philippe Di Cristo

Date of Execution: 8/4/05

Signature of Inventor:
Inventor's Name: Min Ke

Date of Execution: 8/4/05

Signature of Inventor:
Inventor's Name: Robert A. Kennewick

Date of Execution: 8/4/05

PATENT APPLICATION SERIAL NO _____

U.S. DEPARTMENT OF COMMERCE
PATENT AND TRADEMARK OFFICE
FEE RECORD SHEET

08/09/2005 FFANAIA2 00000034 033975 11197504

01 FC:2011 150.00 DA
02 FC:2111 250.00 DA
03 FC:2311 100.00 DA
04 FC:2202 225.00 DA

PTO-1556
(5/87)

*U.S. Government Printing Office: 2002 — 466-267/69033

PTO/SB/06 (12-04)
Approved for use through 7/31/2006. OMB 0651-0032
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
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PATENT APPLICATION FEE DETERMINATION RECORD

Substitute for Form PTO-875 Effective December 8, 2004

Application or Docket Number: 11945204

APPLICATION AS FILED – PART I

FOR	(Column 1) NUMBER FILED	(Column 2) NUMBER EXTRA	SMALL ENTITY RATE ($)	SMALL ENTITY FEE ($)	OR	OTHER THAN SMALL ENTITY RATE ($)	OTHER THAN SMALL ENTITY FEE ($)
BASIC FEE (37 CFR 1.16(a), (b), or (c))	N/A	N/A	N/A	150.00		N/A	300.00
SEARCH FEE (37 CFR 1.16(k), (l), or (m))	N/A	N/A	N/A	$250		N/A	$500
EXAMINATION FEE (37 CFR 1.16(o), (p), or (q))	N/A	N/A	N/A	$100		N/A	$200
TOTAL CLAIMS (37 CFR 1.16(i))	29 minus 20 =	* 9	X$ 25 =	225	OR	X$50 =	
INDEPENDENT CLAIMS (37 CFR 1.16(h))	3 minus 3 =	* —	X100 =			X200 =	
APPLICATION SIZE FEE (37 CFR 1.16(s))	If the specification and drawings exceed 100 sheets of paper, the application size fee due is $250 ($125 for small entity) for each additional 50 sheets or fraction thereof. See 35 U.S.C. 41(a)(1)(G) and 37 CFR 1.16(s).						
MULTIPLE DEPENDENT CLAIM PRESENT (37 CFR 1.16(j))			+180=			+360=	
* If the difference in column 1 is less than zero, enter "0" in column 2.			TOTAL	725		TOTAL	

APPLICATION AS AMENDED – PART II

		(Column 1) CLAIMS REMAINING AFTER AMENDMENT		(Column 2) HIGHEST NUMBER PREVIOUSLY PAID FOR	(Column 3) PRESENT EXTRA	SMALL ENTITY RATE ($)	SMALL ENTITY ADDITIONAL FEE ($)	OR	OTHER THAN SMALL ENTITY RATE ($)	OTHER THAN SMALL ENTITY ADDITIONAL FEE ($)
AMENDMENT A	Total (37 CFR 1.16(i))	*	Minus	**	=	X$ 25 =		OR	X$50 =	
	Independent (37 CFR 1.16(h))	*	Minus	***	=	X100 =		OR	X200 =	
	Application Size Fee (37 CFR 1.16(s))									
	FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))					+180=		OR	+360=	
						TOTAL ADD'L FEE		OR	TOTAL ADD'L FEE	

		(Column 1) CLAIMS REMAINING AFTER AMENDMENT		(Column 2) HIGHEST NUMBER PREVIOUSLY PAID FOR	(Column 3) PRESENT EXTRA	RATE ($)	ADDITIONAL FEE ($)	OR	RATE ($)	ADDITIONAL FEE ($)
AMENDMENT B	Total (37 CFR 1.16(i))	*	Minus	**	=	X$ 25 =		OR	X$50 =	
	Independent (37 CFR 1.16(h))	*	Minus	***	=	X100 =		OR	X200 =	
	Application Size Fee (37 CFR 1.16(s))									
	FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))					+180=		OR	+360=	
						TOTAL ADD'L FEE		OR	TOTAL ADD'L FEE	

* If the entry in column 1 is less than the entry in column 2, write "0" in column 3.
** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 20, enter "20".
*** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 3, enter "3".
The "Highest Number Previously Paid For" (Total or Independent) is the highest number found in the appropriate box in column 1.

This collection of information is required by 37 CFR 1.16. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of: Philippe Di Cristo *et al.*

Application No.: *TBD*

Filed: August 5, 2005

For: SYSTEMS AND METHODS FOR RESPONDING TO NATURAL LANGUAGE SPEECH UTTERANCE

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

APPLICATION DATA SHEET
37 C.F.R. § 1.76

BIBLIOGRAPHIC DATA

1. Applicant information

First applicant: Philippe Di Cristo
Citizenship: France
Residence: 177 107th Avenue, N.E., #1007, Bellevue, Washington 98004

Second applicant: Min Ke
Citizenship: United States
Residence: 3221 201st Place, S.E., Bothell, Washington 98012

Third applicant: Robert A. Kennewick
Citizenship: United States
Residence: 2204 S. Eddy Street, Seattle, Washington 98108

2. Correspondence information

Correspondence for this application should be addressed as follows:

Customer No.: 00909

3. Application information

Title of Invention: SYSTEMS AND METHODS FOR RESPONDING TO NATURAL LANGUAGE SPEECH UTTERANCE

Docket number assigned to this application: 090611-0316777
Total number of drawing sheets: 8

Type of application: Utility
Application is to be published. Suggested drawing figure for publication: 7

Secrecy order under § 5.2:

This application does not disclose subject matter of an application which is under a secrecy order pursuant to § 5.2.

4. Representative information

The following have a power of attorney or authorization of agent in this application:

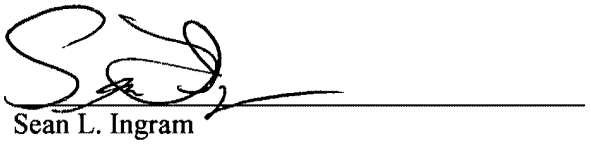
Customer No.: 00909

5. Assignee information

The assignee of this application is:

VoiceBox Technologies, Inc.
10505 NE 38th Place, Building 9
Kirkland, WA 98033
Extent of interest of assignee in application: Entirety

Date: August 5, 2005



Sean L. Ingram
Registration No. 48,283

PILLSBURY WINTHROP SHAW PITTMAN LLP
P.O. Box 10500
McLean, VA 22102
(703) 905.2107
Customer No. 00909

17712 U.S.PTO 080505

PTO/SB/05 (09-04)
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U.S. Patent and Trademark Office. U.S. DEPARTMENT OF COMMERCE
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UTILITY PATENT APPLICATION TRANSMITTAL

(Only for new nonprovisional applications under 37 CFR 1.53(b))

Attorney Docket No.	090611-0316777
First Inventor	Philippe Di Cristo
Title	See attached addendum
Express Mail Label No.	

112975 U.S.PTO 11/197504 080505

APPLICATION ELEMENTS

See MPEP chapter 600 concerning utility patent application contents.

1. [X] **Fee Transmittal Form** (e.g., PTO/SB/17)
   (Submit an original and a duplicate for fee processing)
2. [X] **Applicant claims small entity status.** See 37 CFR 1.27.
3. [X] **Specification** [*Total Pages* 69]
   Both the claims and abstract must start on a new page
   (For information on the preferred arrangement, see MPEP 608.01 (a))
4. [X] Drawing(s) (*35 U.S.C. 113*) [*Total Sheets* 8]
5. **Oath or Declaration** [*Total Sheets* 2]
   a. [X] Newly executed (original or copy)
   b. [ ] Copy from a prior application (37 CFR 1.63(d))
   (for continuation/divisional with Box 18 completed)
   i. [ ] DELETION OF INVENTOR(S)
   Signed statement attached deleting inventor(s) name in the prior application, see 37 CFR 1.63(d)(2) and 1.33(b).
6. [X] **Application Data Sheet.** See 37 CFR 1.76
7. [ ] **CD-ROM or CD-R** in duplicate, large table or Computer Program *(Appendix)*
   [ ] Landscape table on CD
8. **Nucleotide and/or Amino Acid Sequence Submission** *(if applicable, all necessary)*
   a. [ ] Computer Readable Form (CRF)
   b. Specification Sequence Listing on:
      i. [ ] CD-ROM or CD-R (2 copies); or
      ii. [ ] Paper
   c. [ ] Statements verifying identity of above copies

ADDRESS TO:

Commissioner for Patents
P.O. Box 1450
Alexandria VA 22313-1450

ACCOMPANYING APPLICATION PARTS

9. [X] **Assignment Papers** (cover sheet & document(s))
   Name of Assignee VoiceBox Technologies, Inc.
10. [ ] **37 CFR 3.73(b) Statement** *(when there is an assignee)* [ ] Power of Attorney
11. [ ] **English Translation Document** *(if applicable)*
12. [ ] **Information Disclosure Statement** (PTO/SB/08 or PTO-1449
    [ ] Copies of Citations attached
13. [ ] **Preliminary Amendment**
14. [X] **Return Receipt Postcard** (MPEP 503)
    (Should be specifically itemized)
15. [ ] **Certified Copy of Priority Document(s)**
    (if foreign priority is claimed)
16. [ ] **Nonpublication Request** under 35 U.S.C. 122 b)(2)(B)(i). Applicant must attach form PTO/SB/35 or equivalent.
17. [ ] Other: .....

18. If a CONTINUING APPLICATION, *check appropriate box, and supply the requisite information below and in the first sentence of the specification following the title, or in an Application Data Sheet under 37 CFR 1.76:*

[ ] Continuation [ ] Divisional [ ] Continuation-in-part (CIP) of prior application No.: .....

Prior application information: *Examiner* _____ *Art Unit:* _____

19. CORRESPONDENCE ADDRESS

[X] The address associated with Customer Number: 00909 ***OR*** [ ] Correspondence address below

Name					
Address					
City		*State*		*Zip Code*	
Country		*Telephone*		*Fax*	

Signature		*Date*	August 5, 2005
Name (Print/Type)	Sean L. Ingram	*Registration No. (Attorney/Agent)*	48,283

This collection of information is required by 37 CFR 1.53(b). The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.

PTO/SB/17 (12-04)
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U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
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Effective on 12/08/2004.
Fees pursuant to the Consolidated Appropriations Act. 2005 (H.R. 4818).

FEE TRANSMITTAL for FY 2005

[X] Applicant claims small entity status. See 37 CFR 1.27

TOTAL AMOUNT OF PAYMENT	($) 725

Complete if Known	
Application Number	TBD
Filing Date	August 5, 2005
First Named Inventor	Philippe Di Cristo
Examiner Name	
Art Unit	
Attorney Docket No.	090611-0316777

METHOD OF PAYMENT (check all that apply)

[ ] Check [ ] Credit Card [ ] Money Order [ ] None [ ] Other (please identify):_____

[X] Deposit Account Deposit Account Number: 033975 Deposit Account Name: Pillsbury Winthrop Shaw Pittman LLP

For the above-identified deposit account, the Director is hereby authorized to: (check all that apply)

[X] Charge fee(s) indicated below [ ] Charge fee(s) indicated below, **except for the filing fee**

[X] Charge any additional fee(s) or underpayment of fees(s) under 37 CFR 1.16 and 1.17 [X] Credit any overpayments

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FEE CALCULATION

1. BASIC FILING, SEARCH, AND EXAMINATION FEES

Application Type	FILING FEES Fee ($)	FILING FEES Small Entity Fee ($)	SEARCH FEES Fee ($)	SEARCH FEES Small Entity Fee ($)	EXAMINATION FEES Fee ($)	EXAMINATION FEES Small Entity Fee ($)	Fee Paid ($)
Utility	300	100	500	250	200	100	500.00
Design	200	100	100	50	130	65	
Plant	200	100	300	150	160	80	
Reissue	300	150	500	250	600	300	
Provisional	200	100	0	0	0	0	

2. EXCESS CLAIM FEES

Fee Description	Fee ($)	Small Entity Fee ($)
Each claim over 20 or, for Reissues, each claim over 20 and more than in the original patent	50	25
Each independent claim over 3 or, for Reissues, each independent claim more than in the original patent	200	100
Multiple dependent claims	360	180

Total Claims	Extra Claims	Fee ($)	Fee Paid ($)	Multiple Dependent Claims Fee ($)	Multiple Dependent Claims Fee Paid ($)
29 - 20 or HP =	9	X 25.00 =	225.00		

HP = highest number of total claims paid for, if greater than 20

Indep. Claims	Extra Claims	Fee ($)	Fee Paid ($)
3 - 3 or HP =	0	X =	0.00

HP = highest number of independent claims paid for, if greater than 3

3. APPLICATION SIZE FEE

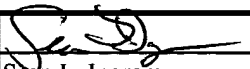
If the specification and drawings exceed 100 sheets of paper, the application size fee due is $250 ($125 for small entity) for each additional 50 sheets or fraction thereof. See 35 U.S.C. 41(a)(1)(G) and 37 CFR 1.16(s).

Total Sheets	Extra Sheets	Number of each additional 50 or fraction thereof	Fee ($)	Fee Paid ($)
77 - 100 =	0 /50=	_____ (round up to a whole number) x	125.00 =	

4. OTHER FEE(S)

	Fee Paid ($)
Non-English Specification, 130 fee (no small entity discount)	
Other: _____	

SUBMITTED BY

Signature		Registration No. (Attorney/Agent) 48,283	Telephone 703.905.2107
Name (Print/Type)	Sean L. Ingram		Date August 5, 2005

This collection of information is required by 37 CFR 1.136. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 30 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.

Addendum

Invention Title

SYSTEMS AND METHODS FOR RESPONDING TO NATURAL LANGUAGE SPEECH UTTERANCE

OIPE
DEC 21 2005
PATENT & TRADEMARK OFFICE

Attorney's Docket 090611-0316777
Client Reference:

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re PATENT APPLICATION of: PHILIPPE DI CRISTO ET AL.

Confirmation Number: 7092

Application No.: 11/197,504

Group Art Unit: 2654

Filed: August 5, 2005

Examiner: Unassigned

For: SYSTEMS AND METHODS FOR RESPONDING TO NATURAL LANGUAGE SPEECH UTTERANCE

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

AMENDMENT/RESPONSE TRANSMITTAL

Transmitted herewith is an amendment/response for this application.

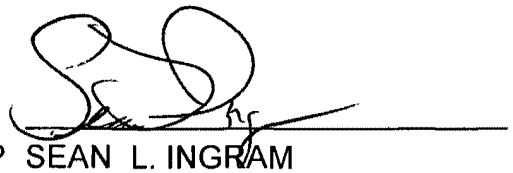
FEES

The fee for claims and extension of time (37 C.F.R. 1.16 and 1.17) has been calculated as shown below:

	CLAIMS REMAINING AFTER AMENDMENT		HIGHEST NO. PREVIOUSLY PAID FOR		PRESENT EXTRA		RATE		ADDIT. FEE
TOTAL	29	–	29	=	0	x $	50.00	=	$ 0.00
INDEP.	3	–	3	=	0	x $	200.00	=	$ 0.00
FIRST PRESENTATION OF MULTIPLE DEP. CLAIM						+ $	360.00	=	$ 0.00
						TOTAL ADDITIONAL CLAIM FEE			$ 0.00
						GRAND TOTAL			$ 0.00

FEE PAYMENT

Authorization is hereby made to charge the amount of $0.00 to Deposit Account No. 033975. Charge any additional fees required by this paper or credit any overpayment in the manner authorized above.



Date: December 21, 2005

PILLSBURY WINTHROP SHAW PITTMAN LLP
P.O. Box 10500
McLean, VA 22102
703 770.7807

SEAN L. INGRAM
Reg. No. 48283

OIPE IAP13 DEC 21 2005 PATENT & TRADEMARK OFFICE

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

IN RE PATENT APPLICATION OF:	Philippe DI CRISTO *et al.*
SERIAL NO.:	11/197,504
ATTORNEY DOCKET NO.:	090611-0316777
FILING DATE:	August 5, 2005
ART UNIT:	2654
EXAMINER	***Not Yet Assigned***
FOR:	SYSTEMS AND METHODS FOR RESPONDING TO NATURAL LANGUAGE SPEECH UTTERANCE

PRELIMINARY AMENDMENT

Mail Stop Amendment
Commissioner for Patents
P.O. Box 1450
Alexandria, VA. 22313-1450

Dear Sir:

Prior to initial examination on the merits, please amend the above-identified application as set forth below.

Amendments to the Declaration begin on page 2 of this paper.

Amendments to the Claims are reflected in the listing of claims beginning on page 3 of this paper.

Remarks begin on page 11 of this paper.

It is not believed that extensions of time or fees for net addition of claims are required beyond those that may otherwise be provided for in documents accompanying this paper. However, if additional extensions of time are necessary to prevent abandonment of this application, then such extensions of time are hereby petitioned for under 37 C.F.R. § 1.136(a), and any fees required therefore (including fees for net addition of claims) are hereby authorized to be charged to our Deposit Account No. 033975 (**Ref. No. 090611-0316777**).

RESUBMISSION OF THE DECLARATION:

The attached Combined Declaration and Power of Attorney for Patent Application was filed concurrently with the application on August 5, 2005. However, it was not acknowledged as received. Thus, Applicants are herewith resubmitting the previously filed Combined Declaration and Power of Attorney for Patent Application.

This listing of claims will replace all prior versions and listings of claims in the Application.

LISTING OF CLAIMS:

1. **(Previously Presented)** A system for processing speech and non-speech communications, comprising:

a terminal device that receives the speech and the non-speech communications;

a transcription module that transcribes the speech and the non-speech communications to create a speech-based textual message and a non-speech-based textual message;

a merging module that merges the speech-based textual message and the non-speech-based textual message to generate a query;

a search module that searches the query for text combinations;

a comparison module that compares the text combinations to entries in a context description grammar;

a plurality of domain agents that are associated with the context description grammar;

a scoring module that provides relevance scores based on results from the comparison module;

a domain agent selector that selects domain agents based on results from the scoring module; and

a response generating module that communicates with the selected domain agents to obtain content that is gathered by the selected domain agents and that generates a response from the content, wherein the content is arranged in a selected order based on results from the scoring module.

2. **(Previously Presented)** The system according to claim 1, wherein the response generating module generates an aggregate response that includes the content gathered by the selected domain agents.

3. **(Previously Presented)** The system according to claim 1, wherein the terminal device includes (i) a personal digital assistant, (ii) a cellular telephone, (iii) a portable computer, (iv) a desktop computer, or any combination of (i) to (iv).

4. **(Previously Presented)** The system according to claim 1, wherein the terminal device receives follow-up speech and non-speech communications and wherein the transcription module transcribes the follow-up speech and non-speech communications to create a follow-up speech-based textual message and a follow-up non-speech-based textual message.

5. **(Currently Amended)** The system according to claim ~~5~~ 4, wherein the merging module merges the follow-up speech-based textual message and the follow-up non-speech-based textual message to generate a follow-up query.

6. **(Previously Presented)** The system according to claim 1, further comprising a personality module that facilitates formatting the response.

7. **(Previously Presented)** The system according to claim 1, further comprising a context stack that includes one or more contexts that are selected based on the query.

8. **(Previously Presented)** The system according to claim 7, wherein the scoring module determines the one or more contexts based on at least applying prior probabilities or fuzzy possibilities to (i) keyword matching, (ii) user profiles, (iii) a dialog history, or any combination of (i) to (iii).

9. **(Previously Presented)** The system according to claim 1, wherein at least one of the domain agents creates and directs a request to at least one of a local information source and a network information source.

10. **(Previously Presented)** The system according to claim 1, wherein at least one of the domain agents creates and directs a command to a remote or local device.

11. **(Previously Presented)** The system according to claim 5, wherein at least one of the domain agents evaluates multiple queries from multiple sources.

12. **(Previously Presented)** The system according to claim 5, wherein the follow-up query is associated with a same context as the query.

13. **(Previously Presented)** A method of processing speech and non-speech communications, comprising:

receiving the speech and non-speech communications;

transcribing the speech and non-speech communications to create a speech-based textual message and a non-speech-based textual message;

merging the speech-based textual message and the non-speech-based textual message to generate a query;

searching the query for text combinations;

comparing the text combinations to entries in a context description grammar;

accessing a plurality of domain agents that are associated with the context description grammar;

generating a relevance score based on results from comparing the text combinations to entries in the context description grammar;

selecting one or more domain agents based on results from the relevance score;

obtaining content that is gathered by the selected domain agents; and

generating a response from the content, wherein the content is arranged in a selected order based on results from the relevance score.

14. **(Previously Presented)** The method according to claim 13, further comprising generating an aggregate response that includes the content that is gathered by the selected domain agents.

15. **(Previously Presented)** The method according to claim 13, further comprising:

receiving a follow-up speech and non-speech communications;

transcribing the follow-up speech and non-speech communications to create a follow-up speech-based textual message and a follow-up non-speech-based textual message; and

merging the follow-up speech-based textual message and the follow-up non-speech-based textual message to generate a follow-up query.

16. **(Previously Presented)** The method according to claim 13, further comprising a personality module that communicates the response to a user.

17. **(Previously Presented)** The method according to claim 13, further comprising generating a context stack that includes one or more contexts that are selected based on the query.

18. **(Previously Presented)** The method according to claim 17, wherein the one or more contexts are generated based on applying prior probabilities or fuzzy possibilities to (i) keyword matching, (ii) user profiles, (iii) a dialog history, or any combination of (i) to (iii).

19. **(Previously Presented)** A multimodal system for processing speech and non-speech communications, comprising:

a terminal device that receives one or more types of input;

a transcription module that transcribes the one or more types of input into one or more textual messages;

a merging module that merges the one or more textual messages to generate a query;

a search module that searches the query for text combinations;

a comparison module that compares the text combinations to entries in a context description grammar;

a plurality of domain agents that are associated with the context description grammar;

a scoring module that provides relevance scores based on results from the comparison module;

a domain agent selector that selects domain agents based on results from the scoring module; and

a response generating module that communicates with the selected domain agents to obtain content that is gathered by the selected domain agents and that generates a response from the content, wherein the content is arranged in a selected order based on results from the scoring module;

wherein the terminal device delivers the response using one or more types of output.

20. **(Previously Presented)** The multimodal system according to claim 19, wherein the one or more types of input includes (i) speech, (ii) text, (iii) digital audio files, or any combination of (i) to (iii).

21. **(Previously Presented)** The multimodal system according to claim 19, wherein the one or more types of output includes (i) speech, (ii) text, (iii) digital audio files, or any combination of (i) to (iii).

22. **(Previously Presented)** The multimodal system according to claim 19, wherein the response generating module generates an aggregate response that includes the content gathered by the selected domain agents and wherein the terminal device delivers the aggregate response using the one or more types of output.

23. **(Previously Presented)** The multimodal system according to claim 19, wherein the terminal device includes (i) a personal digital assistant, (ii) a cellular telephone, (iii) a portable computer, (iv) a desktop computer, or any combination of (i) to (iv).

24. **(Previously Presented)** The multimodal system according to claim 19, wherein the terminal device receives one or more types of follow-up input, wherein the transcription module transcribes the one or more types of follow-up input to create one or more follow-up textual messages, and wherein the one or more types of follow-up input are different from the one or more types of input.

25. **(Previously Presented)** The multimodal system according to claim 24, wherein the terminal device that receives the one or more types of follow-up input is different from the terminal device that receives the one or more types of input.

26. **(Previously Presented)** The multimodal system according to claim 24, wherein the merging module merges the one or more follow-up textual messages to generate a follow-up query.

27. **(Previously Presented)** The multimodal system according to claim 19, further comprising a personality module that facilitates formatting the response.

28. **(Previously Presented)** The multimodal system according to claim 19, further comprising a context stack that includes one or more contexts that are selected based on the query.

29. **(Previously Presented)** The multimodal system according to claim 28, wherein the scoring module determines the one or more contexts based on at least applying prior probabilities or fuzzy possibilities to (i) keyword matching, (ii) user profiles, (iii) a dialog history, or any combination of (i) to (iii).

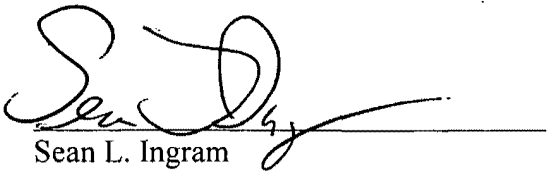
REMARKS

By this Preliminary Amendment, the Combined Declaration and Power of Attorney for Patent Application filed with the application on August 5, 2005 has been resubmitted. It is respectfully requested that a Corrected Filing Receipt be issued reflecting the Power of Attorney information.

Additionally, the dependency of claim 5 has been corrected to refer to claim 4. Claims 1-29 are pending. In view of the foregoing amendments, allowance of all the claims pending in the application is respectfully requested. If the Examiner believes, for any reason, that personal communication will expedite prosecution of this application, the Examiner is invited to telephone the undersigned at the number provided.

Date: December 21, 2005

Respectfully submitted,

By: 

Sean L. Ingram
Registration No. 48,283

Customer No. 00909

PILLSBURY WINTHROP SHAW PITTMAN LLP
P.O. Box 10500
McLean, Virginia 22102
Direct Dial: 703-770-7741
Main: 703-770-7900
Fax: 703-770-7901

OIPE IAP13 DEC 21 2005 PATENT & TRADEMARK OFFICE

Attorney Docket No. 090611-0316777

COMBINED DECLARATION AND POWER OF ATTORNEY FOR PATENT APPLICATION

As the below named inventors, we hereby declare that:

Our residences, post office addresses and citizenships are as stated next to our names;

We believe that we are the original, first and joint inventors of the subject matter which is claimed and for which a patent is sought on the invention entitled:

"SYSTEMS AND METHODS FOR RESPONDING TO NATURAL LANGUAGE SPEECH UTTERANCE"

the specification of which is attached hereto.

We have reviewed and understand the contents of the above-identified specification, including the claims, as amended by any amendment referred to above;

We acknowledge the duty to disclose to the U.S. Patent and Trademark Office all information which is known to us to be material to the patentability of said invention in accordance with 37 C.F.R. § 1.56;

We do not know and do not believe said invention was ever known or used in the United States of America before our invention thereof, or patented or described in any printed publication in any country before our invention thereof or more than one year prior to said application; that said invention was not in public use or on sale in the United States of America more than one year prior to said application; that said invention has not been patented or made the subject of an inventor's certificate issued before the date of said application in any country foreign to the United States of America on any application filed by us or our legal representatives or assigns more than six months prior to said application;

We hereby claim the benefit under 35 U.S.C. §119(e) of any United States provisional application(s) listed below:

_____ (Application Number) _____ (Filing Date) (day, month, year)

Attorney Docket No. 090611-0316777

We hereby appoint the following attorneys and/or agents to prosecute this application and to transact all business in the Patent and Trademark Office connected therewith:

James G. Gatto	Registration No. 32,694
Rick A. Toering	Registration No. 43,195
Bradford C. Blaise	Registration No. 47,429
Sean L. Ingram	Registration No. 48,283

Address all telephone calls to James G. Gatto at telephone number 703-905-2054. Address all correspondence to Customer Number

00909

We hereby declare that all statements made herein of our own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

Full name of first inventor: **Philippe Di Cristo**

Inventor's signature _____ Date 8/4/05

Residence: 177 107th Avenue, N.E., #1007
Bellevue, Washington 98004

Citizen of: France

Post Office Address: Same as residence

Full name of second inventor: **Min Ke**

Inventor's signature _____ Date 8/4/05

Residence: 3221 201st Place, S.E.
Bothell, Washington 98012

Citizen of: United States of America

Post Office Address: Same as residence

Full name of third inventor: **Robert A. Kennewick**

Inventor's signature _____ Date 8/4/05

Residence: 2204 S. Eddy Street
Seattle, Washington 98108

Citizen of: United States of America

Post Office Address: Same as residence

PTO/SB/06 (12-04)
Approved for use through 7/31/2006. OMB 0651-0032
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

PATENT APPLICATION FEE DETERMINATION RECORD

Substitute for Form PTO-875 Effective December 8, 2004

Application or Docket Number: 11945-04

APPLICATION AS FILED – PART I

FOR	(Column 1) NUMBER FILED	(Column 2) NUMBER EXTRA	SMALL ENTITY RATE ($)	SMALL ENTITY FEE ($)	OR	OTHER THAN SMALL ENTITY RATE ($)	OTHER THAN SMALL ENTITY FEE ($)
BASIC FEE (37 CFR 1.16(a), (b), or (c))	N/A	N/A	N/A	150.00		N/A	300.00
SEARCH FEE (37 CFR 1.16(k), (l), or (m))	N/A	N/A	N/A	$250		N/A	$500
EXAMINATION FEE (37 CFR 1.16(o), (p), or (q))	N/A	N/A	N/A	$100		N/A	$200
TOTAL CLAIMS (37 CFR 1.16(i))	29 minus 20 =	9	X$ 25 =	225	OR	X$50 =	
INDEPENDENT CLAIMS (37 CFR 1.16(h))	3 minus 3 =	—	X100 =			X200 =	
APPLICATION SIZE FEE (37 CFR 1.16(s))	If the specification and drawings exceed 100 sheets of paper, the application size fee due is $250 ($125 for small entity) for each additional 50 sheets or fraction thereof. See 35 U.S.C. 41(a)(1)(G) and 37 CFR 1.16(s).						
MULTIPLE DEPENDENT CLAIM PRESENT (37 CFR 1.16(j))			+180=			+360=	
* If the difference in column 1 is less than zero, enter "0" in column 2.			TOTAL	725		TOTAL	

APPLICATION AS AMENDED – PART II

AMENDMENT A	(Column 1) CLAIMS REMAINING AFTER AMENDMENT		(Column 2) HIGHEST NUMBER PREVIOUSLY PAID FOR	(Column 3) PRESENT EXTRA	SMALL ENTITY RATE ($)	SMALL ENTITY ADDITIONAL FEE ($)	OR	OTHER THAN SMALL ENTITY RATE ($)	OTHER THAN SMALL ENTITY ADDITIONAL FEE ($)
Total (37 CFR 1.16(i))	* 29	Minus	** 29	= 9	X$ 25 =		OR	X$50 =	
Independent (37 CFR 1.16(h))	* 3	Minus	*** 3	=	X100 =		OR	X200 =	
Application Size Fee (37 CFR 1.16(s))									
FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))					+180=		OR	+360=	
					TOTAL ADD'L FEE		OR	TOTAL ADD'L FEE	

AMENDMENT B	(Column 1) CLAIMS REMAINING AFTER AMENDMENT		(Column 2) HIGHEST NUMBER PREVIOUSLY PAID FOR	(Column 3) PRESENT EXTRA	RATE ($)	ADDITIONAL FEE ($)	OR	RATE ($)	ADDITIONAL FEE ($)
Total (37 CFR 1.16(i))	*	Minus	**	=	X$ 25 =		OR	X$50 =	
Independent (37 CFR 1.16(h))	*	Minus	***	=	X100 =		OR	X200 =	
Application Size Fee (37 CFR 1.16(s))									
FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))					+180=		OR	+360=	
					TOTAL ADD'L FEE		OR	TOTAL ADD'L FEE	

* If the entry in column 1 is less than the entry in column 2, write "0" in column 3.
** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 20, enter "20".
*** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 3, enter "3".
The "Highest Number Previously Paid For" (Total or Independent) is the highest number found in the appropriate box in column 1.

This collection of information is required by 37 CFR 1.16. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2

OIPE IAP38
DEC 23 2005
PATENT & TRADEMARK OFFICE

PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Patent Application of:	)	Docket No.: 090611-0316777
Philippe DI CRISTO *et al.*	)	Confirmation No.: 7092
Serial No.: 11/197,504	)	Examiner: *Unknown*
Filed: August 5, 2005	)	Group Art Unit: 2654

For: SYSTEMS AND METHODS FOR RESPONDING TO NATURAL LANGUAGE SPEECH UTTERANCE

INFORMATION DISCLOSURE STATEMENT (IDS)

Commissioner for Patents
P. O. Box 1450
Alexandria, VA 22313-1450

Sir:

Pursuant to the duty of disclosure under 37 C.F.R. §§ 1.56, 1.97 and 1.98, Applicants hereby make of record in the above-identified application the documents listed on the attached Form PTO-1449.

Applicants have listed publication dates on the attached PTO-1449 based on information presently available to the undersigned. However, the listed publication dates should not be construed as an admission that the information was actually published on the date indicated.

Applicants reserve the right to establish the patentability of the claimed invention over any of the information provided herewith, and/or to prove that this information may not be prior art, and/or to prove that this information may not be enabling for the teachings purportedly offered.

This Information Disclosure Statement is being filed within three months of the filing date of a national application other than a continued prosecution application under 37 C.F.R. §1.53(d), or within three months of the date of entry of the national stage as set forth in 37 C.F.R. §1.491 in an international application, or before the mailing date of a first Office Action on the merits or before the mailing date of a first Office Action after the filing of a request for continued examination under 37 C.F.R. §1.114. No certification or fee is required. 37 C.F.R. §1.97(b).

A copy of each cited U.S. patent is not submitted herewith pursuant to the Official Gazette Notice of August 5, 2003, wherein the Office waived the requirement under 37 C.F.R. 1.98(a)(2)(i) for all U.S. national phase applications filed after June 30, 2003.

It is respectfully requested that the Examiner initial and return a copy of the enclosed PTO-1449.

Respectfully submitted,

PILLSBURY WINTHROP SHAW PITTMAN LLP

By _____
Sean L. Ingram
Registration No.: 48,283

Customer No.
00909

P. O. Box 10500
McLean, Virginia 22102
Telephone: (703) 770-7900
Telefax: (703) 770-7901

Attorney for Applicants

Dated: December 23, 2005

OIPE IAP38
DEC 23 2005
PATENT & TRADEMARK OFFICE

INFORMATION DISCLOSURE CITATION IN AN APPLICATION

Form PTO-1449

Docket Number	Application Number
090611-0316777	11/197,504
Applicant(s)	
Philippe DI CRISTO *et al.*	
Filing Date	Group Art Unit
August 5, 2005	2654

U.S. PATENT DOCUMENTS

*EXAMINER INITIAL	REF	DOCUMENT NO.	DATE	NAME	CLASS	SUBCLASS	FILING DATE IF APPROPRIATE
	1A	5,155,743	10/13/1992	Jacobs	375	28	
	1B	5,386,556	01/31/1995	Hedin et al.	395	600	
	1C	5,424,947	06/13/1995	Nagao et al.	364	419.08	
	1D	5,471,318	11/28/1995	Ahuja et al.	358	400	
	1E	5,475,733	12/12/1995	Eisdorfer et al.	379	52	
	1F	5,499,289	03/12/1996	Bruno et al.	379	220	
	1G	5,517,560	05/14/1996	Greenspan	379	114	
	1H	5,533,108	07/02/1996	Harris et al.	379	201	
	1I	5,537,436	07/16/1996	Bottoms et al.	375	222	
	1J	5,539,744	07/23/1996	Chu et al.	370	60	
	1K	5,557,667	09/17/1996	Bruno et al.	379	201	
	1L	5,563,937	10/08/1996	Bruno et al.	379	201	
	1M	5,590,039	12/31/1996	Ikeda et al.	395	759	
	1N	5,633,922	05/27/1997	August et al.	379	220	
	1O	5,675,629	10/07/1997	Raffel et al.	379	58	
	1P	5,708,422	01/13/1998	Blonder et al.	340	825.34	
	1Q	5,721,938	02/24/1998	Stuckey	395	754	
	1R	5,722,084	02/24/1998	Chakrin et al.	455	551	
	1S	5,742,763	04/21/1998	Jones	395	200.3	
	1T	5,752,052	05/12/1998	Richardson et al.	395	759	
	1U	5,754,784	05/19/1998	Garland et al.	395	200.49	
	1V	5,761,631	06/02/1998	Nasukawa	704	9	
	1W	5,794,050	08/11/1998	Dahlgren et al.	395	708	

FOREIGN PATENT DOCUMENTS

	REF	DOCUMENT NO.	DATE	COUNTRY	CLASS	SUBCLASS	Translations YES	Translations NO
	1X	WO 01/78065	10/18/2001	International				

OTHER DOCUMENTS *(Including Author, Title, Date, Pertinent Pages, Etc.)*

	1Y	REUTERS, "IBM to Enable Honda Drivers to Talk to Cars", Charles Schwab & Co., Inc., July 28, 2002, 1 page.

EXAMINER	DATE CONSIDERED

EXAMINER: Initial if citation considered, whether or not citation is in conformance with MPEP Section 609; Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to Applicant.

INFORMATION DISCLOSURE CITATION IN AN APPLICATION	Docket Number	Application Number
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	2A	5,802,510	09/01/1998	Jones	707	2	
	2B	5,832,221	11/03/1998	Jones	375	200.36	
	2C	5,878,386	03/02/1999	Coughlin	704	10	
	2D	5,895,466	04/20/1999	Goldberg et al.	707	5	
	2E	5,911,120	06/08/1999	Jarett et al.	455	417	
	2F	5,926,784	07/20/1999	Richardson et al.	704	9	
	2G	5,933,822	08/03/1999	Braden-Harder et al.	707	5	
	2H	5,953,393	09/14/1999	Culbreth et al.	379	88.25	
	2I	5,963,894	10/05/1999	Richardson et al.	704	9	
	2J	5,963,940	10/05/1999	Liddy et al.	707	5	
	2K	5,987,404	11/16/1999	Della Pietra et al.	704	9	
	2L	5,991,721	11/23/1999	Asano et al.	704	257	
	2M	5,995,119	11/30/1999	Cosatto et al.	345	473	
	2N	6,009,382	12/28/1999	Martino et al.	704	1	
	2O	6,014,559	01/11/2000	Amin	455	413	
	2P	6,021,384	02/01/2000	Gorin et al.	704	1	
	2Q	6,044,347	03/28/2000	Abella et al.	704	272	
	2R	6,049,602	04/11/2000	Foladare et al.	379	265	
	2S	6,058,187	05/02/2000	Chen	380	21	
	2T	6,078,886	06/20/2000	Dragosh et al.	704	270	
	2U	6,081,774	06/27/2000	De Hita et al.	704	9	
	2V	6,101,241	08/08/2000	Boyce et al.	379	88.01	
	2W	6,119,087	09/12/2000	Kuhn et al.	704	270	

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	3A	6,134,235	10/17/2000	Goldman et al.	370	352	
	3B	6,144,667	11/07/2000	Doshi et al.	370	401	
	3C	6,160,883	12/12/2000	Jackson et al.	379	230	
	3D	6,173,279	01/09/2001	Levin et al.	707	5	
	3E	6,175,858	01/16/2001	Bulfer et al.	709	206	
	3F	6,192,110	02/20/2001	Abella et al.	379	88.01	
	3G	6,192,338	02/20/2001	Haszto et al.	704	257	
	3H	6,219,346	04/17/2001	Maxemchuk	370	338	
	3I	6,219,643	04/17/2001	Cohen et al.	704	257	
	3J	6,233,556	05/15/2001	Teunen et al.	704	250	
	3K	6,246,981	06/12/2001	Papineni et al.	704	235	
	3L	6,272,455	08/07/2001	Hoshen et al.	704	1	
	3M	6,292,767	09/18/2001	Jackson et al.	704	1	
	3N	6,314,402	11/06/2001	Monaco et al.	704	275	
	3O	6,366,886	04/02/2002	Dragosh et al.	704	270.1	
	3P	6,385,646	05/07/2002	Brown et al.	709	217	
	3Q	6,393,428	05/21/2002	Miller et al.	707	102	
	3R	6,404,878	06/11/2002	Jackson et al.	379	221.01	
	3S	6,411,810	06/25/2002	Maxemchuk	455	453	
	3T	6,418,210	07/09/2002	Sayko	379	142.15	
	3U	6,430,285	08/06/2002	Bauer et al.	379	265.01	
	3V	6,434,523	08/13/2002	Monaco	704	257	
	3W	6,434,524	08/13/2002	Weber	704	257	

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	4B	6,446,114	09/03/2002	Bulfer et al.	709	206	
	4C	6,453,153	09/17/2002	Bowker et al.	455	67.4	
	4D	6,453,292	09/17/2002	Ramaswamy et al.	704	235	
	4E	6,456,711	09/24/2002	Cheung et al.	379	265.09	
	4F	6,498,797	12/24/2002	Anerousis et al.	370	522	
	4G	6,499,013	12/24/2002	Weber	704	257	
	4H	6,501,834	12/31/2002	Milewski et al.	379	93.24	
	4I	6,523,061	02/18/2003	Halverson et al.	709	202	
	4J	6,532,444	03/11/2003	Weber	704	257	
	4K	6,539,348	03/25/2003	Bond et al.	704	9	
	4L	6,553,372	04/22/2003	Brassell et al.	707	5	
	4M	6,560,576	05/06/2003	Cohen et al.	704	270	
	4N	6,567,778	05/20/2003	Chao Chang et al.	704	257	
	4O	6,570,964	05/27/2003	Murveit et al.	379	67.1	
	4P	6,574,624	06/03/2003	Johnson et al.	707	5	
	4Q	6,594,257	07/15/2003	Doshi et al.	370	352	
	4R	6,604,077	08/05/2003	Dragosh et al.	704	270.1	
	4S	6,611,692	08/26/2003	Raffel et al.	455	552	
	4T	6,614,773	09/02/2003	Maxemchuk	370	337	
	4U	6,629,066	09/30/2003	Jackson et al.	704	9	
	4V	6,650,747	11/18/2003	Bala et al.	379	265.06	
	4W	6,691,151	02/10/2004	Cheyer et al.	709	202	
	4X	2005/0021826	01/27/2005	Kumar	709	232	

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(54) Title: NATURAL LANGUAGE AND DIALOGUE GENERATION PROCESSING

(57) Abstract: A system and method for interacting with objects, via a computer using utterances, speech processing and natural language processing. A Dialogue Generation Log provides a conversational memory by relating earlier generated utterances with possible new utterances. The Dialogue Generation Log encompasses a memory structure relating the prior spoken utterances with objects, and conversational contexts. The speech processor searches the Dialogue Generation Log for a matching phrase for the proposed utterance, and determines whether the utterance should be repeated. The determination may be made on a case-by-case basis, depending upon the context of the conversational utterance. Custom user information may be stored globally using a global user registry for remote access. The system reduces the repetitive nature of computer generated conversation by not voicing utterances that have been generated recently, and by learning user preferences from already voiced conversations.

NATURAL LANGUAGE AND DIALOGUE GENERATION PROCESSING

BACKGROUND OF THE INVENTION

I. Field of the Invention

The present invention relates to speech recognition for an object-based computer user interface. More specifically, the embodiments relate to a novel method and system for user interaction with a computer using speech recognition and natural language processing.

II. Description of the Related Art

As computers have become more prevalent it has become clear that many people have great difficulty understanding and communicating with computers. A user must often learn archaic commands and non-intuitive procedures in order to operate the computer. For example, most personal computers use windows-based operating systems that are largely menu-driven. This requires that the user learn which menu commands or sequence of commands produce the desired results.

Furthermore, traditional interaction with a computer is often slowed by manual input devices such as keyboards or mice. Many computer users are not fast typists. As a result, much time is spent communicating commands and words to the computer through these manual input devices. It is becoming clear that an easier, faster and more intuitive method of communicating

with computers and networked objects, such as web-sites, is needed.

One proposed method of computer interaction is speech recognition. Speech recognition involves software and hardware that act together to audibly detect human speech and translate the detected speech into a string of words. As is known in the art, speech recognition works by breaking down sounds the hardware detects into smaller, non-divisible sounds called phonemes. Phonemes are distinct units of sound. For example, the word "those" is made up of three phonemes; the first is the "th" sound, the second is the "o" sound, and the third is the "s" sound. The speech recognition software attempts to match the detected phonemes with known words from a stored dictionary. An example of a speech recognition system is given in U.S. Patent No. 4,783,803, entitled "SPEECH RECOGNITION APPARATUS AND METHOD", issued November 8, 1998, assigned to Dragon Systems, Inc., and incorporated herein by reference. Presently, there are many commercially available speech recognition software packages available from such companies as Dragon Systems, Inc. and International Business Machines, Inc.

One limitation of these speech recognition software packages or systems is that they typically only perform command and control or dictation functions. Thus, the user is still required to learn a vocabulary of commands in order to operate the computer.

A proposed enhancement to these speech recognition systems is to process the detected words using a natural language processing system. Natural language processing generally involves determining a conceptual "meaning" (e.g., what meaning the speaker intended to convey) of the detected words by analyzing their grammatical relationship and relative context. For example, U.S. Patent No. 4,887,212, entitled "PARSER FOR NATURAL LANGUAGE TEXT", issued December 12, 1989, assigned to International Business Machines Corporation

and incorporated by reference herein teaches a method of parsing an input stream of words by using word isolation, morphological analysis, dictionary look-up and grammar analysis.

Natural language processing used in concert with speech recognition provides a powerful tool for operating a computer using spoken words rather than manual input such as a keyboard or mouse. However, one drawback of a conventional natural language processing system is that it may fail to determine the correct "meaning" of the words detected by the speech recognition system. In such a case, the user is typically required to recompose or restate the phrase, with the hope that the natural language processing system will determine the correct "meaning" on subsequent attempts. Clearly, this may lead to substantial delays as the user is required to restate the entire sentence or command. Another drawback of conventional systems is that the processing time required for the speech recognition can be prohibitively long. This is primarily due to the finite speed of the processing resources as compared with the large amount of information to be processed. For example, in many conventional speech recognition programs, the time required to recognize the utterance is long due to the size of the dictionary file being searched.

An additional drawback of conventional speech recognition and natural language processing systems is that they are not interactive, and thus are unable to cope with new situations. When a computer system encounters unknown or new networked objects, new relationships between the computer and the objects are formed. Conventional speech recognition and natural language processing systems are unable to cope with the situations that result from the new relationships posed by previously unknown networked objects. As a result, a conversational-style interaction with the computer is not possible. The user is required to

communicate complete concepts to the computer. The user is not able to speak in sentence fragments because the meaning of these sentence fragments (which is dependent on the meaning of previous utterances) will be lost.

Moreover, conventional speech recognition and natural language processing systems fail to generate intelligent conversations because they lack a conversational memory. In other words, conventional systems do not remember the contents of their conversations with users. As a result, conversations with such system are repetitive, and may result in users repeatedly telling the systems the same facts over-and-over, or worse, have systems fail to learn and remember simple concepts.

Another drawback of conventional speech recognition and natural language processing systems is that once a user successfully "trains" a computer system to recognize the user's speech and voice commands, the user cannot easily move to another computer without having to undergo the process of training the new computer. As a result, changing a user's computer workstations or location results in wasted time by users that need to re-train the new computer to the user's speech habits and voice commands.

What is needed is an interactive user interface for a computer that utilizes speech recognition and natural language processing which avoids the drawbacks mentioned above.

BRIEF DESCRIPTION OF THE DRAWINGS

The features, objects and advantages of the embodiments discussed herein will become more apparent from the detailed description set forth below when taken in conjunction with the

drawings in which like reference characters identify correspondingly throughout and wherein:

FIG. 1 is a functional block diagram of an exemplary computer system;

FIG. 2 is an expanded functional block diagram of the CPU and storage medium of the computer system of FIG. 1;

FIGS. 3A-D are a flowchart of the method of providing interactive speech recognition and natural language processing to a computer;

FIG. 4 is a diagram of selected columns of an exemplary natural language processing (NLP) database;

FIG. 5 is a diagram of an exemplary Database Definition File (DDF);

FIG. 6 is a diagram of selected columns of an exemplary object table;

FIGS. 7A-D are a flowchart illustrating the linking of interactive speech recognition and natural language processing to a networked object, such as a web-page;

FIG. 8 is a diagram depicting a computer system connecting to other computers, storage media, and web-sites via the Internet;

FIG. 9 is a diagram of an exemplary user global user registry;

FIGS. 10A-B are flowcharts illustrating alternate embodiments of the retrieval and enabling of an individual's user global user registry during login at a computer workstation; and

FIG. 11 is a diagram depicting an exemplary Dialogue Generation Log.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS

The embodiments discussed herein will now be disclosed with reference to a functional

block diagram of an exemplary computer system **100** of FIG. 1. In FIG. 1, computer system **100** includes a central processing unit (CPU) **102**. The CPU **102** may be any general purpose microprocessor or microcontroller as is known in the art, appropriately programmed to perform the method described herein with reference to FIGS. 3A-D. The software for programming the CPU can be found at storage medium **108** or alternatively from another location across a computer network. For example, the CPU **102** may be a conventional microprocessor such as the Pentium III™ processor manufactured by Intel Corporation or the like.

CPU **102** communicates with a plurality of peripheral equipment, including a display **104**, manual input **106**, storage medium **108**, microphone **110**, speaker **112**, data input port **114** and network interface **116**. Display **104** may be a visual display such as a CRT, LCD screen, touch-sensitive screen, or other monitors as are known in the art for visually displaying images and text to a user. Manual input **106** may be a conventional keyboard, keypad, mouse, trackball, or other input device as is known in the art for the manual input of data. Storage medium **108** may be a conventional read/write memory such as a magnetic disk drive, floppy disk drive, CD-ROM drive, silicon memory or other memory device as is known in the art for storing and retrieving data. Significantly, storage medium **108** may be remotely located from CPU **102**, and be connected to CPU **102** via a network such as a local area network (LAN), or a wide area network (WAN), or the Internet. Microphone **110** may be any suitable microphone as is known in the art for providing audio signals to CPU **102**. Speaker **112** may be any suitable speaker as is known in the art for reproducing audio signals from CPU **102**. It is understood that microphone **110** and speaker **112** may include appropriate digital-to-analog and analog-to-digital conversion circuitry as appropriate. Data input port **114** may be any data port as is known in the art for

interfacing with an external accessory using a data protocol such as RS-232, Universal Serial Bus, or the like. Network interface **116** may be any interface as known in the art for communicating or transferring files across a computer network, examples of such networks include TCP/IP, ethernet, or token ring networks. In addition, on some systems, a network interface **116** may consist of a modem connected to the data input port **114**.

Thus, FIG. 1 illustrates the functional elements of a computer system **100**. Each of the elements of computer system **100** may be suitable off-the-shelf components as described above. The present embodiment provides a method and system for human interaction with the computer system **100** using speech.

As shown in FIG. 8, the computer system **100** may be connected to the Internet **700**, a collection of computer networks. To connect to the Internet **700**, computer system **100** may use a network interface **116**, a modem connected to the data input port **114**, or any other method known in the art. Web-sites **710**, other computers **720**, and storage media **108** may also be connected to the Internet through such methods known in the art.

Turning now to FIG. 2, an expanded functional block diagram of CPU **102** and storage medium **108** is illustrated. It is understood that the functional elements of FIG. 2 may be embodied entirely in hardware, firmware, or as software instructions encoded on a computer-readable medium. In the case of a software embodiment, the software may be found at storage medium **108** or at an alternate location across a computer network. CPU **102** includes speech recognition processor **200**, data processor **201**, natural language processor **202**, and application interface **220**. The data processor **201** interfaces with the display **104**, storage medium **108**, microphone **110**, speaker **112**, data input port **114**, and network interface **116**. The data

processor **201** allows the CPU to locate and read data from these sources. Natural language processor **202** further includes variable replacer **204**, string formatter **206**, word weighter **208**, boolean tester **210**, pronoun replacer **211**, and search engine **213**. Storage medium **108** includes a plurality of context-specific grammar files **212**, general grammar file **214**, dictation grammar **216**, context-specific dictation model **217**, natural language processor (NLP) database **218**, and a dialogue generation log (DGL) file **219**. In the preferred embodiment, the grammar files **212**, **214**, and **216** are Bakus-Naur Form (BNF) files, which describe the structure of the language spoken by the user. BNF files are well known in the art for describing the structure of language, and details of BNF files will therefore not be discussed herein. One advantage of BNF files is that hierarchical tree-like structures may be used to describe phrases or word sequences, without the need to explicitly recite all combinations of these word sequences. Thus, the use of BNF files in the preferred embodiment minimizes the physical sizes of the files **212**, **214**, and **216** in the storage medium **108**, increasing the speed at which these files can be enabled and searched as described below. However, in alternate embodiments, other file structures are used.

The context-specific dictation model **217** is an optional file that contains specific models to improve dictation accuracy. These models enable users to specify word orders and word models. The models accomplish this by describing words and their relationship to other words, thus determining word meaning by contextual interpretation in a specific field or topic. Take for example, the phrase "650 megahertz microprocessor computer." A context-specific dictation model **217** for computers may indicate the likelihood of the word "microprocessor" being associated with "computer," and that a number, such as "650" is likely to be found near the word "megahertz." By interpreting the context of the words, via a context-specific dictation model

217, a speech recognition processor would analyze the phrase, interpret a single object, i.e. the computer, and realize that "650 megahertz microprocessor" are adjectives or traits describing the type of computer.

Topics for context-specific dictation models **217** vary widely, and may include any topic area of interest to a user—both broad and narrow. Broad topics may include: history, law, medicine, science, technology, or computers. Specialized topics, such as a particular field of literature encountered at a book retailer's web-site are also possible. Such a context-specific dictation model **217** may contain text for author and title information, for example.

The context-specific dictation model **217** format relies upon the underlying speech recognition processor **200**, and is specific to each type of speech recognition processor **200**.

A dialogue generation log **219** is a file, database table, or any other log known in the art that contains a memory of the conversations between a computer or system practicing the present embodiment, and a user of such a system. The purpose behind the dialogue generation log **219** is to create a conversational memory by storing a log of what is spoken. The log is also used to avoid repetitive speech generation.

An exemplary dialogue generation log **219** is shown in FIG. 11. In this example, the dialogue generation log **219** is comprised of individual dialogue generation log entries **1112A-*x***, each entry representing a line of dialogue or statement exchanged between the system and a user. Although the format of each entry may vary from embodiment to embodiment, an example dialogue generation log entry would contain information such as a log entry identifier (ID) **1102**, a user identifier **1104**, a statement **1106**, the context of the statement **1108**, and a date/time stamp **1110**. The log entry ID **1102** uniquely identifies each entry **1112**. A user ID **1104** represents

each user of the system. Statements made by the system itself are also recorded in the log, and a special user ID **1104** is given to the system. In the example illustrated in FIG 11, the system is designated as user "-1," and other users are given positive numbers as their user ID **1104**. Other formats to represent users are certainly possible likely. The important part is that the system is uniquely identified with a user ID **1104** different from system users. Next, each entry contains a statement of what was spoken **1106**, and preferably the context **1108** in which the statement was spoken. For example, the statement "I would like to see movies," would be linked to the context of "movies" or "film." Lastly, a date-time-stamp **1110** may be recorded with each entry to identify the time frame (i.e. how recent) the statement was last made.

The operation and interaction of these functional elements of FIG. 2 will be described with reference to the flowchart of FIGS. 3A-3D. In FIG. 3A, the flow begins at block **300** with the providing of an utterance to speech processor **200**. An utterance is a series of sounds having a beginning and an end, and may include one or more spoken words. A microphone **110** may capture the spoken words in block **300**. Alternately, the utterance may be provided to the speech processor **200** over data input port **114**, or from storage medium **108**. Preferably, the utterance is in a digital format such as the well-known ".wav" audio file format.

The flow proceeds to decision **302** where the speech processor **200** determines whether one of the context-specific grammars **212** has been enabled. If the context-specific grammars **212** are enabled, the context-specific grammars **212** are searched at block **304**. In the preferred embodiment, the context-specific grammars **212** are BNF files that contain words and phrases which are related to a parent context. In general, a context is a subject area. For example, in one embodiment applicable to personal computers, examples of contexts may be "news", or

"weather", or "stocks". In such a case, the context-specific grammars **212** would each contain commands, control words, descriptors, qualifiers, or parameters that correspond to a different one of these contexts. The use of contexts provides a hierarchal structure for types of information. Contexts and their use will be described further below with reference to the NLP database **218**.

If a context-specific grammar **212** has been enabled, the context-specific grammar **212** is searched for a match to the utterance provided at block **300**. However, if a context-specific grammar **212** has not been enabled, the flow proceeds to block **308** where the general grammar **214** is enabled.

In the preferred embodiment, the general grammar **214** is a BNF file which contains words and phrases which do not, themselves, belong to a parent context, but may have an associated context for which a context-specific grammar file **212** exists. In other words, the words and phrases in the general grammar **214** may be at the root of the hierarchal context structure. For example, in one embodiment applicable to personal computers, the general grammar **214** would contain commands and control phrases.

In block **310**, the general grammar **214** is searched for a matching word or phrase for the utterance provided at block **300**. A decision is made, depending on whether the match is found, at block **312**. If a match is not found, then the dictation grammar **216** is enabled at block **314**. In the preferred embodiment, the dictation grammar **216** is a BNF file that contains a list of words that do not, themselves, have either a parent context or an associated context. For example, in one embodiment applicable to a personal computer, the dictation grammar **216** contains a relatively large list of general words similar to a general dictionary.

In block **316** the dictation grammar is searched for matching words for each word of the

utterance provided at block **300**. At decision block **318**, if no matching words are found, any relevant context-specific dictation model **217** is enabled at block **317**.

At decision block **319**, if no matching words are found, a visual error message is optionally displayed at the display **104** or an audible error message is optionally reproduced through speaker **112**, at block **320**. The process ends until another utterance is provided to the speech processor **200** at block **300**.

Thus, as can be seen from the above description, when an utterance is provided to the speech processor **200**, the enabled context-specific grammar **212**, if any, is first searched. If there are no matches in the enabled context-specific grammar **212**, then the general grammar **214** is enabled and searched. If there are no matches in the general grammar **214**, then the dictation grammar **316** is enabled and searched. Finally, if there are no matches in the dictation grammar **316**, a context-specific dictation model **217** is enabled **317** and used to interpret the utterance.

In the preferred embodiment, when the speech recognition processor **200** is searching either the context-specific grammar **212** or the general grammar **214**, it is said to be in the "command and control" mode. In this mode, the speech recognition processor **200** compares the entire utterance as a whole to the entries in the grammar. By contrast, when the speech recognition processor **200** is searching the dictation grammar, it is said to be in the "dictation" mode. In this mode, the speech recognition processor **200** compares the utterance to the entries in the dictation grammar **216** one word at a time. Finally, when the speech recognition processor **200** is matching the utterance with a context-specific dictation model **217**, it is said to be in "model matching" mode. It is expected that searching for a match for an entire utterance in the command and control mode will generally be faster than searching for one word at a time in

dictation or model matching modes.

It is further expected that any individual context-specific grammar **212** will be smaller in size (i.e., fewer total words and phrases) than the general grammar **214**, which in turn will be smaller in size than the dictation grammar **216**. Thus, by searching any enabled context-specific grammar **212** first, it is likely that a match, if any, will be found more quickly, due at least in part to the smaller file size. Likewise, by searching the general grammar **214** before the dictation grammar **216**, it is likely that a match, if any, will be found more quickly.

Additionally, as will be explained further below with regard to the ability of the present embodiment to adaptively add to both the context-specific grammar **212** and the general grammar **214**, they will contain the most common utterances. As such, it is expected that a match is more likely to be found quickly in the context-specific grammar **212** or the general grammar **214** than in the dictation grammar **216**.

Finally, as will be explained further below, the words and phrases in the enabled context-specific grammar **212** are more likely to be uttered by the user because they are words that are highly relevant to the subject matter about which the user was most recently speaking. This also allows the user to speak in a more conversational style, using sentence fragments, with the meaning of his words being interpreted according to the enabled context-specific grammar **212**.

By searching in the above-described sequence, the present embodiment may search more efficiently than if the searching were to occur one entry at a time in a single, large list of all expected words and phrases.

Referring back to decision **306**, if a match is found in the context-specific grammar **212**, then there are three possible next alternatives shown in FIG. 3A. For each matching entry in the

enabled context-specific grammar **212**, there may be an associated action to be taken by the speech recognition processor **200**. Block **322** shows that one action may be to direct application interface **220** to take some action with respect to a separate software application or entity. For example, application interface **220** may use the Speech Application Programming Interface (SAPI) standard by Microsoft to communicate with an external application. The external application may be directed, for example, to access a particular Internet web site URL or to speak a particular phrase by converting text to speech. Other actions may be taken as will be discussed further below with reference to the NLP database **218** of FIG. 4.

Block **324** shows that another action may be to access a row in the natural language processing (NLP) database **218** directly, thereby bypassing the natural language processing method described further below. Block **326** shows that another action may be to prepend a word or phrase for the enabled context to the matching word or phrase found in the context-specific grammar **306**. For example, if the enabled context were "movies" and the matching utterance were "8 o'clock," the word "movies" would be prepended to the phrase "8 o'clock" to form the phrase "movies at 8 o'clock."

Likewise, if a match is found in the general grammar **214**, then the flow may proceed to block **322** where the application interface **220** is directed to take an action as described above, or to block **324** where a row in the NLP database is directly accessed. However, if a match is found in the general grammar **214**, no prepending of a context occurs because, as stated above, the entries in the general grammar **214** do not, themselves, have a parent context.

Alternatively, manually entered words may be captured, at block **301**, and input into the natural language processor.

Finally, with reference to FIG. 3A, words may be entered manually via manual input **106**. In this case, no speech recognition is required, and yet natural language processing of the entered words is still desired. Thus, the flow proceeds to FIG. 3B.

In FIG. 3B, at block **328**, the natural language processor **202** formats the phrase for natural language processing analysis. This formatting is accomplished by string formatter **206** and may include such text processing as removing duplicate spaces between words, making all letters lower case (or upper case), expanding contractions (e.g., changing "it's" to "it is"), and the like. The formatting prepares the phrase for parsing.

The flow continues to block **330** where certain "word-variables" are replaced with an associated wildcard function by variable replacer **204** in preparation for accessing the NLP database **218**. As used herein, the term "word-variables" refers to words or phrases that represent amounts, dates, times, currencies, and the like. For example, in one embodiment the phrase "what movies are playing at 8 o'clock" would be transformed at block **330** to "what movies are playing at $time" where "$time" is a wildcard function used to represent any time value. As another example, in one embodiment the phrase "sell IBM stock at 100 dollars" would be transformed at block **330** to "sell IBM stock at $dollars" where "$dollars" is a wildcard function used to represent any dollar value. This block may be accomplished by a simple loop that searches the phrase for key tokens such as the words "dollar" or "o'clock" and replaces the word-variables with a specified wildcard function. In order to keep track of the location in the phrase where the substitution was made, an array may be used. This allows re-substitution of the original word-variable back into the phrase at the some position after the NLP database **218** has been searched.

The purpose of replacing word-variables with an associated wildcard function at block **330** is to reduce the number of entries that must be present in the NLP database **218**. For example, the NLP database **218** would only contain the phrase "what movies are playing at $time" rather than a separate entry for 8 o'clock, 9 o'clock, 10 o'clock, and so on. The NLP database **218** will be described further below.

At block **332**, pronouns in the phrase are replaced with proper names by pronoun replacer **211**. For example, in one embodiment the pronouns "I," "my," or "mine" would be replaced with the speaker's name. Block **332** allows user-specific facts to be stored and accessed in the NLP database **218**. For example, the sentence "who are my children" would be transformed into "who are Dean's children" where "Dean" is the speaker's proper name. Again, this block may be performed in a simple loop that searches the phrase for pronouns, and replaces the pronouns found with an appropriate proper name. In order to keep track of the locations in the phrase where a substitution was made, an array may be used.

In block **334**, the individual words in the phrase are weighted according to their relative "importance" or "significance" to the overall meaning of the phrase by word weighter **208**. For example, in one embodiment there are three weighting factors assigned. The lowest weighting factor is assigned to words such as "a," "an," "the," and other articles. The highest weighting factor is given to words that are likely to have a significant relation to the meaning of the phrase. For example, these may include all verbs, nouns, adjectives, and proper names in the NLP database **218**. A medium weighting factor is given to all other words in the phrase. The purpose of this weighting is to allow for more powerful searching of the NLP database **218**.

An example of selected columns of the NLP database **218** of one embodiment is shown in

FIG. 4. The NLP database **218** comprises a plurality of columns **400-410**, and a plurality of rows **412A-412N**. In column **400**, the entries represent phrases that are "known" to the NLP database. In column **402**, a number of required words for each entry in column **400** is shown. In column **404**, an associated context or subcontext for each entry in column **400** is shown. In columns **408** and **410**, one or more associated actions are shown for each entry in column **400**. It should be noted that the NLP database **218** shown in FIG. 4 is merely a simplified example for the purpose of teaching the present embodiment. Other embodiments may have more or fewer columns with different entries.

Referring back to FIG. 3B, at block **336**, the NLP database **218** is searched for possible matches to the phrase, based on whether the entry in column **400** of the NLP database **218** contains any of the words in the phrase (or their synonyms), and the relative weights of those words. At block **338**, a confidence value is generated for each of the possible matching entries based on the number of occurrences of each of the words in the phrase and their relative weights. Weighted word searching of a database is well known in the art and may be performed by commercially available search engines such as the product "dtsearch" by DT Software, Inc. of Arlington, Virginia. Likewise, searching using synonyms is well known in the art and may be accomplished using such publicly available tools such as "WordNet," developed by the Cognitive Science Laboratory of Princeton University in Princeton, New Jersey. The search engine may be an integral part of the natural language processor **202**.

At decision **340**, the natural language processor **202** determines whether any of the possible matching entries has a confidence value greater than or equal to some predetermined minimum threshold, T. The threshold T represents the lowest acceptable confidence value for

which a decision can be made as to whether the phrase matched any of the entries in the NLP database **218**. If there is no possible matching entry with a confidence value greater than or equal to T, then the flow proceeds to block **342** where an optional error message is either visually displayed to the user over display **104** or audibly reproduced over speaker **112**. In one embodiment, the type of error message, if any, displayed to the user may depend on how many "hits" (i.e., how many matching words from the phrase) were found in the highest-confidence NLP database entry. A different type of error message would be generated if there was zero or one hits, than if there were two or more hits.

If, however, there is at least one entry in the NLP database **218** for which a confidence value greater than or equal to T exists, then the flow proceeds to block **344** where the "noise" words are discarded from the phrase. The "noise" words include words that do not contribute significantly to the overall meaning of the phrase relative to the other words in the phrase. These may include articles, pronouns, conjunctions, and words of a similar nature. "Non-noise" words would include words that contribute significantly to the overall meaning of the phrase. "Non-noise" words would include verbs, nouns, adjectives, proper names, and words of a similar nature.

The flow proceeds to FIG. 3C where the non-noise word requirement is retrieved from column **402** of the NLP database **218** for the highest-confidence matching entry at block **346**. For example, if the highest-confidence matching phrase was the entry in row **412A**, (e.g., "what movies are playing at $time"), then the number of required non-noise words is 3.

At decision **348**, a test is made to determine whether the number of required non-noise words from the phrase is actually present in the highest-confidence entry retrieved from the NLP

database **218**. This test is a verification of the accuracy of the relevance-style search performed at block **336**, it being understood that an entry may generate a confidence value higher than the minimum threshold, T, without being an acceptable match for the phrase.

The nature of the test performed at decision **348** is a boolean "AND" test performed by boolean tester **210**. The test determines whether each one of the non-noise words in the phrase (or its synonym) is actually present in the highest-confidence entry. If there are a sufficient number of required words actually present in the highest-confidence entry, then the flow proceeds to block **350**, where the natural language processor **202** directs application interface **220** to take an associated action from column **408** or **410**. It is understood that additional action columns may also be present.

For example, if the highest confidence entry was the entry in row **412A**, and the boolean test of decision **348** determined that there actually were 3 non-noise words from the phrase in the entry in column **400**, then the associated action in column **408** (e.g., access movie web site) would be taken. Other entries in the NLP database have other associated actions. For example, if the highest-confidence entry is that in row **412E** (e.g., "what time is it"), the associated action may be for natural language processor **202** to direct a text-to-speech application (not shown) to speak the present time to the user through the speaker **112**. As another example, if the highest-confidence entry is that in row **412F** (e.g., "show me the news"), the first associated action may be to access a predetermined news web site on the Internet, and a second associated action may be to direct an image display application (not shown) to display images associated with the news. Different or additional actions may also be performed.

Also, if the highest-confidence entry contains the required number of non-noise words

from the phrase as determined at decision **348**, the natural language processor **202** instructs the speech recognition processor **200** to enable the context-specific grammar **212** for the associated context of column **404**. Thus, for row **412A**, context-specific grammar **212** for the context "movies" would be enabled. Thus, when the next utterance is provided to the speech recognition processor **200** in block **300** of FIG. 3A, it would search the enabled context-specific grammar **212** for "movies" before searching the general grammar **214**. As previously stated, enabling the appropriate context-specific grammar **212** greatly increases the likelihood of fast, successful speech recognition, and enhances the user's ability to communicate with the computer in a conversational style.

If, however, back at decision **348**, the required number of non-noise words from the phrase is not actually present in the highest-confidence entry retrieved from the NLP database **218**, then the flow proceeds to block **354** where the user is prompted over display **104** or speaker **112** whether the highest-confidence entry was meant, and record the inquiry in the dialogue generation log **219**. For example, if the user uttered "How much is IBM stock selling for today," the highest-confidence entry in the NLP database **218** may be the entry in row **412B**. In this case, although the relevance factor may be high, the number of required words (or their synonyms) may not be sufficient. Thus, the user would be prompted at block **354** whether he meant "what is the price of IBM stock on August 28, 1998."

The user may respond either affirmatively or negatively. If it is determined at decision **356** that the user has responded affirmatively, then the action associated with the highest-confidence entry is taken at block **350**, and the associated context-specific grammar **212** enabled at block **352**. The speech made by the user is also recorded as an entry of the dialogue generation

log **219**.

If, however, it is determined at decision **356** that the user has responded negatively, then the flow proceeds to FIG. 3D where the associated context from column **404** of NLP database **218** is retrieved for the highest-confidence entry, and the user is prompted for information using a context-based interactive dialog at block **360**. For example, if the user uttered "what is the price of XICOR stock today," and the highest confidence entry from the NLP database **218** was row **412B** (e.g., "what is the price of IBM stock on $date"), then the user would be prompted at block **354** whether that was what he meant.

If the user responds negatively, then the context "stock" is retrieved from column **404** at block **358**, and the context-based interactive dialog for the stock context is presented to the user over the display **104** and speaker **112**. Such a context-based interactive dialog may entail prompting the user for the name and stock ticker symbol of XICOR stock. The user may respond by speaking the required information. A different context-based interactive dialog may be used for each of the possible contexts. For example, the "weather" context-based interactive dialog may entail prompting the user for the name of the location (e.g., the city) about which weather information is desired. Also, the "news" context-based interactive dialog may entail prompting the user for types of articles, news source, Internet URL for the news site, or other related information.

Upon completion of the context-based interactive dialog, the NLP database **218**, general grammar **214**, and context-specific grammar **212** are updated to include the new information, at block **362**. In this way, the next time the user asks for that information, a proper match will be found, and the appropriate action taken without prompting the user for more information. Thus,

the present embodiment adaptively "learns" to recognize phrases uttered by the user.

In one embodiment, one or more of the NLP database **218**, context-specific grammar **212**, general grammar **214**, and dictation grammar **216** also contain time-stamp values (not shown) associated with each entry. Each time a matching entry is used, the time-stamp value associated with that entry is updated. At periodic intervals, or when initiated by the user, the entries that have a time-stamp value before a certain date and time are removed from their respective databases/grammars. In this way, the databases/grammars may be kept to an efficient size by "purging" old or out-of-date entries. This also assists in avoiding false matches.

In an alternate embodiment, the updates to the NLP database **218**, general grammar **214**, and context-specific grammar **212** are stored in a user global user registry **800**, shown in FIG. 9. A global user registry entry **800a** would be comprised of any general grammar additions **214a**, context-specific grammar additions **212a**, and NLP database additions **218a** created by the user training. Since each user of the system would have a different global user registry entry **800a**, the embodiment would be flexible enough to allow for special customizations and could adapt to the idiosyncrasies of individual users.

In yet another embodiment, the updates to global user registry entry **800** also contain dialogue generation log additions **219a**, user preferences **802**, and remembered information **804**, as shown in FIG. 9. The dialogue generation log additions **219a** would be comprised of the dialogue exchanged between the system and an individual user. The addition of dialogue generation log additions **219a** allow the system greater intelligence in its conversations with an individual user, to be transparent and mobile across different computers. User preferences **802** represents the stored system preferences of an individual user. Examples of such user preferences

802, include, but are not limited to: window color and placement, system sounds, font preferences, and other user-interface preferences. Remembered information 804 includes. user schedule information, learned facts derived from the dialogue generation log 219, and any other user (but non-user-interface) stored data not included in user preferences. For example, if the system is told, "I own a dog," the remembered information will include that fact. Remembered information may be stored or represented by any information storage format known in the art, including any database format.

Moreover, in some embodiments, the global user registry 800 would be stored locally and mirrored at known server locations. The mirrored copy, referred to as the "travelling" global user registry entry, enables users to access their phrases "adaptively" learned by the embodiment, even when the user is logged into a different location. FIG. 10A illustrates an embodiment that accesses customized global user registry entries 800a at local and remote (travelling) locations. Initially, a valid system user is verified, by any means known in the art, and then the system searches for a locally stored global user registry entry. For example, the system queries users for their login ID and password as shown in block 900. If the password and login ID match, as determined by decision block 905, the user is deemed to be a valid user. It is well understood that this login ID and password are but one of many methods known in the art to verify valid users, and that all such validation systems could be easily substituted. If no local global user registry entry is found, block 910, the system searches for a travelling global user registry entry, block 920. If either search turns up a global user registry entry, the global user registry entry is loaded, blocks 915 and 925, respectively. Provided that the retrieval of the global user registry entry 800a is successful, blocks 930 and 935, the global user registry entry 800a is enabled at block

940 by extracting the general grammar additions **214a**, context-specific grammar additions **212a**, NLP database additions **218a**, dialogue generation log additions **219a**, user preferences **802**, and remembered information **804**. These "learned" adaptations are then used by the system, as discussed earlier with the method of FIGS 3A-3D. If the retrieval of the travelling global user registry entry **800a** is unsuccessful, standard (non-custom user) processing is performed as reflected at block **945**.

Alternatively, in some embodiments, the user only logs into the system when accessing a terminal that does not recognize the user as a local user. This embodiment is shown in FIG. 10B. From this remote system, the user is required to specify an ID and a password. Initially, the system determines whether the user has a locally stored voice profile, block **910**. If the user has a local voice profile, it is loaded at block **915**, and flow continues at decision block **950**. If the user does not have a locally stored global user registry entry, the system queries the user for a login identifier and a password at block **900**. If the user is valid, the travelling global user registry entry is retrieved at block **925**, and flow continues at block **950**. Otherwise, the user is treated as a user with standard (non-custom) processing, at block **945**. Provided that the retrieval of the global user registry entry **800a** is successful, block **950**, the global user registry entry **800a** is enabled at block **940** by extracting the general grammar additions **214a**, context-specific grammar additions **212a**, NLP database additions **218a**, dialogue generation log additions **219a**, user preferences **802**, and remembered information **804**. These "learned" adaptations are then used by the system, as discussed earlier with the method of FIGS 3A-3D.

In one embodiment, speech recognition and natural language processing may be used to interact with objects, such as help files (".hlp" files), World-Wide-Web ("WWW" or "web")

pages, or any other objects that have a context-sensitive voice-based interface.

FIG. 5 illustrates an exemplary Dialog Definition File (DDF) **500** which represents information necessary to associate the speech recognition and natural language processing to an internet object, such as a text or graphics file or, in the preferred embodiment, a web-page or help file. Although in its simplest embodiment the Dialog Definition File **500** consists of an object table **510**, the DDF may also contain additional context-specific grammar files **214** and additional entries for the natural language processing (NLP) database **218**, as illustrated in FIG. 5. The preferred embodiment of the DDF **500** includes an object table **510**, a context-specific grammar file **214**, a context-specific dictation model **217**, and a file containing entries to the natural language processing database **218**. These components may be compressed and combined into the DDF file **500** by any method known in the art, such as through Lempel-Ziv compression. The context-specific specific grammar file **214** and the natural language processing database **218** are as described in earlier sections. The object table **510** is a memory structure, such as a memory tree, chain or table, which associates an address of a resource with various actions, grammars, or entries in the NLP database **218**.

An exemplary embodiment of the object table **510** is illustrated in FIG. 6. FIG. 6 illustrates a memory table which may contain entry columns for: an object **520**, a Text-to-Speech (TTS) flag **522**, a text speech **524**, a use grammar flag **526**, an append grammar flag **528**, an "is yes/no?" flag, and "do yes" **532** and "do no" **534** actions. Each row in the table **540A-540*n*** would represent the grammar and speech related to an individual object. The exemplary embodiment would refer to objects **520** through a Universal Resource Locator (URL). A URL is a standard method of specifying the address of any resource on the Internet that is part of the

World-Wide-Web. As this standard is well known in the art for describing the location of Internet resources and objects, the details of URLs will therefore not be discussed herein. One advantage of URLs is that they can specify information in a large variety of object formats, including hypertext, graphical, database and other files, in addition to a number of object devices and communication protocols. However, as shown in FIG. 6, URLs and other method of specifying objects can be used.

When combined with the text speech **524**, the Text-to-Speech (TTS) flag **522** indicates whether an initial statement should be voiced over speaker **112** when the corresponding object is transferred. For example, when transferring the web page listed in the object column **520** of row **540A** (`http://www.our-pet-store.com`), the TTS flag **522** is marked, indicating the text speech **524**, "Hello, welcome to...," is to be voiced over speaker **112**.

In some embodiments, the utterance of the initial statement may be dependent on the dialogue generation log **219**. In these embodiments, the system first checks to see if the statement was made recently to a user, before re-voicing the statement. There are several advantages in doing this. By consulting the dialogue generation log **219**, a conversation can be made more intelligent by using the dialogue generation log **219** as a "conversational memory." Moreover, a conversational memory formed by the dialogue generation log **219** also acts as a "sanity check" to make sure conversations do not become repetitive.

The use of the dialogue generation log **219** is best illustrated by example. Suppose a user was examining a speech-enhanced pet-store web-site using the present embodiment. Initially, an object table **510** is transferred from the web-site to the user's computer system **100**. When transferring the web page listed in the object column **520**, the system notes that the TTS flag **522**

is marked, indicating the text speech **524**, "Hello, welcome to our pet store, would you like to see our dog specials?" Since this is the user's first visit to the web page, no context or statement-related entries are found in the dialogue generation log **219**, so the statement is to be voiced over speaker **112**. The user responds, "no," and decides to surf a different web page instead. Transparent to the user, the system records both statements in the dialogue generation log **219**. Moments later, the user presses the web-browser "back" key, returning to the original pet-store web page. At this time, the user returns to the web page, and again, the system notes that the TTS flag **522** is marked, indicating the text speech **524**, "Hello, welcome to our pet store, would you like to see our dog specials?" Since this is the user's subsequent visit to the web page, a statement-related entry is found in the dialogue generation log **219**. Since statement was recently voiced over the speaker, it is not voiced on again on a subsequent visit.

The next three object table **510** flags relate to the use of grammars associated with this object. The affirmative marking of the "use grammar" **526** or "append grammar" **528** flags indicate the presence of a content-specific grammar file **214** related to the indicated object. The marking of the "use grammar" flag **526** indicates that the new content-specific grammar file **214** replaces the existing content-specific grammar file, and the existing file is disabled. The "append grammar" flag **528** indicates that the new content-specific grammar file should be enabled concurrently with the existing content-specific grammar file.

Lastly, the remaining column entries relate to a "yes/no" grammar structure. If the "Is yes/no?" flag **530** is marked, then a standard "yes/no" grammar is enabled. When a standard "yes/no" grammar is enabled, affirmative commands spoken to the computer result in the computer executing the command indicated in the "Do Yes" entry **532**. Similarly, a negative

command spoken to the computer results in the computer executing the command indicated in the "Do No" entry **534**. The entries in the "Do Yes" **532** and "Do No" **534** columns may either be commands or pointers to commands imbedded in the NLP Database **218**. For example, as shown in row **540B**, the "Is Yes/No?" flag is marked. An affirmative answer, such as "yes," given to the computer, would result in executing the corresponding command in the "Do Yes" entry **532**; in this specific case, the entry is the number "210," a reference to the 210th command in the NLP database. An answer of "no" would result in the computer executing the 211th command in the NLP database.

Turning now to FIG. 7A, a method and system of providing speech and voice commands to objects, such as a computer reading a help file or browsing the World-Wide-Web, is illustrated. The method of FIGS. 7A-7D may be used in conjunction with the method of FIGS 3A-3D and FIG. 10. In block **602**, an object location is provided to a help file reader or World-Wide-Web browser. A help file reader/browser is a program used to examine hypertext documents that are written to help users accomplish tasks or solve problems, and is well known in the art. The web browser is a program used to navigate through the Internet, and is well known in the art. Block **602**, which providing an object location to the browser, can be as simple as a user clicking on a program "help" menu item, manually typing in a URL, or having a user select a "link" at a chosen web-site. It also may be the result of a voiced command as described earlier with reference to the action associated with each entry in the NLP database **218**. Given the object location, the computer must decide on whether it can resolve object location specified, at block **604**. This resolution process is a process well known in the art. If the computer is unable to resolve the object location or internet address, an error message is displayed in the

browser window, at block **605**, and the system is returned to its initial starting state **600**. If the object location or Internet address is resolved, the computer retrieves the object at block **606**. For a networked object, for example, a web browser sends the web-site a request to for the web page, at block **606**. For a help file application, the help reader reads the help file off of storage media **108**, at block **606**.

A decision is made, depending upon whether the object is retrieved, at block **608**. If the object cannot be retrieved, an error message is displayed in the browser window, at block **605**, and the system is returned to its initial starting state **600**. If the object is retrieved, it is displayed in the help-reader or web-site browser, as appropriate, at block **610**.

In decision block **612**, the computer **100** determines whether the DDF file **500** corresponding to the object is already present on the computer **100**. If the DDF file is present, the flow proceeds to FIG. 7C, if not the flow proceeds to FIG. 7B.

Moving to FIG. 7B, if the DDF file **500** is not present, the computer examines whether the DDF file **500** location is encoded within the object. For example, the DDF file location could be encoded within web page HyperText Markup Language (HTML) as a URL. (Note that HTML is well known in the art, and the details of the language will therefore not be discussed herein.) Encoding DDF file location within HTML code may be done either through listing the DDF file location in an initial HTML meta-tag such as:

```
<meta DDF= "http://www.our-pet-store.com/ConverseIt.ddf">
```

or directly through a scripting tag written into the variation of HTML supported by the browser,

```
<!--
      <DDF= "http://www.our-pet-store.com/ConverseIt.ddf">
-->
```

If the DDF file location information is encoded within the web page, the location's Internet address is resolved, at block **616**, and the computer requests transfer of the DDF file **500**, at block **626**. An equivalent encoding scheme could be used within help file hypertext.

Alternatively, if the DDF file **500** location is not encoded within the object, there are several alternate places that it may be stored. It may be stored in a pre-defined location at a web-site, such as a certain file location in the root directory, or at a different centralized location, such as another Internet server or the storage medium **108** of FIG. 1. Blocks **618** and **620** test for these possibilities. Block **618** determines whether the DDF file is located at the web-site. At block **618**, the computer sends query to the web-site inquiring about the presence of the DDF file **500**. If the DDF file **500** is present at the web-site, the computer requests transfer of the DDF file **500**, at block **626**. If the DDF file **500** is not located at the web-site, the computer queries the centralized location about the presence of a DDF file for the web-site, at block **620**. If the DDF file is present at the web-site, the computer requests transfer of the DDF file, at block **626**. If the DDF file **500** cannot be found, the existing components of any present DDF file, such as the object table **510**, context-specific dictation model **217**, NLP database **218** associated with the object, and context-specific grammar **214** for any previously-viewed object, are deactivated in block **622**. Furthermore, the object is treated as a non-voice-activated object, and only standard grammar files are used, at block **624**. Standard grammar files are the grammar files existing on the system excluding any grammars associated with the content-specific grammar file associated with the object.

If the DDF file **500** is requested at block **626**, and its transfer is unsuccessful, any existing components of any present DDF file **500** are deactivated, at block **622**, and the web-site is treated

as a non-voice-activated object, and only standard grammar files are used, at block **624**.

If the DDF file **500** is requested at block **626** and its transfer is successful at block **628**, it replaces any prior DDF file, at block **630**. Any components of the DDF file **500**, such as the object table **510**, context-specific-grammar files **214**, context-specific-dictation models **217**, and NLP database **218** are extracted at block **632**. A similar technique may be used for obtaining the software necessary to implement the method illustrated in FIGS. 3A-3D, comprising the functional elements of FIG. 2.

The flow moves to FIG. 7C. The object table **510** is read into memory by the computer in block **634**. If the object is present in the site object table **510**, as determined by block **636**, it will be represented by a row **540A-540*n*** of the table, as shown in FIG. 6. Each row of the object table represents the speech-interactions available to a user for that particular object. If no row corresponding to the object exists, then no-speech interaction exists for the web page, and processing ends.

If the object location is present in the site object table **510**, as determined by block **636**, the computer checks if the TTS flag **522** is marked, to determine whether a text speech **524** is associated with the web-page, at block **638**. If there is a text speech **524**, a decision must be made on whether it is appropriate to play the spoken statement **639**. For example, if a user was queried, "Would you like to hear about the history of Mars?" in the past five minutes, it would be inappropriate, and probably annoying, to ask the user the same question again. In making such a determination, the system checks whether the statement has been made to the user recently by examining the dialogue generation log **219**.

An individual user may be matched with a statement or statement context within a recent

interval. Suppose the system asked, "Do you own a cat?" and the user replied, "No, I hate cats." The conversation would be recorded in the dialogue generation log **219**, noting that the context of the conversation is about cats. On a subsequent visit to a pet-store web-site, the system notes that the TTS flag **522** is marked, indicating the text speech **524**, "Hello, welcome to our pet store, would you like to see our cat specials?" Since the text-to-speech statement is an inquiry about cats, the system performs a check in the dialogue generation log 219 to see if there are past conversations with a context **1108** of "cat." The context of "cat" is located, and the system notes that the user responded "no," therefore the user does not own a cat. Consequently, the system realizes that a negative match has been made, and it would be inappropriate to voice the question to the user.

Thus, since dialogue generation log entries **1112** are time dependent, they must be kept up-to-date by the system, and old entries should be culled and removed on a periodic basis. After all, in the case of the above example, it is possible that the user eventually acquires a cat. Old entries may be removed after a certain time-period expires, or after the dialogue generation log **219** reaches a specific size. Dialogue generation log entries **1112** for each user can be removed on a first-in-first-out (FIFO) basis, so that older entries are removed before more recent entries.

If it is appropriate, the statement is voiced at block **640**, and flow continues on to FIG 7D. If there is a context-specific grammar file associated with the object, as determined by decision block **642**, it is enabled at block **644**, and then the NLP database **218** is enabled at block **646**. If no context-specific grammar file is associated with the object, only the NLP database **218** is enabled at block **646**. Once the NLP database is enabled **646**, the system behaves as shown in FIG. 3A-3C, as described above.

In summary, the present embodiment provides a method and system for an object interactive user-interface for a computer. By the use of context-specific grammars that are tied to internet-objects through a Dialog Definition File, the present embodiment decreases speech recognition time and increases the user's ability to communicate with local and networked objects, such as help files or web-pages, in a conversational style. Adaptive updating of the various grammars and the NLP database, the present embodiment further increases interactive efficiency. The adaptive updates can be incorporated into global user registry entries that can be stored locally and remotely, to allow users access to the global user registry entries at various locations.

The previous description of the embodiments is provided to enable any person skilled in the art to make or use the present invention. The various modifications to these embodiments will be readily apparent to those skilled in the art, and the generic principles defined herein may be applied to other embodiments without the use of inventive faculty. Thus, the present invention is not intended to be limited to the embodiments shown herein, but is to be accorded the widest scope consistent with the principles and novel features disclosed herein.

I CLAIM:

CLAIMS

1. A method for interacting with an object via a computer using utterances, the method comprising:

retrieving an object table associated with the object;

searching the object table for a matching entry for the object;

locating an action associated with the matching entry, if the matching entry is found in the object table;

determining whether the action associated with the matching entry is appropriate;

performing the action associated with the matching entry, if the action is deemed appropriate.

2. The method of claim 1 wherein the action associated with the matching entry is voicing a text statement.

3. The method of claim 2 wherein the process of determining whether the action associated with the matching entry is appropriate further comprises:

identifying a context of the voiced text statement associated with the matching entry;

searching a log containing log entries with context and timestamp information to locate matching log entries with the same context as the voiced text statement;

determining whether the voiced text statement is appropriate based on the timestamp of the matching log entries.

4. The method of claim 2 wherein the process of determining whether the action associated with the matching entry is appropriate further comprises:

searching a log containing log entries with statement and timestamp information to locate matching log entries with the same voiced text statement;

determining whether the voiced text statement is appropriate based on the timestamp of the matching log entries.

5. The method of claim 3 or 4 wherein the object table is read from a web-site.

6. The method of claim 3 or 4 wherein the object table is read from a location that stores object tables for multiple objects.

7. A method for interacting with an object via a computer using utterances, the method comprising:

searching a context-specific grammar file for a matching phrase for the utterance;

searching a general grammar file for the matching phrase if the matching phrase is not found in the context-specific grammar file;

searching a dictation grammar for the matching phrase if the matching phrase is not found in the general grammar file;

searching a context-specific dictation model for the matching phrase if the matching phrase is not found in the dictation grammar file;

searching a database for a matching entry for the matching phrase; and

performing an action associated with the matching entry and saving the utterances to a log file if the matching entry is found in the database.

8. The method of claim 7 the log is a dialogue generation log.

9. The method of claim 8 further comprising:

replacing at least one word in the matching phrase prior to the searching the database.

10. The method of claim 9 wherein the replacing the at least one word comprises substituting a wildcard for the at least one word.

11. The method of claim 10 wherein the replacing at least one word comprises substituting a proper name for the at least one word.

12. The method of claim 11 further comprising:

text formatting the matching phrase prior to the searching of the database.

13. The method of claim 12 further comprising:

weighting individual words in the matching phrase according to a relative significance of the individual words prior to the searching of the database.

14. The method of claim 13 further comprising:

updating a global user registry entry with the dialogue generation log with utterances spoken by a user.

15. The method of claim 13 further comprising:

updating the global user registry entry with at least one of the database, the context-specific grammar file and the general grammar file with the matching phrase if the matching entry is not found in the database.

16. The method of claim 15 further comprising:

generating a confidence values for the matching entry;

comparing the confidence value with a threshold value;

determining whether a required number of words from the matching phrase are present in the matching entry;

determining the utterance has been spoken before by examining the dialogue generation

log; and

prompting a user whether the matching entry is a correct interpretation of the utterance if the required number of words from the matching phrase are not present in the matching entry, nor present in the dialogue generation log.

17. The method of claim 16 further comprising:

prompting a user for additional information if the matching entry is not a correct interpretation of the utterance.

18. The method of claim 17 further comprising:

updating at least one of the database, the context-specific grammar file, the general grammar file, and the dialogue generation log with the additional information.

19. A system for interacting with a computer using utterances, the system comprising:

a speech processor for searching a context-specific grammar file for a matching phrase for the utterance, for searching a general grammar file for the matching phrase if the matching phrase is not found in the context-specific grammar file, for searching a dictation grammar for the matching phrase if the matching phrase is not found in the general grammar file, and for searching a context-specific dictation model if the matching phrase is not found in the dictation grammar;

a natural language processor for searching a database for a matching entry for the matching phrase and for searching a dialogue generation log for a matching log entry for the utterance; and

an application interface for performing an action associated with the matching entry if the matching entry is found in the database and the action is appropriate if the matching log entry is found in the dialogue generation log.

20. A computer readable medium encoded with executable program code, the code comprising:

retrieving an object table associated with the object;

searching the object table for a matching entry for the object;

locating an action associated with the matching entry, if the matching entry is found in the object table;

determining whether the action associated with the matching entry is appropriate;

performing the action associated with the matching entry, if the action is deemed appropriate.

21. The computer readable medium of claim 20 wherein the action associated with the matching entry is voicing a text statement.

22. The computer readable medium of claim 21 wherein the process of determining whether the action associated with the matching entry is appropriate further comprises:

identifying a context of the voiced text statement associated with the matching entry;

searching a log containing log entries with context and timestamp information to locate matching log entries with the same context as the voiced text statement;

determining whether the voiced text statement is appropriate based on the timestamp of the matching log entries.

23. The computer readable medium of claim 21 wherein the process of determining whether the action associated with the matching entry is appropriate further comprises:

searching a log containing log entries with statement and timestamp information to locate matching log entries with the same voiced text statement;

determining whether the voiced text statement is appropriate based on the timestamp of the matching log entries.

24. The computer readable medium of claim 22 or 23 wherein the object table is read from a web-site.

25. The computer readable medium of claim 22 or 23 wherein the object table is read from a location that stores object tables for multiple objects.

26. A computer readable medium encoded with executable program code, the code comprising:

searching a context-specific grammar file for a matching phrase for the utterance;

searching a general grammar file for the matching phrase if the matching phrase is not found in the context-specific grammar file;

searching a dictation grammar for the matching phrase if the matching phrase is not found in the general grammar file;

searching a context-specific dictation model for the matching phrase if the matching phrase is not found in the dictation grammar file;

searching a database for a matching entry for the matching phrase; and

performing an action associated with the matching entry and saving the utterances to a log file if the matching entry is found in the database.

27. The computer readable medium of claim 26 wherein the log is a dialogue generation log.

28. The computer readable medium of claim 27 further comprising:

replacing at least one word in the matching phrase prior to the searching the database.

29. The computer readable medium of claim 28 wherein the replacing the at least one word comprises substituting a wildcard for the at least one word.

30. The computer readable medium of claim 29 wherein the replacing at least one word

comprises substituting a proper name for the at least one word.

31. The computer readable medium of claim 30 further comprising:

text formatting the matching phrase prior to the searching of the database.

32. The computer readable medium of claim 31 further comprising:

weighting individual words in the matching phrase according to a relative significance of the individual words prior to the searching of the database.

33. The computer readable medium of claim 32 further comprising:

updating a global user registry entry with the dialogue generation log with utterances spoken by a user.

34. The computer readable medium of claim 32 further comprising:

updating the global user registry entry with at least one of the database, the context-specific grammar file and the general grammar file with the matching phrase if the matching entry is not found in the database.

35. The computer readable medium of claim 34 further comprising:

generating a confidence values for the matching entry;

comparing the confidence value with a threshold value;

determining whether a required number of words from the matching phrase are present in the matching entry;

determining the utterance has been spoken before by examining the dialogue generation log; and

prompting a user whether the matching entry is a correct interpretation of the utterance if the required number of words from the matching phrase are not present in the matching entry, nor

present in the dialogue generation log.

36. The computer readable medium of claim 35 further comprising:

prompting a user for additional information if the matching entry is not a correct interpretation of the utterance.

37. The computer readable medium of claim 36 further comprising:

updating at least one of the database, the context-specific grammar file, the general grammar file, and the dialogue generation log with the additional information.

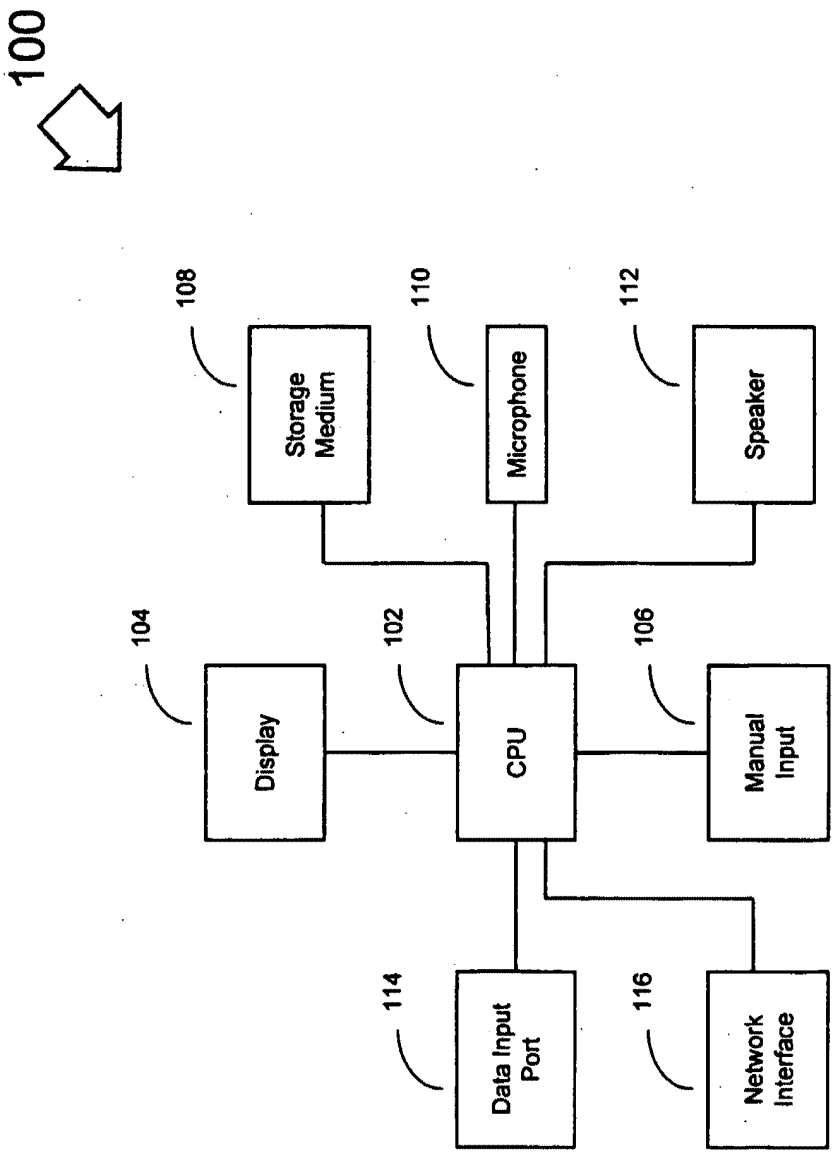

100
108
Storage Medium
110
Microphone
112
Speaker
104
Display
102
CPU
106
Manual Input
114
Data Input Port
116
Network Interface

FIG. 1

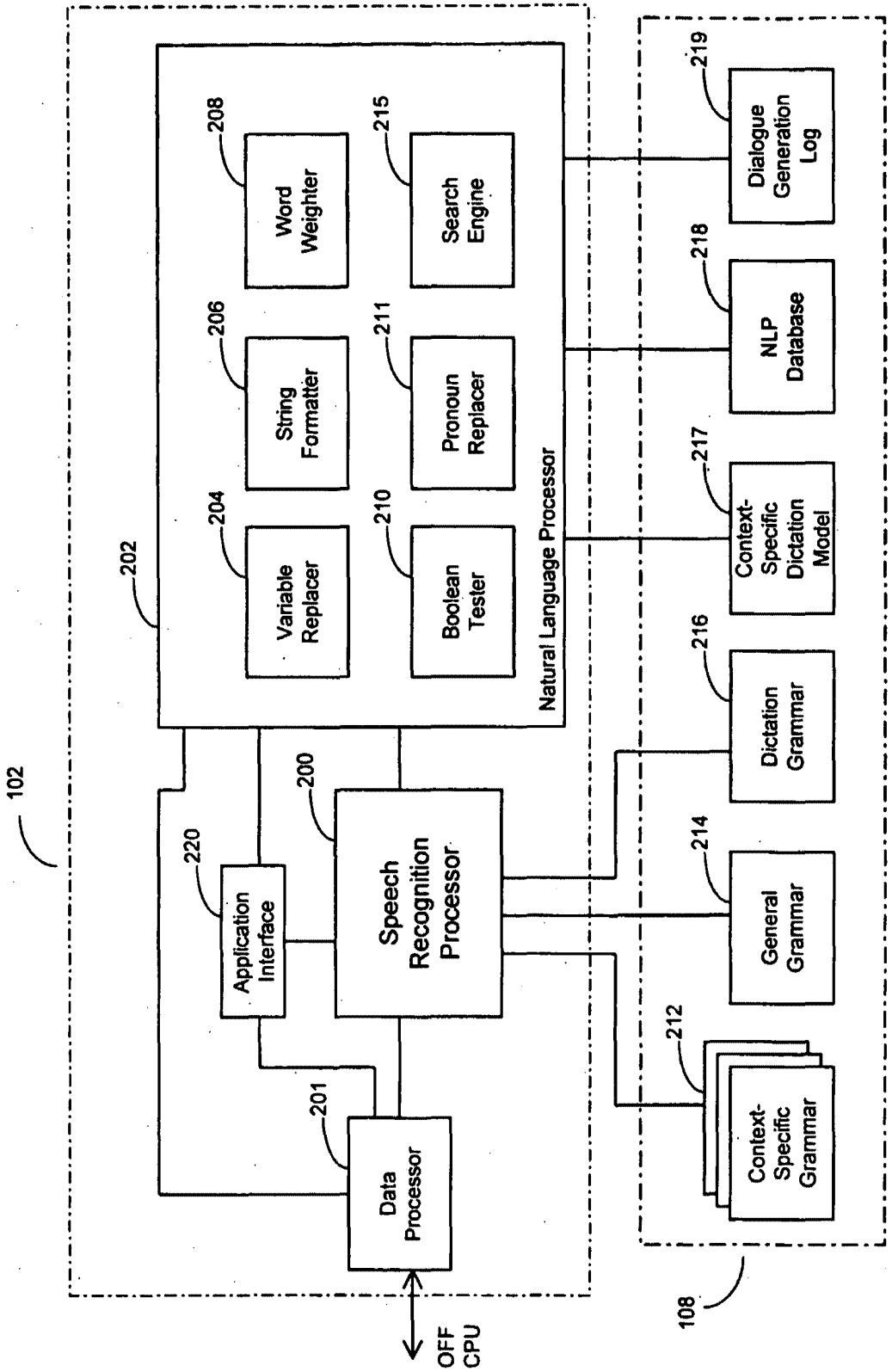

102
202
Natural Language Processor
208
Word Weighter
215
Search Engine
206
String Formatter
211
Pronoun Replacer
204
Variable Replacer
210
Boolean Tester
200
Speech Recognition Processor
220
Application Interface
201
Data Processor
OFF CPU
219
Dialogue Generation Log
218
NLP Database
217
Context-Specific Dictation Model
216
Dictation Grammar
214
General Grammar
212
Context-Specific Grammar
108

FIG. 2

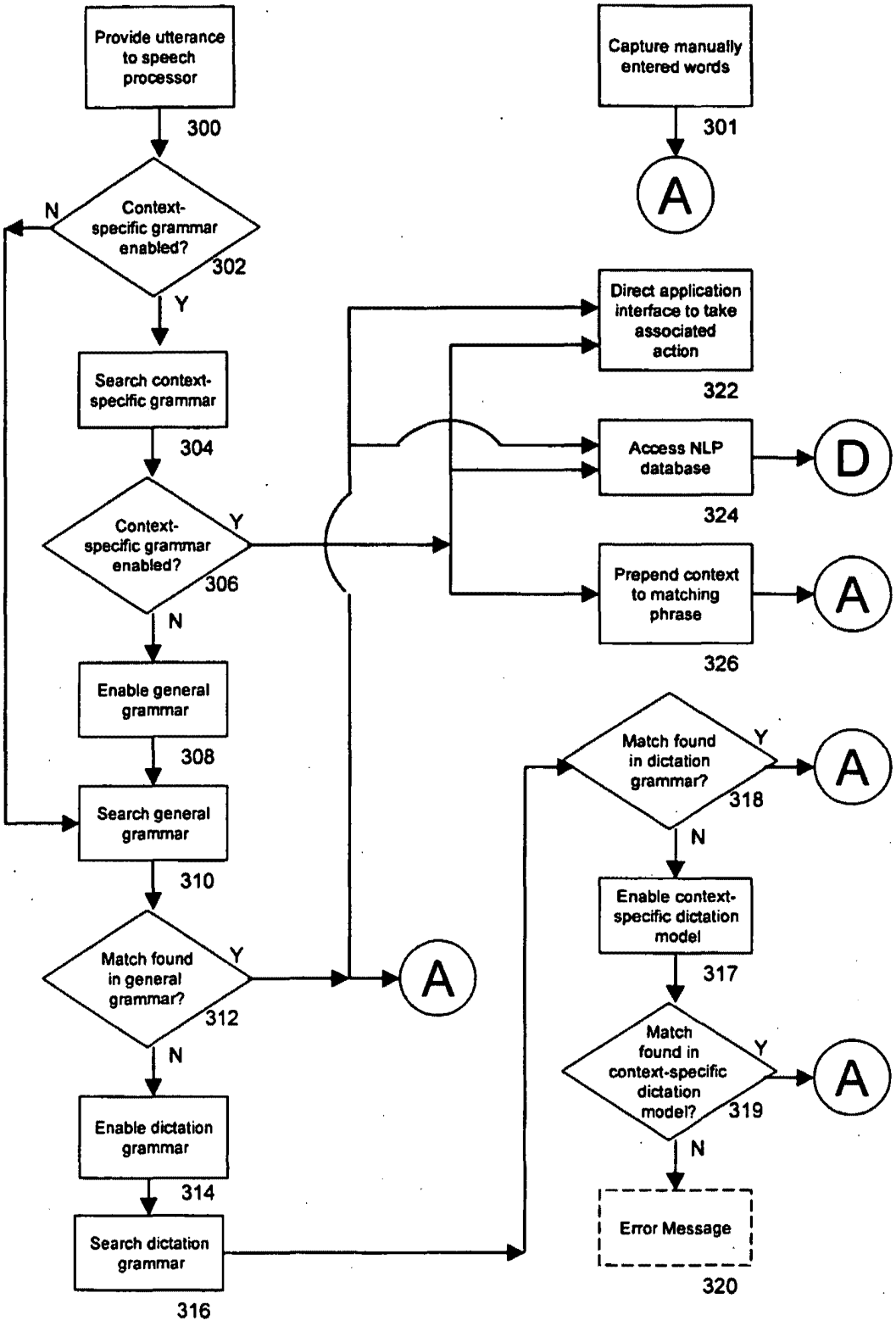

Provide utterance to speech processor
300
Context-specific grammar enabled?
302
N
Y
Search context-specific grammar
304
Context-specific grammar enabled?
306
Y
N
Enable general grammar
308
Search general grammar
310
Match found in general grammar?
312
Y
N
A
Enable dictation grammar
314
Search dictation grammar
316
Capture manually entered words
301
A
Direct application interface to take associated action
322
Access NLP database
324
D
Prepend context to matching phrase
326
A
Match found in dictation grammar?
318
Y
N
A
Enable context-specific dictation model
317
Match found in context-specific dictation model?
319
Y
N
A
Error Message
320

FIG. 3A

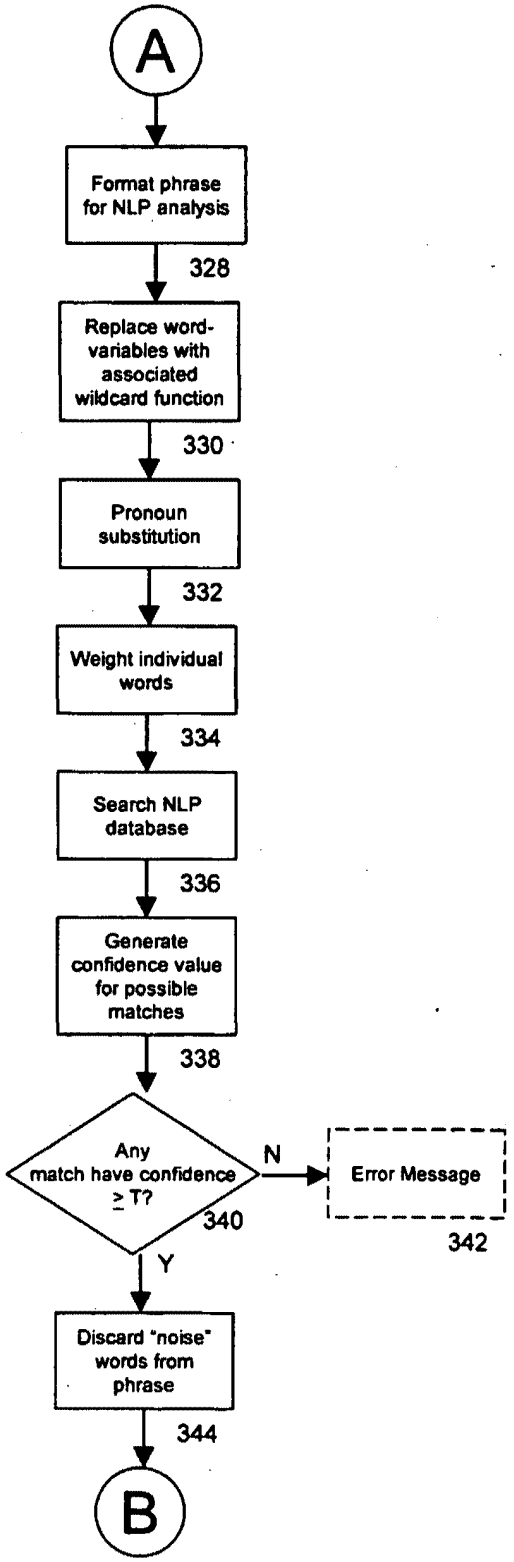

A
Format phrase for NLP analysis
328
Replace word-variables with associated wildcard function
330
Pronoun substitution
332
Weight individual words
334
Search NLP database
336
Generate confidence value for possible matches
338
Any match have confidence ≥ T?
340
N
Error Message
342
Y
Discard "noise" words from phrase
344
B

FIG. 3B

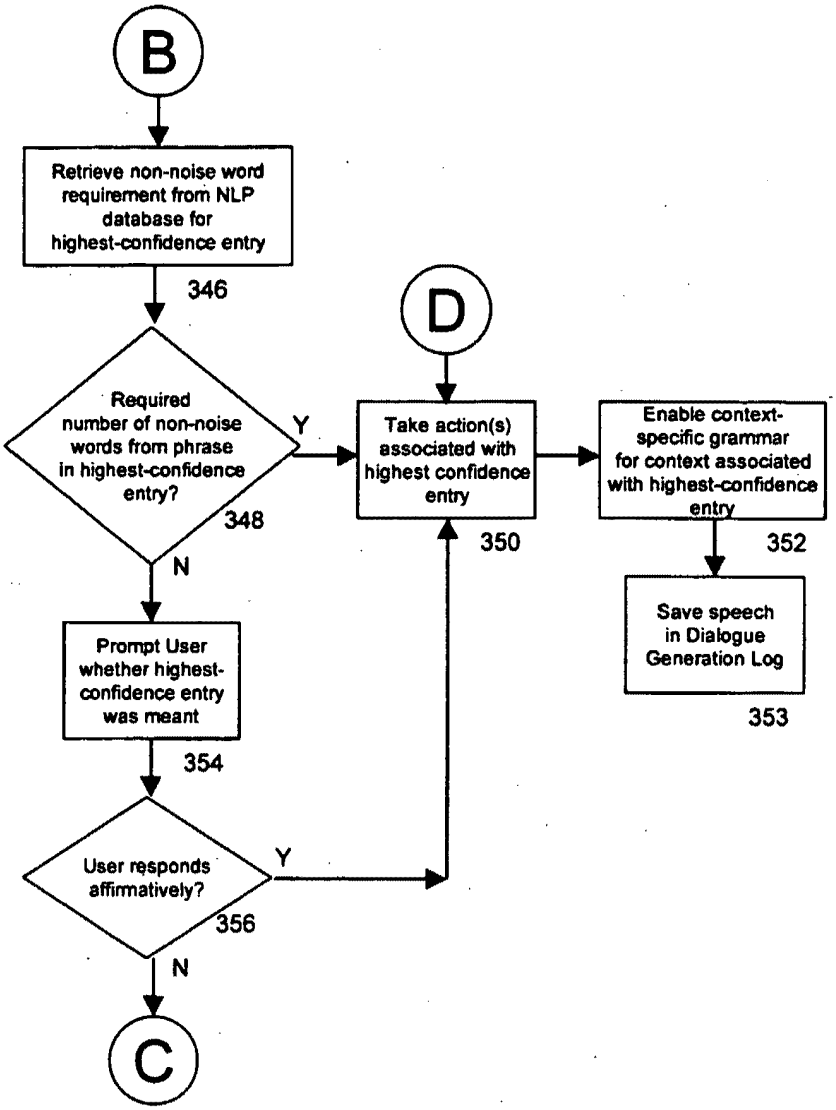

B
Retrieve non-noise word requirement from NLP database for highest-confidence entry
346
Required number of non-noise words from phrase in highest-confidence entry?
348
Y
N
D
Take action(s) associated with highest confidence entry
350
Enable context-specific grammar for context associated with highest-confidence entry
352
Save speech in Dialogue Generation Log
353
Prompt User whether highest-confidence entry was meant
354
User responds affirmatively?
356
Y
N
C

FIG. 3C

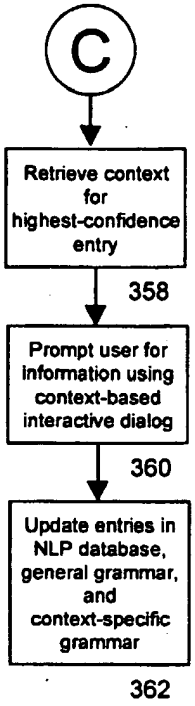

C
Retrieve context for highest-confidence entry
358
Prompt user for information using context-based interactive dialog
360
Update entries in NLP database, general grammar, and context-specific grammar
362

FIG. 3D

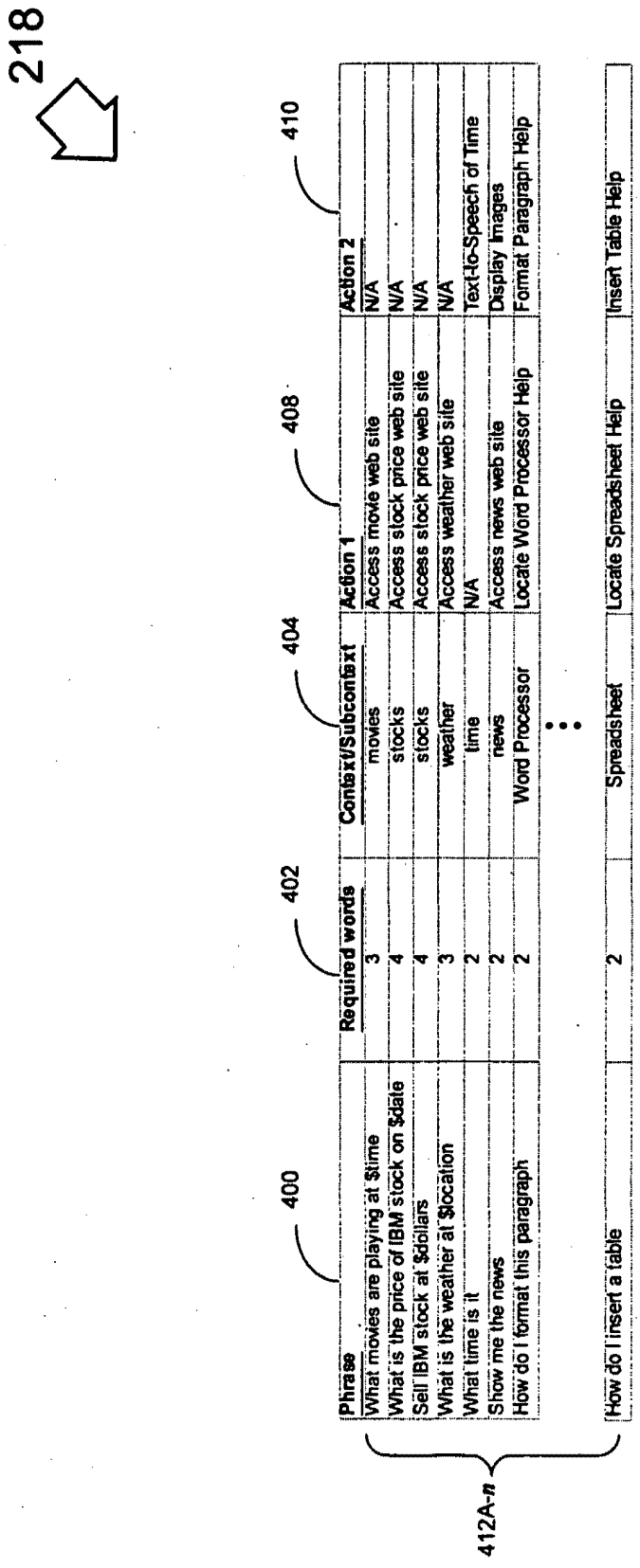

218
400
402
404
408
410
412A-n
Phrase
Required words
Context/Subcontext
Action 1
Action 2
What movies are playing at $time
3
movies
Access movie web site
N/A
What is the price of IBM stock on $date
4
stocks
Access stock price web site
N/A
Sell IBM stock at $dollars
4
stocks
Access stock price web site
N/A
What is the weather at $location
3
weather
Access weather web site
N/A
What time is it
2
time
N/A
Text-to-Speech of Time
Show me the news
2
news
Access news web site
Display Images
How do I format this paragraph
2
Word Processor
Locate Word Processor Help
Format Paragraph Help
How do I insert a table
2
Spreadsheet
Locate Spreadsheet Help
Insert Table Help

FIG. 4

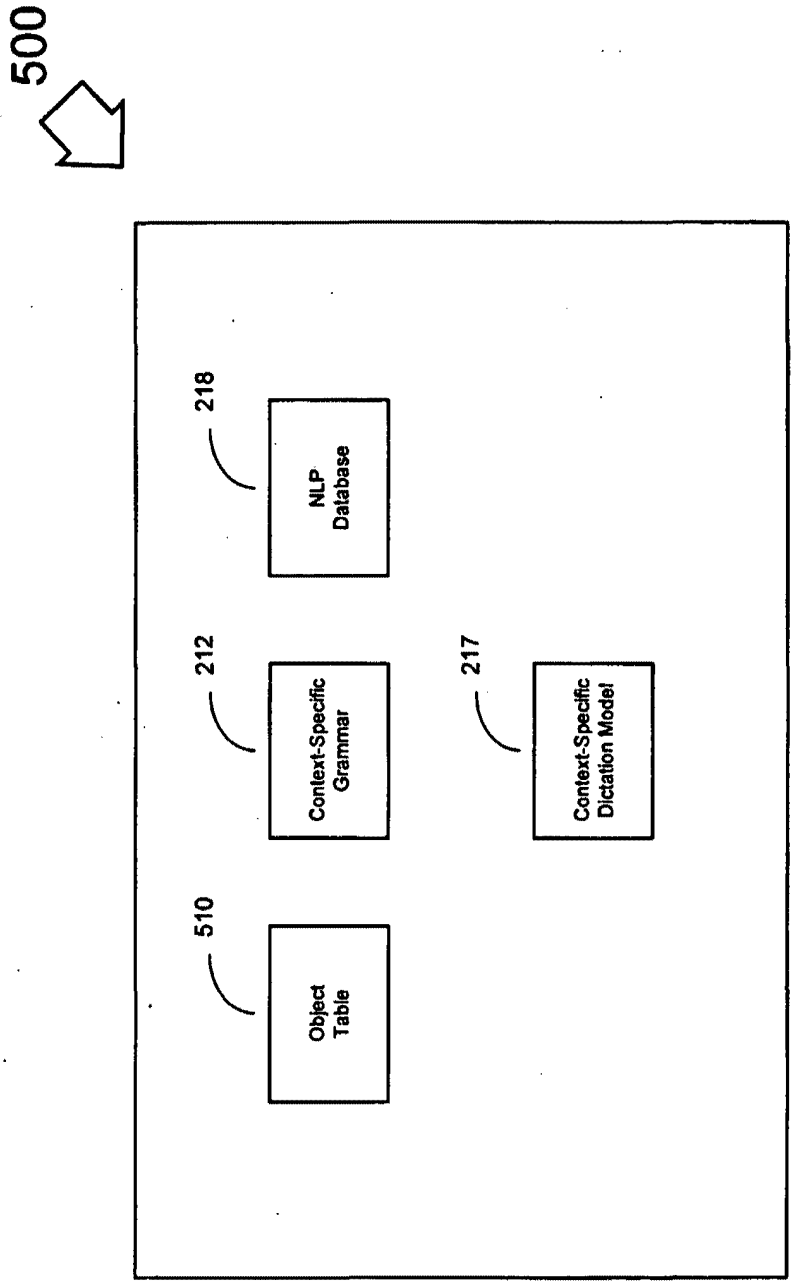

500
218
NLP Database
212
Context-Specific Grammar
217
Context-Specific Dictation Model
510
Object Table

FIG. 5

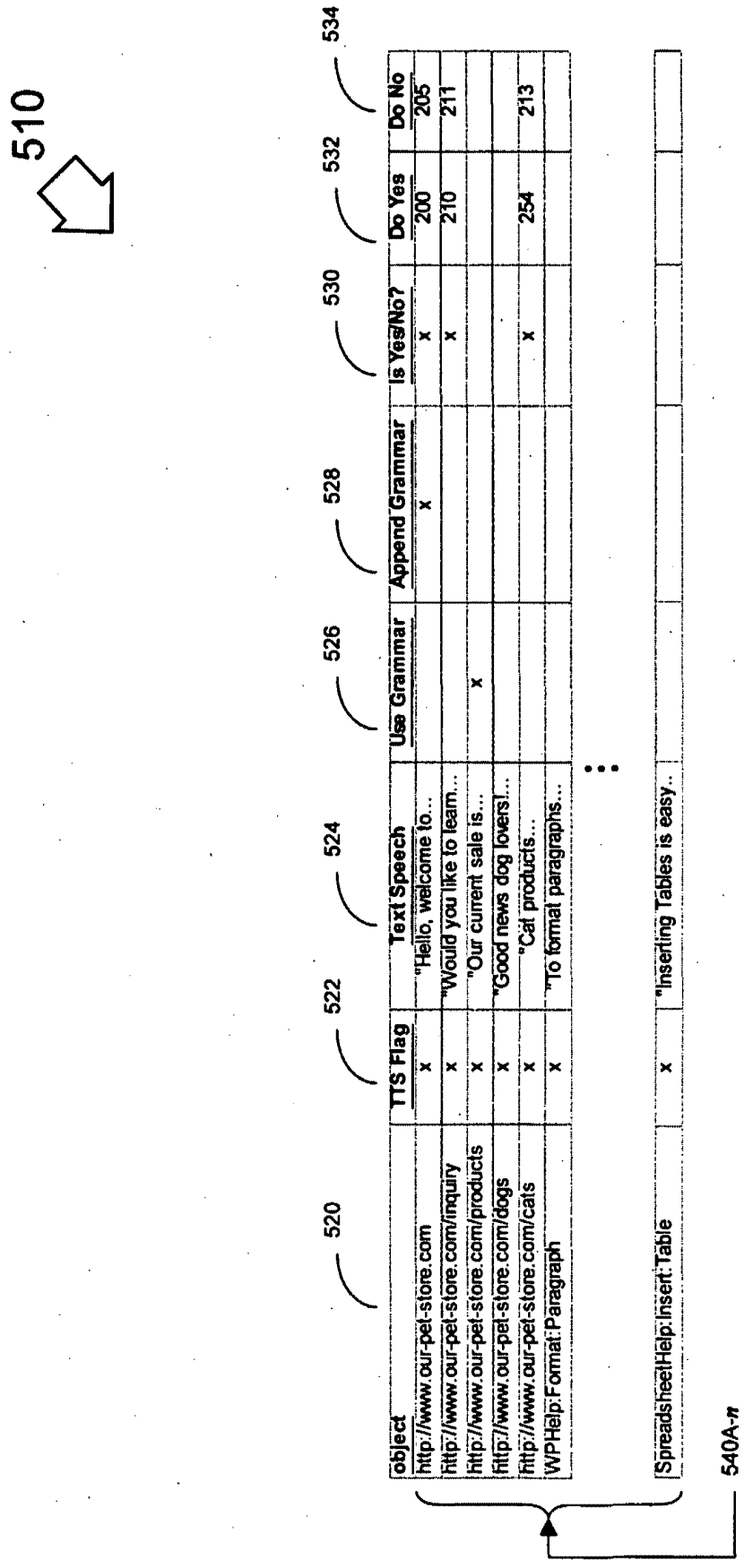

510
520
522
524
526
528
530
532
534
object
TTS Flag
Text Speech
Use Grammar
Append Grammar
Is Yes/No?
Do Yes
Do No
http://www.our-pet-store.com
x
"Hello, welcome to...
x
200
205
http://www.our-pet-store.com/inquiry
x
"Would you like to learn...
x
210
211
http://www.our-pet-store.com/products
x
"Our current sale is...
x
http://www.our-pet-store.com/dogs
x
"Good news dog lovers!...
http://www.our-pet-store.com/cats
x
"Cat products...
x
254
213
WPHelp:Format:Paragraph
x
"To format paragraphs...
SpreadsheetHelp:Insert:Table
x
"Inserting Tables is easy..
540A-n

FIG. 6

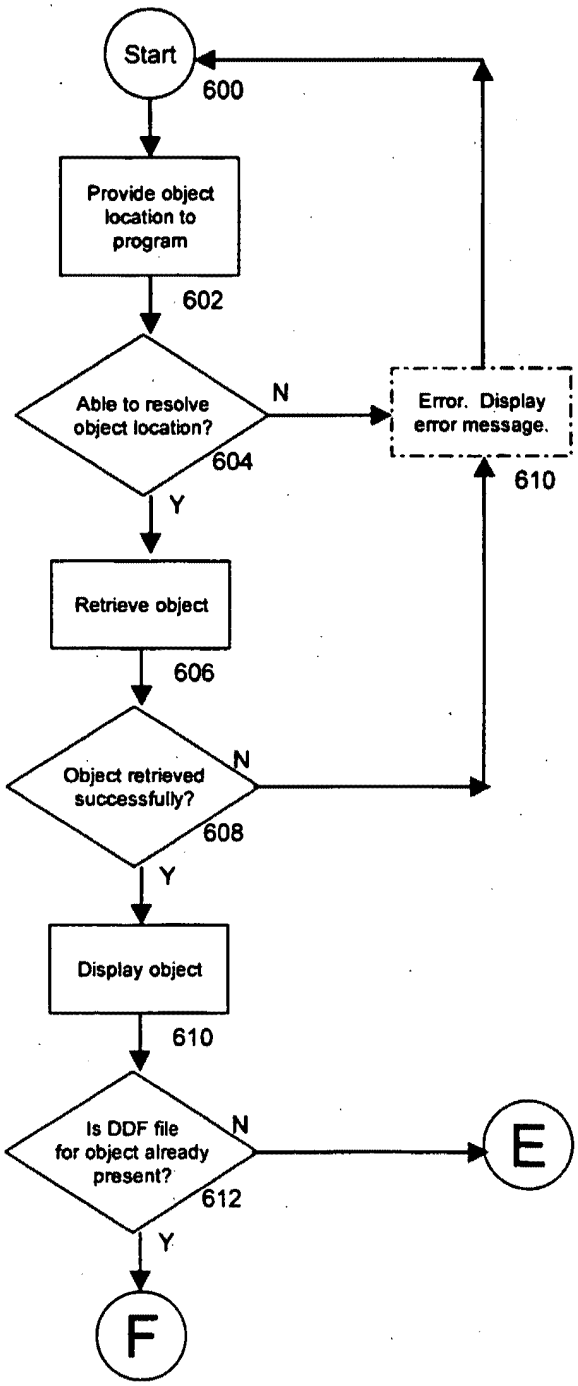

Start
600
Provide object location to program
602
Able to resolve object location?
604
N
Error. Display error message.
610
Y
Retrieve object
606
Object retrieved successfully?
608
N
Y
Display object
610
Is DDF file for object already present?
612
N
E
Y
F

FIG. 7A

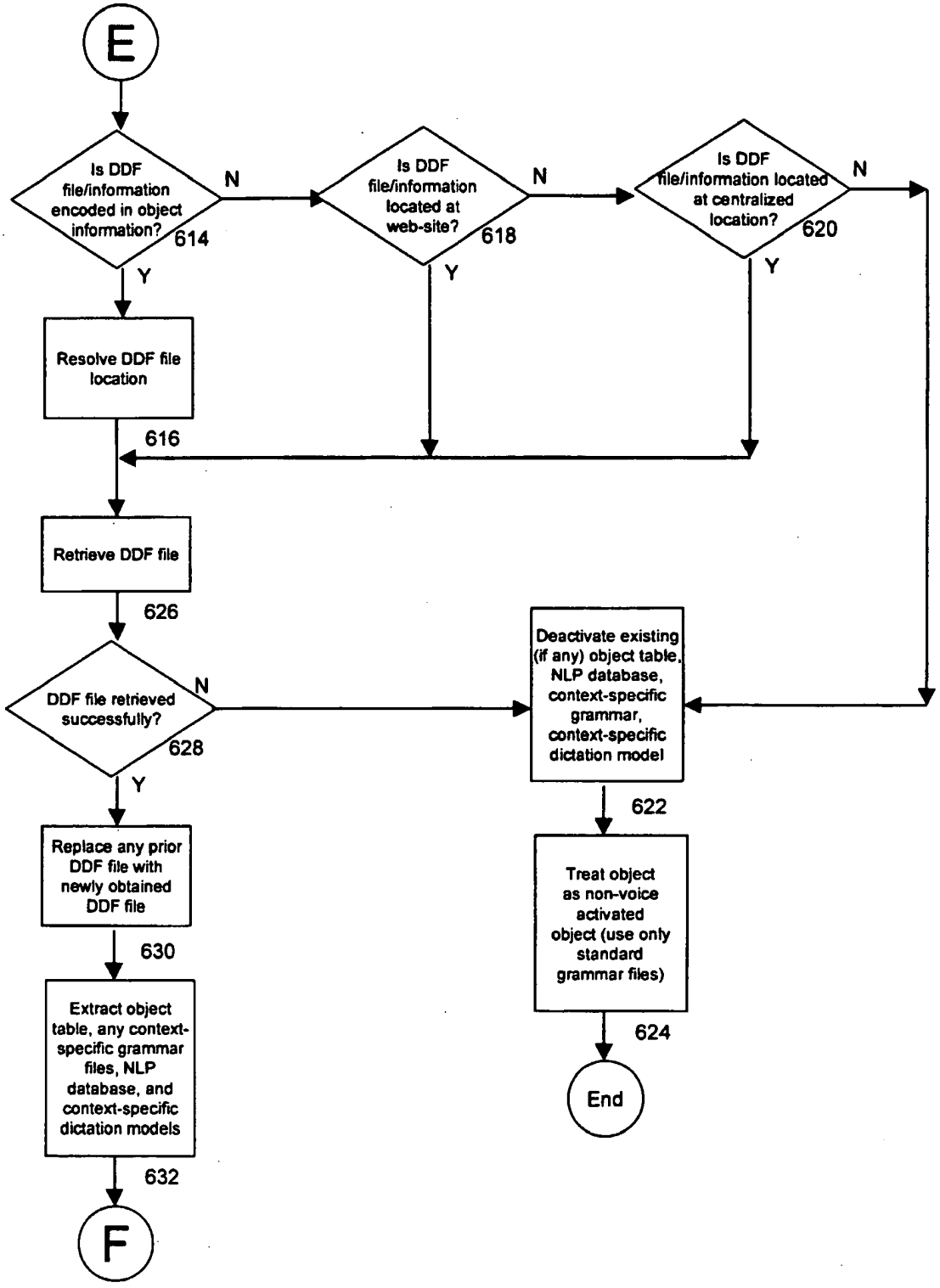

E
Is DDF file/information encoded in object information?
614
N
Y
Is DDF file/information located at web-site?
618
N
Y
Is DDF file/information located at centralized location?
620
N
Y
Resolve DDF file location
616
Retrieve DDF file
626
DDF file retrieved successfully?
628
N
Y
Deactivate existing (if any) object table, NLP database, context-specific grammar, context-specific dictation model
622
Treat object as non-voice activated object (use only standard grammar files)
624
End
Replace any prior DDF file with newly obtained DDF file
630
Extract object table, any context-specific grammar files, NLP database, and context-specific dictation models
632
F

FIG. 7B

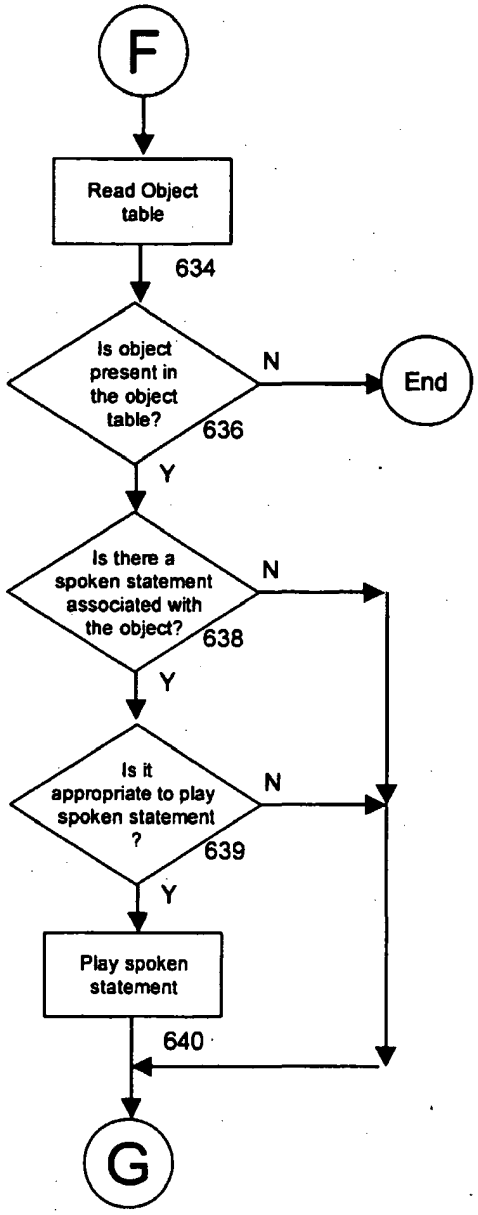

F
Read Object table
634
Is object present in the object table?
636
N
End
Y
Is there a spoken statement associated with the object?
638
N
Y
Is it appropriate to play spoken statement ?
639
N
Y
Play spoken statement
640
G

FIG. 7C

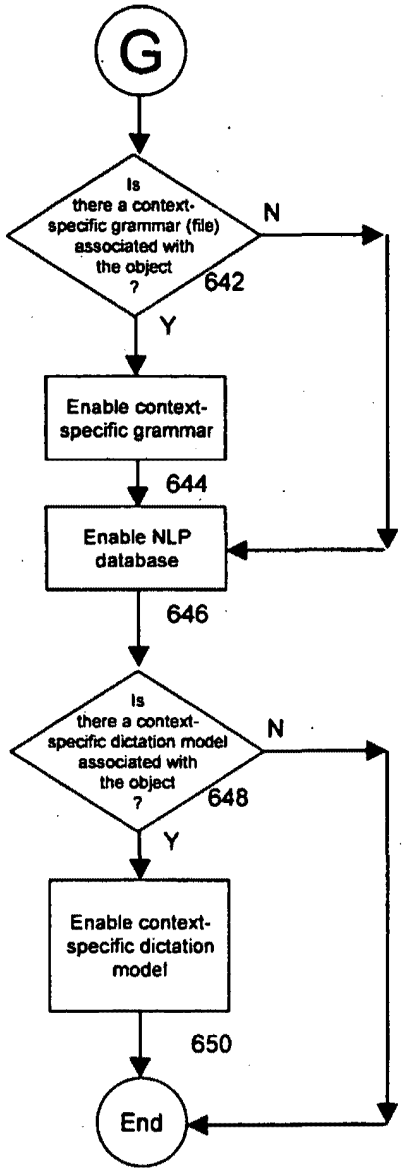

G
Is there a context-specific grammar (file) associated with the object ?
642
N
Y
Enable context-specific grammar
644
Enable NLP database
646
Is there a context-specific dictation model associated with the object ?
648
N
Y
Enable context-specific dictation model
650
End

FIG. 7D

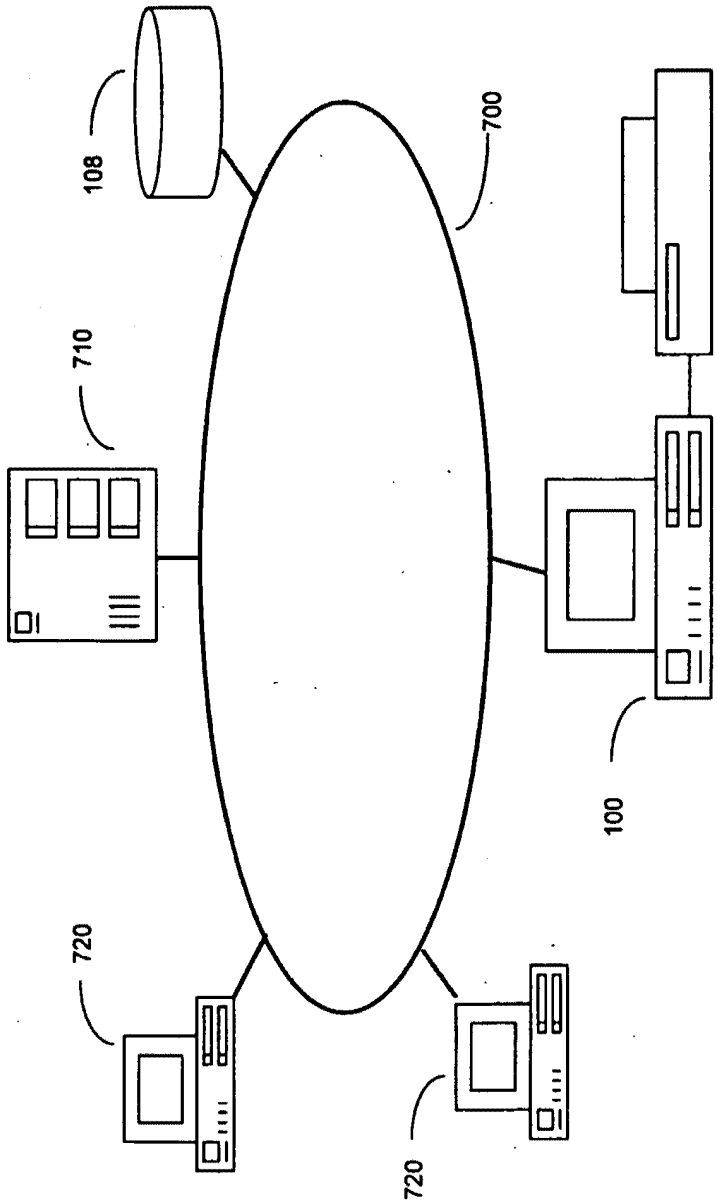


FIG. 8

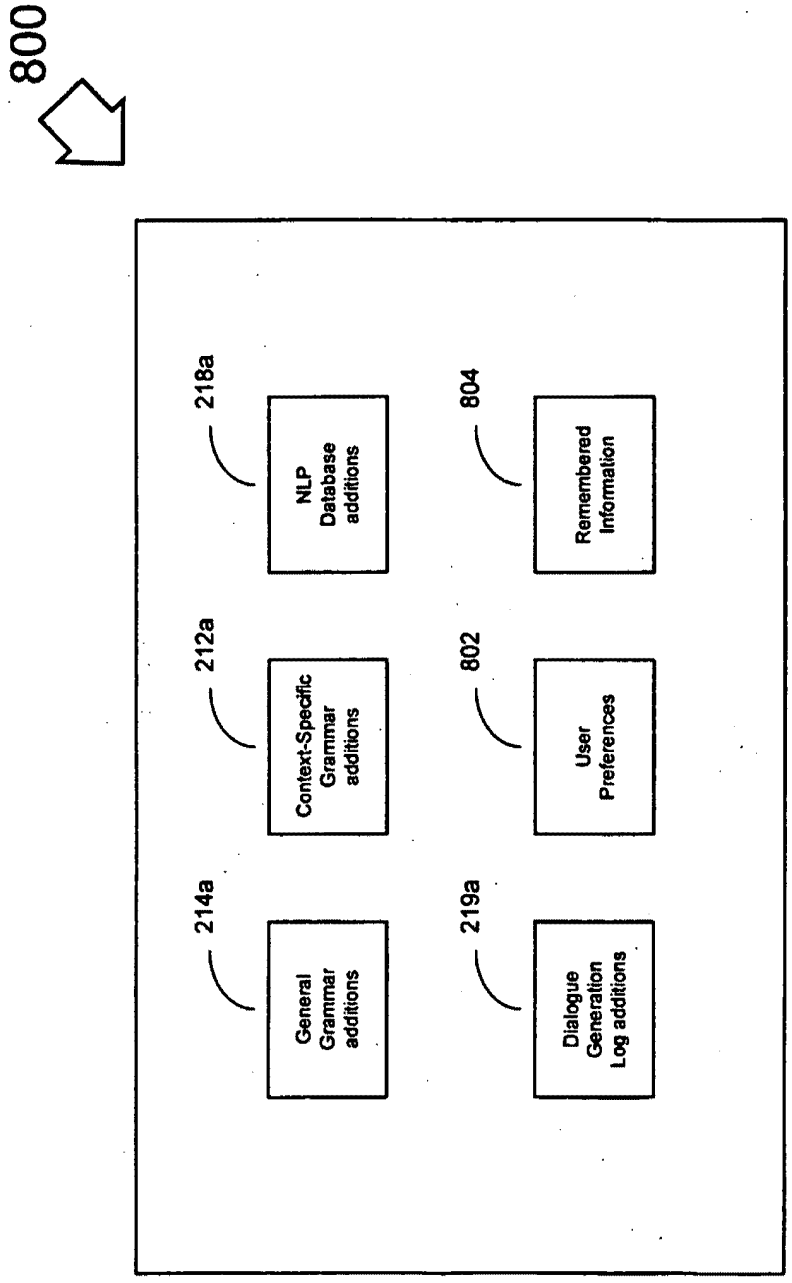

800
218a
NLP Database additions
804
Remembered Information
212a
Context-Specific Grammar additions
802
User Preferences
214a
General Grammar additions
219a
Dialogue Generation Log additions

FIG. 9

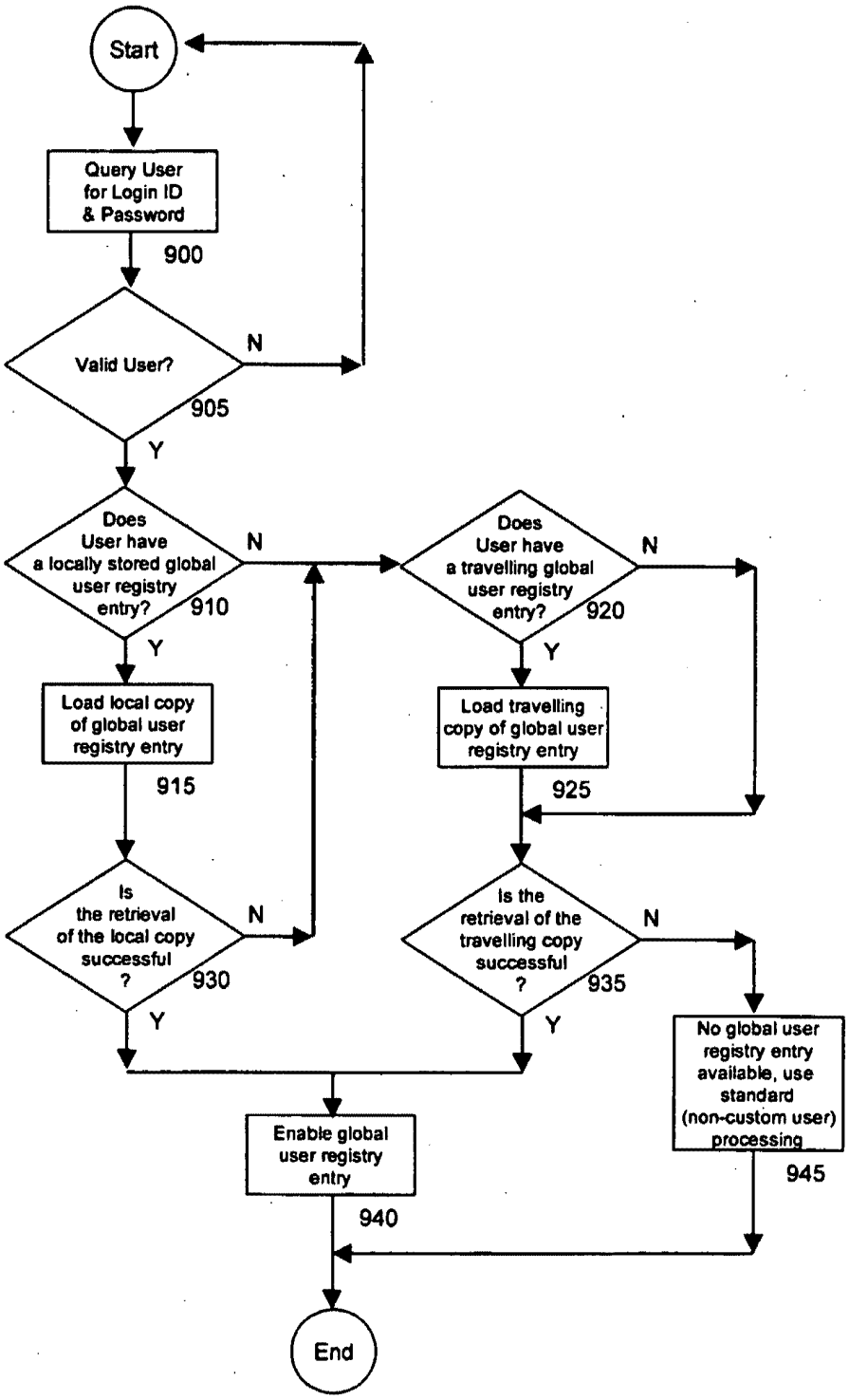

Start
Query User for Login ID & Password
900
Valid User?
N
905
Y
Does User have a locally stored global user registry entry?
N
910
Y
Load local copy of global user registry entry
915
Is the retrieval of the local copy successful ?
N
930
Y
Does User have a travelling global user registry entry?
N
920
Y
Load travelling copy of global user registry entry
925
Is the retrieval of the travelling copy successful ?
N
935
Y
No global user registry entry available, use standard (non-custom user) processing
945
Enable global user registry entry
940
End

FIG. 10A

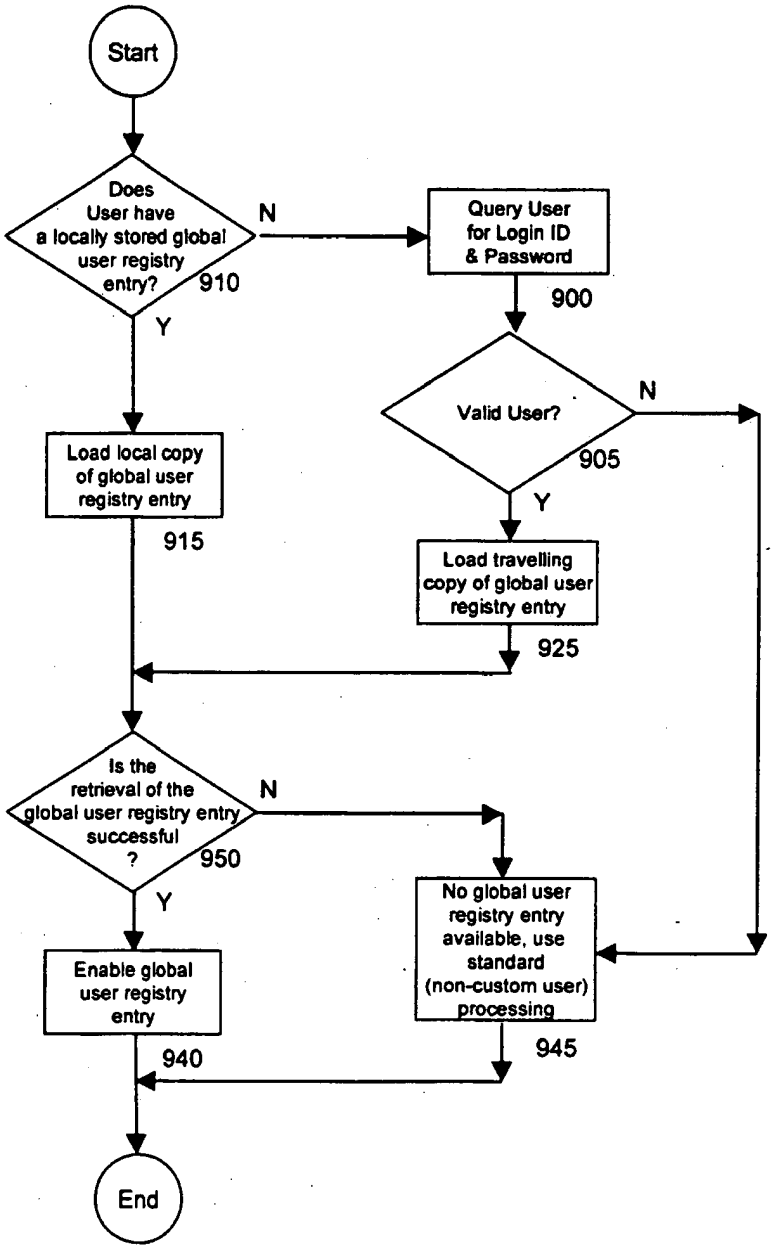

Start
Does User have a locally stored global user registry entry?
910
N
Y
Query User for Login ID & Password
900
Valid User?
905
N
Y
Load local copy of global user registry entry
915
Load travelling copy of global user registry entry
925
Is the retrieval of the global user registry entry successful ?
950
N
Y
No global user registry entry available, use standard (non-custom user) processing
945
Enable global user registry entry
940
End

FIG. 10B

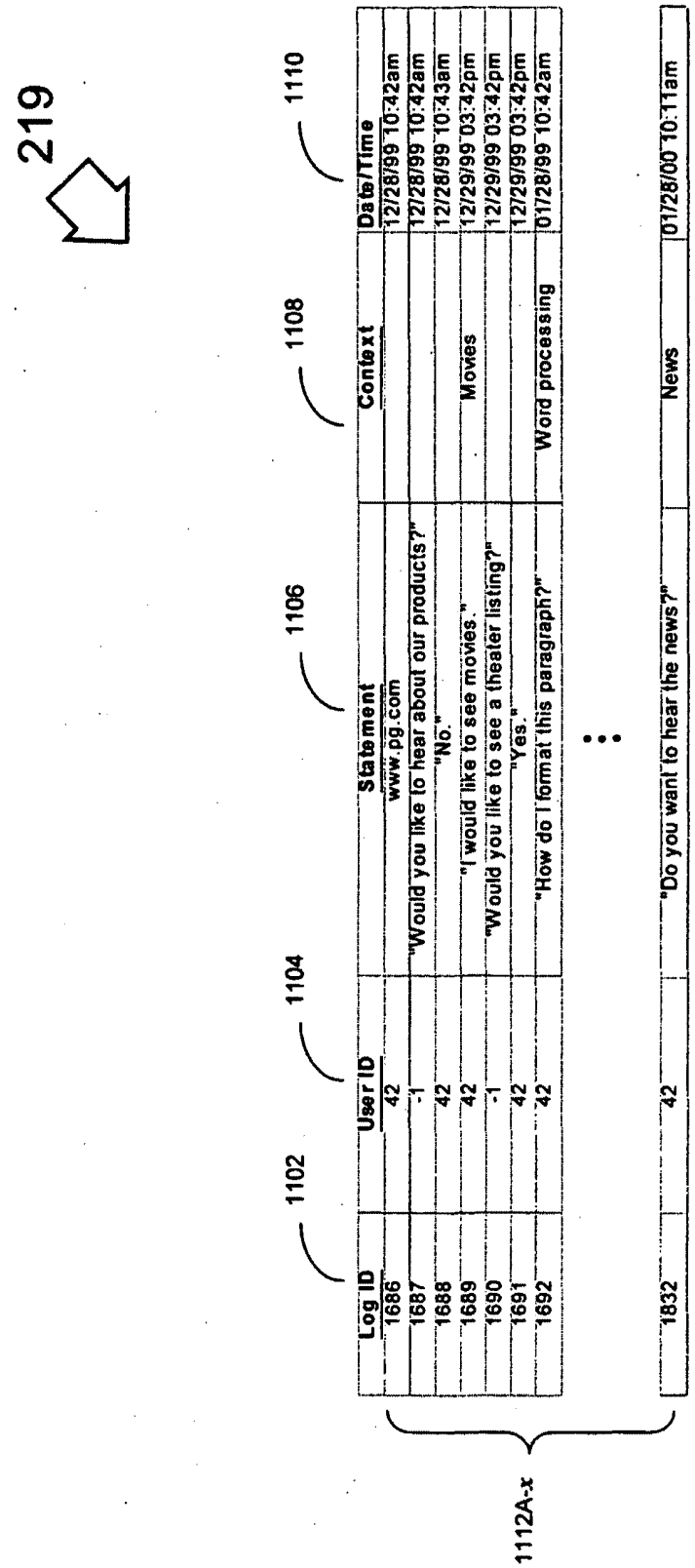

219
1102
1104
1106
1108
1110
Log ID
User ID
Statement
Context
Date/Time
1686
42
www.pg.com
12/28/99 10:42am
1687
-1
"Would you like to hear about our products?"
12/28/99 10:42am
1688
42
"No."
12/28/99 10:43am
1689
42
"I would like to see movies."
Movies
12/29/99 03:42pm
1690
-1
"Would you like to see a theater listing?"
12/29/99 03:42pm
1691
42
"Yes."
12/29/99 03:42pm
1692
42
"How do I format this paragraph?"
Word processing
01/28/99 10:42am
1832
42
"Do you want to hear the news?"
News
01/28/00 10:11am
1112A-x

FIG. 11

INTERNATIONAL SEARCH REPORT

In nal Application No
PCT/US 01/11138

A. CLASSIFICATION OF SUBJECT MATTER
IPC 7 G10L15/22 G10L15/26

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
IPC 7 G10L

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)
EPO-Internal, WPI Data, INSPEC

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	WO 00 14728 A (WEBER DEAN C ;ONE VOICE TECHNOLOGIES INC (US)) 16 March 2000 (2000-03-16) the whole document ---	1-37
X	WO 00 14727 A (WEBER DEAN C ;ONE VOICE TECHNOLOGIES INC (US)) 16 March 2000 (2000-03-16) the whole document ---	1,2, 5-21, 24-37
A	US 5 761 631 A (NASUKAWA) 2 June 1998 (1998-06-02) abstract --- -/--	3-5, 15-18, 22-24, 34-37

[X] Further documents are listed in the continuation of box C.

[X] Patent family members are listed in annex.

* Special categories of cited documents :

"A" document defining the general state of the art which is not considered to be of particular relevance

"E" earlier document but published on or after the international filing date

"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)

"O" document referring to an oral disclosure, use, exhibition or other means

"P" document published prior to the international filing date but later than the priority date claimed

"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.

"&" document member of the same patent family

Date of the actual completion of the international search	Date of mailing of the international search report
29 August 2001	06/09/2001

Name and mailing address of the ISA	Authorized officer
European Patent Office, P.B. 5818 Patentlaan 2 NL - 2280 HV Rijswijk Tel. (+31-70) 340-2040, Tx. 31 651 epo nl, Fax: (+31-70) 340-3016	Quélavoine, R

Form PCT/ISA/210 (second sheet) (July 1992)

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category °	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	WYARD P J ET AL: "SPOKEN LANGUAGE SYSTEMS - BEYOND PROMPT AND RESPONSE" BT TECHNOLOGY JOURNAL, BT LABORATORIES, GB, vol. 14, no. 1, 1996, pages 187-207, XP000554648 ISSN: 1358-3948 abstract	1-8, 19-27
A	US 5 311 429 A (TOMINAGA) 10 May 1994 (1994-05-10) abstract	15-18, 34-37

INTERNATIONAL SEARCH REPORT

Information on patent family members

Ir ›nal Application No
PCT/US 01/11138

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
WO 0014728 A	16-03-2000	AU 5813099 A	27-03-2000
		AU 6243999 A	27-03-2000
		EP 1110206 A	27-06-2001
		EP 1110205 A	27-06-2001
		WO 0014727 A	16-03-2000
WO 0014727 A	16-03-2000	AU 5813099 A	27-03-2000
		AU 6243999 A	27-03-2000
		EP 1110206 A	27-06-2001
		EP 1110205 A	27-06-2001
		WO 0014728 A	16-03-2000
US 5761631 A	02-06-1998	JP 2855409 B	10-02-1999
		JP 8147299 A	07-06-1996
US 5311429 A	10-05-1994	JP 2301869 A	13-12-1990

Form PCT/ISA/210 (patent family annex) (July 1992)

UNITED STATES PATENT AND TRADEMARK OFFICE

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United States Patent and Trademark Office
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Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NUMBER	FILING OR 371(c) DATE	FIRST NAMED APPLICANT	ATTY. DOCKET NO./TITLE
11/197,504	08/05/2005	Philippe Di Cristo	090611-0316777

CONFIRMATION NO. 7092

909
PILLSBURY WINTHROP SHAW PITTMAN, LLP
P.O. BOX 10500
MCLEAN, VA22102

Title: Systems and methods for responding to natural language speech utterance

Publication No. US-2007-0033005-A1
Publication Date: 02/08/2007

NOTICE OF PUBLICATION OF APPLICATION

The above-identified application will be electronically published as a patent application publication pursuant to 37 CFR 1.211, et seq. The patent application publication number and publication date are set forth above.

The publication may be accessed through the USPTO's publically available Searchable Databases via the Internet at www.uspto.gov. The direct link to access the publication is currently http://www.uspto.gov/patft/.

The publication process established by the Office does not provide for mailing a copy of the publication to applicant. A copy of the publication may be obtained from the Office upon payment of the appropriate fee set forth in 37 CFR 1.19(a)(1). Orders for copies of patent application publications are handled by the USPTO's Office of Public Records. The Office of Public Records can be reached by telephone at (703) 308-9726 or (800) 972-6382, by facsimile at (703) 305-8759, by mail addressed to the United States Patent and Trademark Office, Office of Public Records, Alexandria, VA 22313-1450 or via the Internet.

In addition, information on the status of the application, including the mailing date of Office actions and the dates of receipt of correspondence filed in the Office, may also be accessed via the Internet through the Patent Electronic Business Center at www.uspto.gov using the public side of the Patent Application Information and Retrieval (PAIR) system. The direct link to access this status information is currently http://pair.uspto.gov/. Prior to publication, such status information is confidential and may only be obtained by applicant using the private side of PAIR.

Further assistance in electronically accessing the publication, or about PAIR, is available by calling the Patent Electronic Business Center at 703-305-3028.

Pre-Grant Publication Division, 703-605-4283

OIPE IAP44
MAY 24 2007
PATENT & TRADEMARK OFFICE

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICANTS :	Philippe DI CRISTO et al.	CONFIRMATION NO.:	7092
SERIAL NUMBER :	11/197,504	EXAMINER:	Richemond Dorvil
FILING DATE :	August 5, 2005	ART UNIT:	2626
FOR :	SYSTEMS AND METHODS FOR RESPONDING TO NATURAL LANGUAGE SPEECH UTTERANCE		

REQUEST TO CORRECT INVENTORSHIP UNDER 37 C.F.R. § 1.48(A)

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Dear Sir:

This is a request under 37 C.F.R. § 1.48(a) to correct the inventorship of this application by adding Lynn Elise Armstrong as an inventor in this application. Attached is a statement from the added inventor that the error in Inventorship occurred without deceptive intent on her part.

Also attached is a new declaration executed by all the inventors of the above-identified patent application. This application has been assigned by at least one of the original named inventors, and consequently, the written consent of the assignee is attached.

Please charge the processing fee required under 37 C.F.R. § 1.17(i) in the amount of $130.00, along with any additional fees that may be due, or credit any overpayment of same, to Deposit Account No. 033975 (**Ref. No. 090611-0316777**).

05/25/2007 SZEWDIE1 00000095 033975 11197504
01 FC:1464 130.00 DA

CONCLUSION

Please confirm the inventorship corrections as requested. If, for any reason, personal communication will expedite prosecution of this application, please telephone the undersigned at the number provided below.

Date: May 24, 2007

Respectfully submitted,

By: _____

Syed Jafar Ali
Registration No. 58,780

PILLSBURY WINTHROP SHAW PITTMAN LLP
P.O. Box 10500
McLean, Virginia 22102
Main: 703-770-7900
Direct: 703-770-7540
Fax: 703-770-7901

Attachments:

(1) Statement by Added Inventor Pursuant to 37 C.F.R. § 1.48(a)(2)
(2) Supplemental Declaration
(3) Assignee's Consent to Change Inventorship Under 37 C.F.R. §§ 1.48(a)(5), 3.73(b)

O I P E
MAY 24 2007
PATENT & TRADEMARK OFFICE

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICANTS :	Philippe DI CRISTO et al.	CONFIRMATION NO.:	7092
SERIAL NUMBER :	11/197,504	EXAMINER:	Richemond Dorvil
FILING DATE :	August 5, 2005	ART UNIT:	2626
FOR :	SYSTEMS AND METHODS FOR RESPONDING TO NATURAL LANGUAGE SPEECH UTTERANCE		

STATEMENT BY ADDED INVENTOR PURSUANT TO 37 C.F.R. § 1.48(A)(2)

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Dear Sir:

I hereby state that I am an inventor of the claims of the above-captioned patent application. The error in inventorship occurred without deceptive intention on my part.

Signature: Lynn Elise Armstrong Date: 4-16-2007

Name: Lynn Elise Armstrong

OIPE IAP44
MAY 24 2007
PATENT & TRADEMARK OFFICE

FOR UTILITY DECLARATION

SUPPLEMENTAL DECLARATION UNDER RULE 67 (37 C.F.R. 1.67)

As a below named inventor, I hereby declare that my residence, post office address and citizenship are as stated below next to my name, and I believe I am an original, first and joint inventor of the subject matter which is claimed and for which a patent is sought on the invention entitled SYSTEMS AND METHODS FOR RESPONDING TO NATURAL LANGUAGE SPEECH UTTERANCE, the specification of which was filed on August 5, 2005 as U.S. Application No. 11/197,504.

I hereby state that I have reviewed and understand the contents of the above-identified specification, including the claims, I acknowledge the duty to disclose all information known to me to be material to patentability as defined in 37 C.F.R. 1.56. Except as noted below, I hereby claim foreign priority benefits under 35 U.S.C. 119/365 of any foreign application(s) for patent or inventor's certificate listed below and have also identified below any foreign application for patent or inventor's certificate filed by me or my assignee disclosing the subject matter claimed in this application and having a filing date (1) before that of the application on which priority is claimed, or (2) if no priority claimed, before the filing date of this application:

PRIOR FOREIGN APPLICATION(S)

Number	Country	Filed	Date first Laid-open or Published	Date Patented or Granted	Priority Claimed

Except as noted below, I hereby claim domestic priority benefit under 35 U.S.C. 119(e) or 120 and/or 365(c) of the indicated United States applications listed below and PCT international applications listed above or below and, if this is a continuation-in-part (CIP) application, insofar as the subject matter disclosed and claimed in this application is in addition to that disclosed in such prior applications, I acknowledge the duty to disclose all information known to me to be material to patentability as defined in 37 C.F.R. 1.56 which became available between the filing date of each such prior application and the national or PCT international filing date of this application:

PRIOR U.S. PROVISIONAL, NONPROVISIONAL AND/OR PCT APPLICATION(S)

Application Number	Filed	Status	Priority Claimed

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

INVENTOR'S SIGNATURE: _____ Date: 6/16/07

Name	PHILIPPE		DI CRISTO
	First	Middle Initial	Family Name
Residence	Bellevue	WA	France
	City	State/Foreign Country	Country of Citizenship
Mailing Address	177 107th Avenue, N.E., #1007 Bellevue, WA 98004		
(include Zip Code)	98004		

INVENTOR'S SIGNATURE: _____ Date: 5/7/2007

Name	MIN		KE
	First	Middle Initial	Family Name
Residence	Bothell	WA	United States of America
	City	State/Foreign Country	Country of Citizenship
Mailing Address	3221 201st Place, S.E., Bothell, WA 98012		
(include Zip Code)	98012		

INVENTOR'S SIGNATURE: Robert A Kennewick Date: 4-16-2007

Name	ROBERT	A.	KENNEWICK
	First	Middle Initial	Family Name
Residence	Seattle	WA	United States of America
	City	State/Foreign Country	Country of Citizenship
Mailing Address	2204 S. Eddy Street, Seattle, WA 98108		
(include Zip Code)	98108		

INVENTOR'S SIGNATURE: Lynn E Armstrong Date: 4-16-2007

Name	LYNN	ELISE	ARMSTRONG
	First	Middle Initial	Family Name
Residence	Woodinville	WA	United States of America
	City	State/Foreign Country	Country of Citizenship
Mailing Address	19807 183rd Place, N.E., Woodinville, WA 98077		
(include Zip Code)	98077		

Attorney Reference: 090611-0316777

OIPE IAP44
MAY 24 2007
PATENT & TRADEMARK OFFICE

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICANTS :	Philippe DI CRISTO et al.	CONFIRMATION NO.:	7092
SERIAL NUMBER :	11/197,504	EXAMINER:	Richemond Dorvil
FILING DATE :	August 5, 2005	ART UNIT:	2626
FOR :	SYSTEMS AND METHODS FOR RESPONDING TO NATURAL LANGUAGE SPEECH UTTERANCE		

ASSIGNEE'S CONSENT TO CHANGE INVENTORSHIP UNDER 37 C.F.R. §§ 1.48(A)(5), 3.73(B)

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Dear Sir:

I, Mike Kennewick, a citizen of the United States of America, hereby certify the following:

1. VoiceBox Technologies, Inc., a Washington corporation having a place of business at 11980 NE 24th Street, Suite 100, Bellevue, Washington 98005, is the owner of the entire right, title, and interest of the above-identified patent application by way of assignment from the inventors to VoiceBox Technologies, Inc., as recorded in the U.S. Patent and Trademark Office on February 1, 2006 at Reel 017554, Frame 0171;

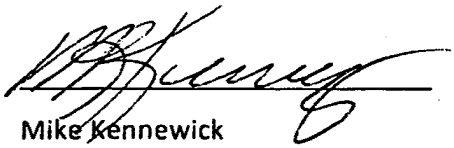
2. I am empowered and authorized to sign this document on behalf of VoiceBox Technologies, Inc.;

3. VoiceBox Technologies, Inc. consents to the change in inventorship of the above-identified patent application by the addition of Lynn Elise Armstrong, a citizen of the United States of America, residing at 19807 183rd Place NE, Woodinville, Washington 98077, to the list of named inventors of the above-identified patent application;

4. VoiceBox Technologies, Inc. is aware that the application, original declaration, and original assignment omitted Lynn Elise Armstrong from the inventorship, and that this

error occurred without any deceptive intent on the part of the assignee or any of the named or omitted inventors; and

5. The correct inventive entity includes Philippe DI CRISTO, Min KE, Robert A. KENNEWICK, and Lynn Elise ARMSTRONG.

By:  Date: April 19, 2007

Name: Mike Kennewick

Title: Co-Founder, Chairman, and CEO of VoiceBox Technologies, Inc.

EAST Search History

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
S1	43	"704"/$.ccls. and agent$5 with grammar$5	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2007/08/07 15:13
S2	123	agent$5 with grammar$5	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2007/08/07 14:56
S3	80	S2 not S1	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2007/08/07 14:56
S4	14	S3 and ((speech or voice) near2 recogni$10)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2007/08/07 14:57
S5	209	"704"/$.ccls. and agent$5 with select$5	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2007/08/07 15:15
S6	46	"704"/$.ccls. and agent$5 with domain$5	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2007/08/07 15:17
S7	1202	"704"/$.ccls. and agent$5	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2007/08/07 15:17

EAST Search History

S8	69	merg$5 with (speech or voice) with text$5	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2007/08/08 13:24
S9	2407	"704"/$.ccls. and ((speech or voice) with text$5 with input$5)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2007/08/08 12:59
S10	320	"704"/$.ccls. and personalit$5	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2007/08/08 13:00
S11	107	S10 and agent$5	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2007/08/08 13:04
S12	61	"704"/$.ccls. and multimodal$5.ab.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2007/08/08 13:06
S13	46	"704"/$.ccls. and (multi near2 modal$5).ab.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2007/08/08 13:07
S14	122	"704"/$.ccls. and (multimodal$5 or (multi near2 modal$5)) and agent$5	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2007/08/08 13:08

EAST Search History

S15	689	quer$5 with (speech or voice) with text$5	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2007/08/08 13:13
S16	179	S15 and "704"/$.ccls.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2007/08/08 13:14
S17	196	S15 and agent$5	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2007/08/08 13:14
S18	57	S17 and "704"/$.ccls.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2007/08/08 13:14
S19	6	(quer$5 with (speech or voice) with text$5 with (merg$5))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2007/08/08 13:29
S20	206	"704"/$.ccls. and (quer$5 with grammar$5)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2007/08/08 13:34
S21	801	"704"/$.ccls. and (quer$5 with (speech or voice))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2007/08/08 13:34

EAST Search History

S22	4460	text$5 with (speech or voice) with (merg$5 or combine$2 or combining or concatenat$5 or converg$5 or fus$5 or meld$5 or connect$3 or incorporat$5)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2007/08/09 12:19
S23	1234	S22 and "704"/$.ccls.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2007/08/09 10:42
S24	264	(text$5 with (speech or voice) with (merg$5 or combine$2 or combining or concatenat$5 or converg$5 or fus$5 or meld$5 or connect$3 or incorporat$5)) same (quer$5 or search$5)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2007/08/09 10:47
S25	100	S24 and "704"/$.ccls.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2007/08/09 11:45
S26	20	("4579533" | "4612416" | "5027406" | "5265014" | "5500920" | "5559940" | "5583965" | "5625748" | "5638425" | "5878423" | "5924070" | "5956706" | "5999595" | "6138100" | "6240448" | "6438523" | "6556963" | "6581055" | "6701162").PN. OR ("6996531").URPN.	US-PGPUB; USPAT; USOCR	OR	OFF	2007/08/09 11:04
S27	47	("4401855" | "4689761" | "4748674" | "5157384" | "5177685" | "5208786" | "5377303" | "5404524" | "5459798" | "5463696" | "5502774" | "5528726" | "5546538" | "5546565" | "5583542" | "5583946" | "5592589" | "5600765" | "5606702" | "5615299" | "5621809" | "5621857" | "5625749" | "5633954" | "5655148" | "5666139" | "5668573" | "5687221" | "5701393" | "5712957" | "5781179" | "5855000").PN. OR ("6438523").URPN.	US-PGPUB; USPAT; USOCR	OR	OFF	2007/08/09 11:05

EAST Search History

S28	164	S24 not S25	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2007/08/09 11:45
S29	69	text$5 with (speech or voice) with (merg$5 or combine$2 or combining or concatenat$5 or converg$5 or fus$5 or meld$5 or connect$3 or incorporat$5) same grammar$5	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2007/08/09 12:19
S30	96	context with description with grammar$5	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2007/08/13 12:39
S31	123	agent$5 with grammar$5	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2007/08/13 12:39
S32	11	agent$5 with grammar$5 with context$5	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2007/08/13 12:42
S33	3600	context$5 with stack$5	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2007/08/13 12:42
S34	22	context$5 with stack$5 with quer$5	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2007/08/13 13:14

EAST Search History

S35	1	(multi and modal and shell).ti.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2007/08/13 13:14
S36	11	(agent$5 with command$5) and (agent$5 with request$5) and (agent$5 with multiple$5 with quer$5)	USPAT	OR	OFF	2007/08/15 12:58

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICANTS :	Philippe DI CRISTO *et al.*	CONFIRMATION NO.:	7092
SERIAL NUMBER :	11/197,504	EXAMINER:	Brian Louis Albertalli
FILING DATE :	August 5, 2005	ART UNIT:	2626
FOR :	SYSTEMS AND METHODS FOR RESPONDING TO NATURAL LANGUAGE SPEECH UTTERANCE		

SUPPLEMENTAL INFORMATION DISCLOSURE STATEMENT

Commissioner for Patents
P. O. Box 1450
Alexandria, VA 22313-1450

Sir:

Pursuant to the duty of disclosure under 37 C.F.R. §§ 1.56, 1.97 and 1.98, Applicants hereby make of record in the above-identified application the documents listed on the attached Form PTO-1449.

Applicants have listed publication dates on the attached PTO-1449 based on information presently available to the undersigned. However, the listed publication dates should not be construed as an admission that the information was actually published on the date indicated. Where the publication date of a listed document does not provide a month of publication, the year of publication of the listed document is sufficiently earlier than the effective U.S. filing date and any foreign priority date so that the month of publication is not an issue.

Applicants reserve the right to establish the patentability of the claimed invention over any of the information provided herewith, and/or to prove that this information may not be

prior art, and/or to prove that this information may not be enabling for the teachings purportedly offered.

This Supplemental Information Disclosure Statement is being filed within three months of the filing date of a national application other than a continued prosecution application under 37 C.F.R. §1.53(d), or within three months of the date of entry of the national stage as set forth in 37 C.F.R. §1.491 in an international application, or before the mailing date of a first Office Action on the merits, or before the mailing date of a first Office Action after the filing of a request for continued examination under 37 C.F.R. §1.114. No certification or fee is required. 37 C.F.R. §1.97(b).

It is respectfully requested that the Examiner initial and return a copy of the enclosed PTO-1449.

Respectfully submitted,

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Dated: August 24, 2007

INFORMATION DISCLOSURE CITATION IN AN APPLICATION	Docket Number	Application Number
	090611-0316777	11/197,504
	Applicant(s)	
	Philippe DI CRISTO *et al.*	
	Filing Date	Group Art Unit
Form PTO-1449	August 5, 2005	2626

U.S. PATENT DOCUMENTS

*EXAMINER INITIAL	REF	DOCUMENT NO.	DATE	NAME	CLASS	SUBCLASS	FILING DATE IF APPROPRIATE
	A	6,185,535	02/06/2001	Hedin *et al.*	704	270	
	B	6,195,651	02/27/2001	Handel *et al.*	707	2	
	C	6,208,972	03/27/2001	Grant *et al.*	704	275	
	D	6,233,559	05/15/2001	Balakrishnan	704	275	
	E	6,408,272	06/18/2002	White *et al.*	704	270.1	
	F	6,420,975	07/16/2002	DeLine *et al.*	340	815.4	
	G	6,615,172	09/02/2003	Bennett *et al.*	704	257	
	H	6,741,931	05/25/2004	Kohut *et al.*	701	209	
	I	6,937,977	08/30/2005	Gerson	704	201	
	J	6,980,092	12/27/2005	Turnbull *et al.*	340	425.5	
	K	7,062,488	06/13/2006	Reisman	707	8	
	L	2002/0143535	10/03/2002	Kist *et al.*	704	251	
	M	2003/0182132	09/25/2003	Niemoeller	704	275	
	N	2004/0193420	09/30/2004	Kennewick *et al.*	704	257	

FOREIGN PATENT DOCUMENTS

	REF	DOCUMENT NO.	DATE	COUNTRY	CLASS	SUBCLASS	Translations YES	Translations NO

OTHER DOCUMENTS *(Including Author, Title, Date, Pertinent Pages, Etc.)*

	O	LIN, Bor-shen, *et al.*, "A Distributed Architecture for Cooperative Spoken Dialogue Agents with Coherent Dialogue State and History", ASRU'99, 1999, 4 pages.
	P	KUHN, Thomas, *et al.*, "Hybrid In-Car Speech Recognition for Mobile Multimedia Applications", Vehicular Technology Conference, IEEE, July 1999, pages 2009-2013.
	Q	BELVIN, Robert, *et al.*, "Development of the HRL Route Navigation Dialogue System", Proceedings of the First International Conference on Human Language Technology Research, San Diego, 2001, pages 1-5.
	R	LIND, R., *et al.*, "The Network Vehicle—A Glimpse into the Future of Mobile Multi-Media", IEEE Aerosp. Electron. Systems Magazine, Volume 14, No. 9, September 1999, pages 27-32.
	S	ZHAO, Yilin, "Telematics: Safe and Fun Driving", IEEE Intelligent Systems, Volume 17, Issue 1, 2002, pages 10-14.

EXAMINER	DATE CONSIDERED

EXAMINER: Initial if citation considered, whether or not citation is in conformance with MPEP Section 609; Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to Applicant.

Electronic Acknowledgement Receipt

EFS ID:	2120014
Application Number:	11197504
International Application Number:	
Confirmation Number:	7092
Title of Invention:	Systems and methods for responding to natural language speech utterance
First Named Inventor/Applicant Name:	Philippe Di Cristo
Customer Number:	909
Filer:	Bradford C. Blaise/Susan Trader
Filer Authorized By:	Bradford C. Blaise
Attorney Docket Number:	090611-0316777
Receipt Date:	24-AUG-2007
Filing Date:	05-AUG-2005
Time Stamp:	10:30:55
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	no

File Listing:

Document Number	Document Description	File Name	File Size(Bytes) /Message Digest	Multi Part /.zip	Pages (if appl.)
1		11-197504_SIDS.pdf	111082 413fd82bf1fa49d3201507b3a70fa19a715d30d2	yes	3

	Multipart Description/PDF files in .zip description				
	Document Description	**Start**	**End**		
	Information Disclosure Statement Letter	1	2		
	Information Disclosure Statement (IDS) Filed	3	3		
Warnings:					
Information:					
2	NPL Documents	LIN.pdf	546736 7b525b8051e16c3498b748dc28ed750b86a766e7	no	4
Warnings:					
Information:					
3	NPL Documents	KUHN.pdf	438455 5f6691c06b6effa1e799954e82c68399baf37a57	no	5
Warnings:					
Information:					
4	NPL Documents	BELVIN.pdf	468673 8dea85bd343f95ae17dcaf87aa3539a5ae761530	no	5
Warnings:					
Information:					
5	NPL Documents	LIND.pdf	729916 76da605b6780bd00fa9a32fa6116f51b85c3bdc6	no	6
Warnings:					
Information:					
6	NPL Documents	ZHAO.pdf	1517578 6b7b78088d676dad302d5074538e20c2c2628774	no	5
Warnings:					
Information:					
		Total Files Size (in bytes):	3812440		

This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.

New Applications Under 35 U.S.C. 111
If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

National Stage of an International Application under 35 U.S.C. 371
If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

New International Application Filed with the USPTO as a Receiving Office
If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

UNITED STATES DEPARTMENT OF COMMERCE
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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
11/197,504	08/05/2005	Philippe Di Cristo	090611-0316777	7092

909 7590 08/24/2007

PILLSBURY WINTHROP SHAW PITTMAN, LLP
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EXAMINER	
ALBERTALLI, BRIAN LOUIS	
ART UNIT	**PAPER NUMBER**
2626	

MAIL DATE	DELIVERY MODE
08/24/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	11/197,504	CRISTO ET AL.	
	Examiner	Art Unit	
	Brian L. Albertalli	2626	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) 1-29 is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) 1-29 is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1-8 and 12-29 are rejected under 35 U.S.C. 102(b) as being anticipated by Coffman et al. (U.S. Patent 7,137,126, published as PCT Pub. No. WO00/20962 on 13 April 2000).

In regard to claim 1, Coffman et al. disclose a system for processing speech and non-speech communications, comprising:

a terminal device that receives the speech and the non-speech communications (Fig. 6, multi-modal input interface, including speech input 600 and non-speech input such as keyboard 601, pointing device 602, and handwriting devices 603, column 27, line 65 to column 28, line 5);

a transcription module that transcribes the speech and the non-speech communications to create a speech-based textual message and a non-speech-based textual message (each speech and non-speech input stream is converted to ASCII text, column 28, lines 30-44 and column 29, lines 1-3);

a merging module that merges the speech-based textual message and the non-speech-based textual message to generate a query (queries input through speech and non-speech inputs are merged, column 28, lines 45-57 and column 29, lines 3-6);

a search module that searches the query for text combinations (Fig. 4, dialog controller 404 checks the query for complete commands, column 30, line 54 to column 31, line 7);

a comparison module that compares the text combinations to entries in a context description grammar (complete queries are compared to a context stack 405 at the level of the natural language processing (NLU, i.e. grammar), column 31, lines 23-30);

a plurality of domain agents that are associated with the context description grammar (Fig. 7, a plurality of backend applications and devices are each associated with a NLU context, column 41, lines 19-40; backend applications include agents, column 32, lines 1-47 and column 42, lines 55-57);

a scoring module that provides relevance scores based on results from the comparison module (queries are compared to the context stack and assigned a likelihood score, column 30, lines 10-35);

a domain agent selector that selects domain agents based on results from the scoring module (task dispatcher 402 directs input streams to the appropriate application or device, column 30, lines 36-50 and column 41, lines 35-40); and

a response generating module that communicates with the selected domain agents to obtain content that is gathered by the selected domain agents and that generates a response from the content, wherein the content is arranged in a selected order based on results from the scoring module (output streams of multiple tasks at multiple applications and devices are prioritized based on the priorities assigned by the task dispatcher 402, column 29, lines 14-23 and lines 34-39).

In regard to claim 2, Coffman et al. disclose the response generating module generates an aggregate response that includes the content gathered by the selected domain agents (output is aggregated according to priorities assigned by task dispatcher 402, column 29, lines 34-39).

In regard to claim 3, Coffman et al. disclose the terminal device includes (i) a personal digital assistant (Fig. 7, PDA 709), (ii) a cellular telephone (phone 711), (iii) a portable computer (laptop 708), (iv) a desktop computer (workstation 708), or any combination of (i) to (iv) (i.e. all devices of Fig. 7, column 41, lines 14-17).

In regard to claim 4, Coffman et al. disclose the terminal device receives follow-up speech and non-speech communications and wherein the transcription module transcribes the follow-up speech and non-speech communications to create a follow-up speech-based textual message and a follow-up non-speech-based textual message (incomplete commands cause a mixed initiative completion or correction process, speech based or non-speech based, column 31, lines 50-67).

In regard to claim 5, Coffman et al. disclose the merging module merges the follow-up speech-based textual message and the follow-up non-speech-based textual message to generate a follow-up query (the mixed initiative completion/correction procedure uses the same input as the original input, column 31, lines 50-67; thus, the

follow up speech and non-speech is merged, column 28, lines 45-57 and column 29, lines 3-6).

In regard to claim 6, Coffman et al. disclose a personality module that facilitates formatting the response (conversational facilities with multiple personalities, column 13, lines 58-67).

In regard to claim 7, Coffman et al. disclose context stack that includes one or more contexts that are selected based on the query (context stack 405, column 30, lines 51-59).

In regard to claim 8, Coffman et al. disclose the scoring module determines the one or more contexts based on at least applying prior probabilities (likelihoods, column 30, lines 10-35) or fuzzy possibilities to (i) keyword matching, (ii) user profiles, (iii) a dialog history, or any combination of (i) to (iii) (the context stack includes a past history of discourses, column 22, lines 20-28).

In regard to claim 12, Coffman et al. disclose the follow-up query is associated with a same context as the query (during completion or correction of the original query, the previous context stack status is restored, column 31, lines 50-67).

In regard to claim 13, Coffman et al. disclose a method of processing speech and non-speech communications, comprising:

receiving the speech and the non-speech communications (Fig. 6, multi-modal input interface, including speech input 600 and non-speech input such as keyboard 601, pointing device 602, and handwriting devices 603, column 27, line 65 to column 28, line 5);

transcribing the speech and the non-speech communications to create a speech-based textual message and a non-speech-based textual message (each speech and non-speech input stream is converted to ASCII text, column 28, lines 30-44 and column 29, lines 1-3);

merging the speech-based textual message and the non-speech-based textual message to generate a query (queries input through speech and non-speech inputs are merged, column 28, lines 45-57 and column 29, lines 3-6);

searching the query for text combinations (Fig. 4, dialog controller 404 checks the query for complete commands, column 30, line 54 to column 31, line 7);

comparing the text combinations to entries in a context description grammar (complete queries are compared to a context stack 405 at the level of the natural language processing (NLU, i.e. grammar), column 31, lines 23-30);

accessing a plurality of domain agents that are associated with the context description grammar (Fig. 7, a plurality of backend applications and devices are each associated with a NLU context, column 41, lines 19-40; backend applications include agents, column 32, lines 1-47 and column 42, lines 55-57);

generating a relevance score based on results from the comparison module (queries are compared to the context stack and assigned a likelihood score, column 30, lines 10-35);

selecting one or more domain agents based on results from the scoring module (task dispatcher 402 directs input streams to the appropriate application or device, column 30, lines 36-50 and column 41, lines 35-40); and

obtaining content that is gathered by the selected domain agents (results returned, column 31, lines 8-13);

generating a response from the content, wherein the content is arranged in a selected order based on results from the scoring module (output streams of multiple tasks at multiple applications and devices are prioritized based on the priorities assigned by the task dispatcher 402, column 29, lines 14-23 and lines 34-39).

In regard to claim 14, Coffman et al. disclose generating an aggregate response that includes the content gathered by the selected domain agents (output is aggregated according to priorities assigned by task dispatcher 402, column 29, lines 34-39).

In regard to claim 15, Coffman et al. disclose receiving follow-up speech and non-speech communications, transcribing the follow-up speech and non-speech communications to create a follow-up speech-based textual message and a follow-up non-speech-based textual message (incomplete commands cause a mixed initiative

completion or correction process, using the same inputs, i.e. speech based and non-speech based, column 31, lines 50-67); and

merging the follow-up speech-based textual message and the follow-up non-speech-based textual message to generate a follow-up query (the mixed initiative completion/correction procedure uses the same input as the original input, column 31, lines 50-67; thus, the follow up speech and non-speech is merged, column 28, lines 45-57 and column 29, lines 3-6).

In regard to claim 16, Coffman et al. disclose a personality module that communicates the response to a user (conversational facilities with multiple personalities, column 13, lines 58-67).

In regard to claim 17, Coffman et al. disclose generating a context stack that includes one or more contexts that are selected based on the query (context stack 405, column 30, lines 51-59).

In regard to claim 18, Coffman et al. disclose the one or more contexts are generated based on at least applying prior probabilities (likelihoods, column 30, lines 10-35) or fuzzy possibilities to (i) keyword matching, (ii) user profiles, (iii) a dialog history, or any combination of (i) to (iii) (the context stack includes a past history of discourses, column 22, lines 20-28).

In regard to claim 19, Coffman et al. disclose a multimodal system for processing speech and non-speech communications, comprising:

a terminal device that receives one or more types of input (Fig. 6, multi-modal input interface, including speech input 600 and non-speech input such as keyboard 601, pointing device 602, and handwriting devices 603, column 27, line 65 to column 28, line 5);

a transcription module that transcribes the one or more types of input into one or more textual messages (each speech and non-speech input stream is converted to ASCII text, column 28, lines 30-44 and column 29, lines 1-3);

a merging module that merges the one or more textual messages to generate a query (queries input through speech and non-speech inputs are merged, column 28, lines 45-57 and column 29, lines 3-6);

a search module that searches the query for text combinations (Fig. 4, dialog controller 404 checks the query for complete commands, column 30, line 54 to column 31, line 7);

a comparison module that compares the text combinations to entries in a context description grammar (complete queries are compared to a context stack 405 at the level of the natural language processing (NLU, i.e. grammar), column 31, lines 23-30);

a plurality of domain agents that are associated with the context description grammar (Fig. 7, a plurality of backend applications and devices are each associated with a NLU context, column 41, lines 19-40; backend applications include agents, column 32, lines 1-47 and column 42, lines 55-57);

a scoring module that provides relevance scores based on results from the comparison module (queries are compared to the context stack and assigned a likelihood score, column 30, lines 10-35);

a domain agent selector that selects domain agents based on results from the scoring module (task dispatcher 402 directs input streams to the appropriate application or device, column 30, lines 36-50 and column 41, lines 35-40); and

a response generating module that communicates with the selected domain agents to obtain content that is gathered by the selected domain agents and that generates a response from the content, wherein the content is arranged in a selected order based on results from the scoring module (output streams of multiple tasks at multiple applications and devices are prioritized based on the priorities assigned by the task dispatcher 402, column 29, lines 14-23 and lines 34-39);

wherein the terminal device delivers the response using one or more types of output (speech, text, etc., column 29, lines 14-23).

In regard to claim 20, Coffman et al. disclose the one or more types of input includes (i) speech, (ii) text, (iii) digital audio files, or any combination of (i) to (iii) (see Fig. 6 and column 27, line 65 to column 28, line 5).

In regard to claim 21, Coffman et al. disclose the one or more types of output includes (i) speech, (ii) text, (iii) digital audio files, or any combination of (i) to (iii) (see Fig. 6 and column 29, lines 14-23).

In regard to claim 22, Coffman et al. disclose the response generating module generates an aggregate response that includes the content gathered by the selected domain agents (output is aggregated according to priorities assigned by task dispatcher 402, column 29, lines 34-39) and wherein the terminal device delivers the aggregated response using one or more types of output (column 29, lines 14-23).

In regard to claim 23, Coffman et al. disclose the terminal device includes (i) a personal digital assistant (Fig. 7, PDA 709), (ii) a cellular telephone (phone 711), (iii) a portable computer (laptop 708), (iv) a desktop computer (workstation 708), or any combination of (i) to (iv) (i.e. all devices of Fig. 7, column 41, lines 14-17).

In regard to claim 24, Coffman et al. disclose the terminal device receives one or more types of follow-up input, wherein the transcription module transcribes the one or more types of follow-up input to create one or more follow-up textual messages, and wherein the one or more types of follow-up input are different from the one or more types of input (incomplete commands cause a mixed initiative completion or correction process, speech based or non-speech based, column 31, lines 50-67).

In regard to claim 25, Coffman et al. disclose the terminal device that receives the one or more types of follow-up input is different from the terminal device that

receives the one or more types of input (see Fig. 6 and column 27, line 65 to column 28, line 5).

In regard to claim 26, Coffman et al. disclose the merging module merges the follow-up speech-based textual message and the follow-up non-speech-based textual message to generate a follow-up query (the mixed initiative completion/correction procedure uses the same input as the original input, column 31, lines 50-67; thus, the follow up speech and non-speech is merged, column 28, lines 45-57 and column 29, lines 3-6).

In regard to claim 27, Coffman et al. disclose a personality module that facilitates formatting the response (conversational facilities with multiple personalities, column 13, lines 58-67).

In regard to claim 28, Coffman et al. disclose context stack that includes one or more contexts that are selected based on the query (context stack 405, column 30, lines 51-59).

In regard to claim 29, Coffman et al. disclose the scoring module determines the one or more contexts based on at least applying prior probabilities (likelihoods, column 30, lines 10-35) or fuzzy possibilities to (i) keyword matching, (ii) user profiles, (iii) a

dialog history, or any combination of (i) to (iii) (the context stack includes a past history of discourses, column 22, lines 20-28).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 9-11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Coffman et al., in view of Kennewick et al. (U.S. Patent Application Publication 2004/0044516).

In regard to claim 9, Coffman et al. are silent as to how the agents function.

Kennewick et al. disclose a system comprising a plurality of domain agents, wherein at least one of the domain agents creates and directs a request to at least one of a local information source and a network information source (queries sent to one or more local or network information sources, page 11, paragraph 164).

It would have been obvious to one of ordinary skill in the art at the time of invention to modify Coffman et al. to cause the domain agents to direct a request to at least one of a local information source and a network information source, because this would allow the domain agent to retrieve information for the user from any available resources.

In regard to claim 10, Coffman et al. are silent as to how the agents function.

Kennewick et al. disclose a system comprising a plurality of domain agents, wherein at least one of the domain agents creates and directs a command to a remote or local device (commands directed to the system or an external entity, page 11, paragraphs 161-162).

It would have been obvious to one of ordinary skill in the art at the time of invention to modify Coffman et al. to cause the domain agents to direct a command to a remote or local device, because this would allow a user to control the device, regardless of the devices location.

In regard to claim 11, Coffman et al. are silent as to how the agents function.

Kennewick et al. disclose a system comprising a plurality of domain agents, wherein at least one of the domain agents evaluates multiple queries from multiple sources (results of one or more queries from the one or more information resources, page 11, paragraph 166).

It would have been obvious to one of ordinary skill in the art at the time of invention to modify Coffman et al. to cause the domain agents to evaluate multiple queries from multiple resources, because this would allow the domain agent to find the best result for the user.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Lewin (U.S. Patent 6,556,973) discloses a method of merging text and speech into words. Thrift et al. (U.S. Patent 7,020,609) disclose a speech user agent for accessing information. Pazandak et al. (U.S. Patent 7,027,975) disclose a system for natural language commands on a thin client. Elad et al. (U.S. Patent 7,092,928) disclose a multimodal portal engine. Fukui et al. (U.S. Patent 5,918,222) disclose a multimodal information retrieval system. Korall et al. (U.S. Patent 6,996,531) disclose a multimodal interface for accessing a database.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Brian L. Albertalli whose telephone number is (571) 272-7616. The examiner can normally be reached on Mon - Fri, 8:00 AM - 5:30 PM, every second Fri off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Hudspeth can be reached on (571) 272-7843. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

BLA 8/17/07

DAVID HUDSPETH
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2600

OIPE IAP38 DEC 23 2005 PATENT & TRADEMARK OFFICE

INFORMATION DISCLOSURE CITATION IN AN APPLICATION

Form PTO-1449

Docket Number	Application Number
090611-0316777	11/197,504
Applicant(s)	
Philippe DI CRISTO *et al.*	
Filing Date	Group Art Unit
August 5, 2005	2654

U.S. PATENT DOCUMENTS

*EXAMINER INITIAL	REF	DOCUMENT NO.	DATE	NAME	CLASS	SUBCLASS	FILING DATE IF APPROPRIATE
	1A	5,155,743	10/13/1992	Jacobs	375	28	
	1B	5,386,556	01/31/1995	Hedin et al.	395	600	
	1C	5,424,947	06/13/1995	Nagao et al.	364	419.08	
	1D	5,471,318	11/28/1995	Ahuja et al.	358	400	
	1E	5,475,733	12/12/1995	Eisdorfer et al.	379	52	
	1F	5,499,289	03/12/1996	Bruno et al.	379	220	
	1G	5,517,560	05/14/1996	Greenspan	379	114	
	1H	5,533,108	07/02/1996	Harris et al.	379	201	
	1I	5,537,436	07/16/1996	Bottoms et al.	375	222	
	1J	5,539,744	07/23/1996	Chu et al.	370	60	
	1K	5,557,667	09/17/1996	Bruno et al.	379	201	
	1L	5,563,937	10/08/1996	Bruno et al.	379	201	
	1M	5,590,039	12/31/1996	Ikeda et al.	395	759	
	1N	5,633,922	05/27/1997	August et al.	379	220	
	1O	5,675,629	10/07/1997	Raffel et al.	379	58	
	1P	5,708,422	01/13/1998	Blonder et al.	340	825.34	
	1Q	5,721,938	02/24/1998	Stuckey	395	754	
	1R	5,722,084	02/24/1998	Chakrin et al.	455	551	
	1S	5,742,763	04/21/1998	Jones	395	200.3	
	1T	5,752,052	05/12/1998	Richardson et al.	395	759	
	1U	5,754,784	05/19/1998	Garland et al.	395	200.49	
	1V	5,761,631	06/02/1998	Nasukawa	704	9	
	1W	5,794,050	08/11/1998	Dahlgren et al.	395	708	

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	REF	DOCUMENT NO.	DATE	COUNTRY	CLASS	SUBCLASS	Translations YES	Translations NO
	1X	WO 01/78065	10/18/2001	International				

OTHER DOCUMENTS *(Including Author, Title, Date, Pertinent Pages, Etc.)*

	1Y	REUTERS, "IBM to Enable Honda Drivers to Talk to Cars", Charles Schwab & Co., Inc., July 28, 2002, 1 page.

EXAMINER: DATE CONSIDERED 8/17/07

EXAMINER: Initial if citation considered, whether or not citation is in conformance with MPEP Section 609; Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to Applicant.

INFORMATION DISCLOSURE CITATION IN AN APPLICATION	Docket Number	Application Number
	090611-0316777	11/197,504
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	Philippe DI CRISTO *et al.*	
	Filing Date	Group Art Unit
Form PTO-1449	August 5, 2005	2654

U.S. PATENT DOCUMENTS

*EXAMINER INITIAL	REF	DOCUMENT NO.	DATE	NAME	CLASS	SUBCLASS	FILING DATE IF APPROPRIATE
	2A	5,802,510	09/01/1998	Jones	707	2	
	2B	5,832,221	11/03/1998	Jones	375	200.36	
	2C	5,878,386	03/02/1999	Coughlin	704	10	
	2D	5,895,466	04/20/1999	Goldberg et al.	707	5	
	2E	5,911,120	06/08/1999	Jarett et al.	455	417	
	2F	5,926,784	07/20/1999	Richardson et al.	704	9	
	2G	5,933,822	08/03/1999	Braden-Harder et al.	707	5	
	2H	5,953,393	09/14/1999	Culbreth et al.	379	88.25	
	2I	5,963,894	10/05/1999	Richardson et al.	704	9	
	2J	5,963,940	10/05/1999	Liddy et al.	707	5	
	2K	5,987,404	11/16/1999	Della Pietra et al.	704	9	
	2L	5,991,721	11/23/1999	Asano et al.	704	257	
	2M	5,995,119	11/30/1999	Cosatto et al.	345	473	
	2N	6,009,382	12/28/1999	Martino et al.	704	1	
	2O	6,014,559	01/11/2000	Amin	455	413	
	2P	6,021,384	02/01/2000	Gorin et al.	704	1	
	2Q	6,044,347	03/28/2000	Abella et al.	704	272	
	2R	6,049,602	04/11/2000	Foladare et al.	379	265	
	2S	6,058,187	05/02/2000	Chen	380	21	
	2T	6,078,886	06/20/2000	Dragosh et al.	704	270	
	2U	6,081,774	06/27/2000	De Hita et al.	704	9	
	2V	6,101,241	08/08/2000	Boyce et al.	379	88.01	
	2W	6,119,087	09/12/2000	Kuhn et al.	704	270	

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	REF	DOCUMENT NO.	DATE	COUNTRY	CLASS	SUBCLASS	Translations YES	Translations NO

OTHER DOCUMENTS *(Including Author, Title, Date, Pertinent Pages, Etc.)*

EXAMINER	DATE CONSIDERED
	8/17/07

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INFORMATION DISCLOSURE CITATION IN AN APPLICATION	Docket Number	Application Number
	090611-0316777	11/197,504
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Form PTO-1449	August 5, 2005	2654

U.S. PATENT DOCUMENTS

*EXAMINER INITIAL	REF	DOCUMENT NO.	DATE	NAME	CLASS	SUBCLASS	FILING DATE IF APPROPRIATE
	3A	6,134,235	10/17/2000	Goldman et al.	370	352	
	3B	6,144,667	11/07/2000	Doshi et al.	370	401	
	3C	6,160,883	12/12/2000	Jackson et al.	379	230	
	3D	6,173,279	01/09/2001	Levin et al.	707	5	
	3E	6,175,858	01/16/2001	Bulfer et al.	709	206	
	3F	6,192,110	02/20/2001	Abella et al.	379	88.01	
	3G	6,192,338	02/20/2001	Haszto et al.	704	257	
	3H	6,219,346	04/17/2001	Maxemchuk	370	338	
	3I	6,219,643	04/17/2001	Cohen et al.	704	257	
	3J	6,233,556	05/15/2001	Teunen et al.	704	250	
	3K	6,246,981	06/12/2001	Papineni et al.	704	235	
	3L	6,272,455	08/07/2001	Hoshen et al.	704	1	
	3M	6,292,767	09/18/2001	Jackson et al.	704	1	
	3N	6,314,402	11/06/2001	Monaco et al.	704	275	
	3O	6,366,886	04/02/2002	Dragosh et al.	704	270.1	
	3P	6,385,646	05/07/2002	Brown et al.	709	217	
	3Q	6,393,428	05/21/2002	Miller et al.	707	102	
	3R	6,404,878	06/11/2002	Jackson et al.	379	221.01	
	3S	6,411,810	06/25/2002	Maxemchuk	455	453	
	3T	6,418,210	07/09/2002	Sayko	379	142.15	
	3U	6,430,285	08/06/2002	Bauer et al.	379	265.01	
	3V	6,434,523	08/13/2002	Monaco	704	257	
	3W	6,434,524	08/13/2002	Weber	704	257	

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OTHER DOCUMENTS *(Including Author, Title, Date, Pertinent Pages, Etc.)*

EXAMINER: DATE CONSIDERED 8/17/07

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INFORMATION DISCLOSURE CITATION IN AN APPLICATION	Docket Number	Application Number
	090611-0316777	11/197,504
	Applicant(s)	
	Philippe DI CRISTO *et al.*	
	Filing Date	Group Art Unit
Form PTO-1449	August 5, 2005	2654

U.S. PATENT DOCUMENTS

*EXAMINER INITIAL	REF	DOCUMENT NO.	DATE	NAME	CLASS	SUBCLASS	FILING DATE IF APPROPRIATE
	4A	6,442,522	08/27/2002	Carberry et al.	704	257	
	4B	6,446,114	09/03/2002	Bulfer et al.	709	206	
	4C	6,453,153	09/17/2002	Bowker et al.	455	67.4	
	4D	6,453,292	09/17/2002	Ramaswamy et al.	704	235	
	4E	6,456,711	09/24/2002	Cheung et al.	379	265.09	
	4F	6,498,797	12/24/2002	Anerousis et al.	370	522	
	4G	6,499,013	12/24/2002	Weber	704	257	
	4H	6,501,834	12/31/2002	Milewski et al.	379	93.24	
	4I	6,523,061	02/18/2003	Halverson et al.	709	202	
	4J	6,532,444	03/11/2003	Weber	704	257	
	4K	6,539,348	03/25/2003	Bond et al.	704	9	
	4L	6,553,372	04/22/2003	Brassell et al.	707	5	
	4M	6,560,576	05/06/2003	Cohen et al.	704	270	
	4N	6,567,778	05/20/2003	Chao Chang et al.	704	257	
	4O	6,570,964	05/27/2003	Murveit et al.	379	67.1	
	4P	6,574,624	06/03/2003	Johnson et al.	707	5	
	4Q	6,594,257	07/15/2003	Doshi et al.	370	352	
	4R	6,604,077	08/05/2003	Dragosh et al.	704	270.1	
	4S	6,611,692	08/26/2003	Raffel et al.	455	552	
	4T	6,614,773	09/02/2003	Maxemchuk	370	337	
	4U	6,629,066	09/30/2003	Jackson et al.	704	9	
	4V	6,650,747	11/18/2003	Bala et al.	379	265.06	
	4W	6,691,151	02/10/2004	Cheyer et al.	709	202	
	4X	2005/0021826	01/27/2005	Kumar	709	232	

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	REF	DOCUMENT NO.	DATE	COUNTRY	CLASS	SUBCLASS	Translations YES	Translations NO

OTHER DOCUMENTS *(Including Author, Title, Date, Pertinent Pages, Etc.)*

EXAMINER: DATE CONSIDERED 8/17/07

EXAMINER: Initial if citation considered, whether or not citation is in conformance with MPEP Section 609; Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to Applicant.

Notice of References Cited	Application/Control No. 11/197,504	Applicant(s)/Patent Under Reexamination CRISTO ET AL.	
	Examiner Brian L. Albertalli	Art Unit 2626	Page 1 of 1

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*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Name	Classification
*	A	US-7,137,126	11-2006	Coffman et al.	719/328
*	B	US-2004/0044516	03-2004	Kennewick et al.	704/005
*	C	US-6,556,973	04-2003	Lewin, Erland	704/277
*	D	US-7,020,609	03-2006	Thrift et al.	704/270.1
*	E	US-7,027,975	04-2006	Pazandak et al.	704/9
*	F	US-7,092,928	08-2006	Elad et al.	706/60
*	G	US-5,918,222	06-1999	Fukui et al.	707/1
*	H	US-6,996,531	02-2006	Korall et al.	704/270
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FOREIGN PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Country	Name	Classification
	N					
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NON-PATENT DOCUMENTS

*		Include as applicable: Author, Title Date, Publisher, Edition or Volume, Pertinent Pages)
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*A copy of this reference is not being furnished with this Office action. (See MPEP § 707.05(a).)
Dates in MM-YYYY format are publication dates. Classifications may be US or foreign.

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BIB DATA SHEET

CONFIRMATION NO. 7092

SERIAL NUMBER	FILING or 371(c) DATE RULE	CLASS	GROUP ART UNIT	ATTORNEY DOCKET NO.
11/197,504	08/05/2005	704	2626	090611-0316777

APPLICANTS

Philippe Di Cristo, Bellevue, WA;
Min Ke, Bothell, WA;
Robert A. Kennewick, Seattle, WA;
Lynn Elise Armstrong, Woodinville, WA;

**** CONTINUING DATA ***************************

**** FOREIGN APPLICATIONS ***************************

**** IF REQUIRED, FOREIGN FILING LICENSE GRANTED ** ** SMALL ENTITY ****
08/26/2005

Foreign Priority claimed ☐ Yes ☒ No 35 USC 119(a-d) conditions met ☐ Yes ☒ No Verified and Acknowledged Examiner's Signature	☐ Met after Allowance Initials	STATE OR COUNTRY	SHEETS DRAWINGS	TOTAL CLAIMS	INDEPENDENT CLAIMS
		WA	8	29	3

ADDRESS

PILLSBURY WINTHROP SHAW PITTMAN, LLP
Eric S. Cherry - Docketing Supervisor
P.O. BOX 10500
MCLEAN, VA 22102
UNITED STATES

TITLE

Systems and methods for responding to natural language speech utterance

FILING FEE RECEIVED	FEES: Authority has been given in Paper	☐ All Fees
725	No._____ to charge/credit DEPOSIT ACCOUNT	☐ 1.16 Fees (Filing)
	No._____ for following:	☐ 1.17 Fees (Processing Ext. of time)
		☐ 1.18 Fees (Issue)
		☐ Other _____
		☐ Credit

Index of Claims

Application/Control No.	Applicant(s)/Patent under Reexamination
11/197,504	CRISTO ET AL.
Examiner	**Art Unit**
Brian L. Albertalli	2626

√	Rejected	–	(Through numeral) Cancelled	N	Non-Elected	A	Appeal
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Claim		Date								
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Search Notes	Application/Control No.	Applicant(s)/Patent under Reexamination
	11/197,504	CRISTO ET AL.
	Examiner	Art Unit
	Brian L. Albertalli	2626

SEARCHED			
Class	Subclass	Date	Examiner

INTERFERENCE SEARCHED			
Class	Subclass	Date	Examiner

SEARCH NOTES (INCLUDING SEARCH STRATEGY)		
	DATE	EXMR
EAST Search (US-PGPUB, USPAT, USOCR, EPO, JPO, DERWENT, IBM_TDB) - See Search History Printout	8/17/2007	BA

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICANTS :	Philippe DI CRISTO et al.	CONFIRMATION NO.:	7092
SERIAL NUMBER :	11/197,504	EXAMINER:	Brian Louis Albertalli
FILING DATE :	August 5, 2005	ART UNIT:	2626
FOR :	SYSTEMS AND METHODS FOR RESPONDING TO NATURAL LANGUAGE SPEECH UTTERANCE		

RESPONSE TO NON-FINAL OFFICE ACTION

Mail Stop Amendment
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Dear Sir:

In response to the Non-Final Office Action mailed **August 24, 2007**, please amend the above-identified application as follows:

Amendments to the Claims begin on page **2** of this paper.

Remarks/Arguments begin on page **9** of this paper.

It is not believed that extensions of time or fees for net addition of claims are required beyond those that may otherwise be provided for in documents accompanying this paper. However, if additional extensions of time are necessary to prevent abandonment of this application, then such extensions of time are hereby petitioned for under 37 C.F.R. § 1.136(a), and any fees required therefore (including fees for net addition of claims) are hereby authorized to be charged to our Deposit Account No. 033975 (**Ref. No. 090611-0316777**).

AMENDMENT

Please replace all prior versions and listings of claims with the following listing of claims.

LISTING OF CLAIMS:

1-29. **(Cancelled)**

30. **(New)** A system for processing multi-modal natural language inputs, comprising:

a multi-modal voice user interface that receives a multi-modal input, the multi-modal input including a natural language utterance and a non-speech input, wherein a transcription module coupled to the multi-modal voice user interface transcribes the non-speech input to create a non-speech-based transcription;

a multi-pass speech recognition engine that transcribes the natural language utterance, wherein the multi-pass speech recognition engine includes a primary speech recognition engine for performing a primary transcription of the utterance and at least one secondary speech recognition engine for performing a secondary transcription of the utterance, the multi-pass speech recognition engine operable to create a speech-based transcription based on respective confidence levels for the primary transcription and the secondary transcription of the utterance;

a merging module that merges the speech-based transcription and the non-speech-based transcription to create a merged transcription;

a plurality of domain agents, wherein a context description grammar describes expected formats that the plurality of domain agents use to process requests in respective contextual domains;

a knowledge-enhanced speech recognition engine that determines a most likely context for the multi-modal input, the knowledge-enhanced speech recognition engine operable to:

search a context stack to identify any entries that completely or partially match one or more text combinations contained in the merged transcription;

score each of the entries identified in the context stack as completely or partially matching the text combinations contained in the merged transcription, the matching entries scored according to respective rankings in the context stack;

weigh the scored entries by comparing the text combinations contained in the merged transcription to entries in the context description grammar; and

select the entry in the context stack having a highest weighted score as being the most likely context for the multi-modal input; and

a response generating module that identifies one or more of the plurality of domain agents, the identified domain agents associated with the most likely context for the multi-modal input, the response generating module operable to:

communicate a request to the identified domain agents, the request formulated in the expected format that the identified domain agents use to process requests in respective contexts; and

generate a response to the multi-modal input using content gathered as a result of the identified domain agents processing the request.

31. (**New**) The system of claim 30, wherein the domain agents identified by the response generating module include a plurality of the domain agents, and wherein the response generated by the response generating module includes an aggregation of content gathered as a result of the plurality of identified domain agents processing the request.

32. (**New**) The system of claim 30, wherein the multi-modal user interface subsequently receives one or more follow-up multi-modal inputs, the follow-up multi-modal inputs including at least one of a follow-up natural language utterance or a follow-up non-speech input.

33. (**New**) The system of claim 32, wherein the identified domain agents update the context stack in response to successfully processing the request, and wherein the knowledge-enhanced speech recognition engine determines a most likely context for the follow-up multi-modal input using the updated context stack.

34. (**New**) The system of claim 30, wherein the expected formats described by the context description grammar include relationships between criteria associated with the request.

35. (**New**) The system of claim 34, wherein the expected formats described by the context description grammar further include sequence orders for the criteria associated with the request.

36. (**New**) The system of claim 34, wherein the identified domain agents push the criteria associated with the request onto the context stack in response to successfully processing the request.

37. (**New**) A method for interpreting natural language utterances using multi-pass automatic speech recognition, comprising:

transcribing a natural language utterance using a primary speech recognition engine, wherein the primary speech recognition engine includes a dictation grammar for performing a primary transcription of the utterance;

requesting a secondary transcription of the utterance from one or more secondary speech recognition engines, wherein at least one of the secondary speech recognition engines includes a virtual dictation grammar for performing the secondary transcription of the utterance; and

creating a merged transcription of the utterance based on respective confidence levels for the primary transcription and the secondary transcription of the utterance.

38. (**New**) The method of claim 37, wherein the dictation grammar includes an unconstrained large vocabulary of words.

39. (**New**) The method of claim 38, wherein the virtual dictation grammar includes a constrained vocabulary of words and a plurality of decoy words for out-of-vocabulary words.

40. (**New**) The method of claim 39, further comprising dynamically generating the constrained vocabulary of words based on one or more previously successful transcriptions.

41. (**New**) The method of claim 39, wherein the decoy words include utility words, nonsense words, isolated syllables, and isolated distinct sounds associated with a particular spoken language.

42. (**New**) The method of claim 37, wherein the requested secondary transcription includes complete transcription of the utterance by one or more of the secondary speech recognition engines.

43. (**New**) The method of claim 37, wherein the requested secondary transcription includes partial transcription of the utterance by one or more of the secondary speech recognition engines.

44. (**New**) The method of claim 37, further comprising determining when at least a portion of the primary transcription does not match an acoustic model for a default spoken language, wherein the requested secondary transcription includes transcription by one or more of the secondary speech recognition engines that include an acoustic model for an alternate spoken language.

45. (**New**) A method for interpreting natural language utterances using knowledge-enhanced speech recognition, wherein the knowledge-enhanced speech recognition can be used to determine an intent and correct false recognitions of the natural language utterances, comprising:

receiving a transcription of a natural language utterance;

searching a context stack to identify any entries that completely or partially match one or more text combinations contained in the transcription;

scoring each of the entries identified in the context stack as completely or partially matching the text combinations contained in the transcription, the entries scored according to respective rankings in the context stack;

weighing the scored entries to determine a most likely context for the utterance, wherein weighing the scored entries includes comparing the text combinations contained in the transcription to entries in a context description grammar; and

communicating a request to a domain agent associated with the most likely context for the utterance, the request formulated in accordance with an expected format for the request, wherein the context description grammar describes the expected format for the request.

46. (**New**) A method for processing natural language utterances, comprising:

transcribing a natural language utterance using a primary speech recognition engine, wherein the primary speech recognition engine performs a primary transcription of the utterance;

requesting a secondary transcription of the utterance from one or more secondary speech recognition engines;

creating a merged transcription of the utterance based on respective confidence levels for the primary transcription and the secondary transcription of the utterance;

searching a context stack to identify any entries that completely or partially match the merged transcription;

scoring each of the entries identified in the context stack as completely or partially matching the merged transcription, the entries scored according to respective rankings in the context stack;

weighing the scored entries to determine a most likely context for the utterance, wherein weighing the scored entries includes comparing the merged transcription and the scored entries to a context description grammar; and

communicating a request to a domain agent associated with the most likely context for the utterance, the request formulated in accordance with an expected format for the request, wherein the context description grammar describes the expected format for the request.

47. (**New**) A system for interpreting natural language utterances, comprising:

a voice user interface that receives a natural language utterance; and

a multi-pass speech recognition engine that transcribes the natural language utterance, wherein the multi-pass speech recognition engine includes:

a primary speech recognition engine having a dictation grammar for performing a primary transcription of the utterance; and

one or more secondary speech recognition engines for performing a secondary transcription of the utterance, at least one of the secondary speech recognition engines having a virtual dictation grammar for performing the secondary transcription of the utterance, wherein the multi-pass speech recognition engine creates a speech-based transcription based on respective confidence levels for the primary transcription and the secondary transcription of the utterance.

48. (**New**) A system for interpreting natural language utterances, comprising:

a voice user interface that receives a natural language utterance;

a multi-pass speech recognition engine that creates a transcription of the natural language utterance; and

a knowledge-enhanced speech recognition engine that determines a most likely context for the natural language utterance, the knowledge-enhanced speech recognition engine operable to:

receive the transcription of the natural language utterance;

search a context stack to identify any entries that completely or partially match one or more text combinations contained in the transcription;

score each of the entries identified in the context stack as completely or partially matching the text combinations contained in the transcription, the entries scored according to respective rankings in the context stack;

weigh the scored entries to determine the most likely context for the utterance, wherein weighing the scored entries includes comparing the text combinations contained in the transcription to entries in a context description grammar; and

communicate a request to a domain agent associated with the most likely context for the utterance, the request formulated in accordance with an expected format for the request, wherein the context description grammar describes the expected format for the request.

REMARKS

Upon entry of the foregoing Amendment, claims 30-48 are pending in the application. Claims 1-29 are cancelled, and claims 30-48 are newly added. Applicants believe that this Amendment does not add new matter. In view of the foregoing Amendment and following Remarks, allowance of all the pending claims is requested.

REJECTION UNDER 35 U.S.C. § 102

The Examiner previously rejected claims 1-8 and 12-29 under 35 U.S.C. § 102(b) as allegedly being anticipated by U.S. Patent No. 7,137,126 to Coffman et al. ("Coffman"). Applicants note that claims 1-8 and 12-29 have been cancelled by the foregoing Amendment. Additionally, Applicants also submit that Coffman does not disclose each and every feature of the claimed invention.

More particularly, Coffman does not disclose at least the feature of "a multi-pass speech recognition engine that transcribes the natural language utterance, wherein the multi-pass speech recognition engine includes a primary speech recognition engine for performing a primary transcription of the utterance and at least one secondary speech recognition engine for performing a secondary transcription of the utterance, the multi-pass speech recognition engine operable to create a speech-based transcription based on respective confidence levels for the primary transcription and the secondary transcription of the utterance," as recited in claim 30, for example.

Instead, Coffman relates to a system for natural language understanding, in which "the design of the underlying operating system and computing functions" are fundamentally modified (col. 2, lines 59-65). To that end, Coffman generally describes speech recognition engines as being external "shrink wrap retail products," which can only be accessed in the system through an application program interface (e.g., col. 3, lines 57-67). Although Coffman indicates that external speech recognition engines can be invoked through "an interface between core engines and conversational engines" (col. 14, lines 42-47), Coffman does not

disclose that external speech recognition engines transcribe an utterance using the features expressly recited in the claimed invention.

For example, Coffman only generally provides that "the input problem is treated as a merge of the output of multiple decoders," whereby an "input stream is converted into its ASCII transcription and aligned with input time-marks via speech recognition processing" (col. 28, lines 39-44). In this context, Coffman discusses how speech recognition engines can convert "each input . . . into a binary or ASCII input, which can be directly processed . . . as built-in objects" (col. 14, lines 7-12). In other words, Coffman offloads speech recognition to external engines (i.e., via an application program interface call), which then return binary or ASCII transcriptions that can be processed further. However, Coffman does not disclose the specific techniques that the speech recognition engines use to transcribe utterances. Instead, Coffman expressly states that "all conversational subsystem calls are hidden from the application," wherein the engine application program interfaces provide the sole mechanism for "the developer . . . to implement a specific behavior of the engines" (col. 21, lines 58-64).

Accordingly, Coffman does not disclose at least the feature of "a multi-pass speech recognition engine that transcribes the natural language utterance, wherein the multi-pass speech recognition engine includes a primary speech recognition engine for performing a primary transcription of the utterance and at least one secondary speech recognition engine for performing a secondary transcription of the utterance, the multi-pass speech recognition engine operable to create a speech-based transcription based on respective confidence levels for the primary transcription and the secondary transcription of the utterance," as recited in claim 30, for example.

Furthermore, Coffman also does not disclose at least the feature of "a knowledge-enhanced speech recognition engine that determines a most likely context for the multi-modal input" by "search[ing] a context stack to identify any entries that completely or partially match one or more text combinations contained in the merged transcription," as recited in claim 30, for example.

Rather, Coffman describes a "dialog controller," which "manages the context stack . . . by creating a new stack entry . . . for each new task/process/thread that is spawned" (col. 22,

lines 47-52). In particular, "for any new input from a user, the dialog controller . . . may traverse the context stack . . . until the input context can be appropriately established (col. 22, lines 61-64). As such, Coffman clearly restricts the traversal of the context stack such that a search stops as soon as one appropriate entry can be identified. For example, Coffman clarifies that "[a]s soon as a context is found that fits the utterance at the level of the [natural language understanding] symbolic language, the context becomes active and the corresponding process becomes active. Until the active command is completed, or until a new command is provided, the selected context is marked active, and pushed to the top of the context stack" (col. 31, lines 27-33).

Accordingly, Coffman does not disclose at least the feature of "a knowledge-enhanced speech recognition engine that determines a most likely context for the multi-modal input" by "search[ing] a context stack for any entries that completely or partially match one or more text combinations contained in the merged transcription," as recited in claim 30, for example.

Claims 37 and 45-48 each include at least one feature similar to those discussed above in reference to claim 30. Claims 31-36 and 38-44 depend from and add features to one of claims 30 and 37. Thus, Coffman does not disclose each and every feature of these claims for at least the same reasons as discussed above in reference to claim 30.

REJECTION UNDER 35 U.S.C. § 103

The Examiner has rejected claims 9-11 under 35 U.S.C. § 103 as allegedly being unpatentable over Coffman in view of U.S. Patent Application Pub. No. 2004/0044516 to Kennewick et al. ("Kennewick"). Applicants note that claims 9-11 have been cancelled by the foregoing Amendment. Additionally, Applicants also submit that Coffman and Kennewick, either alone or in combination, do not disclose, teach, or suggest each and every feature of the claimed invention.

More particularly, for at least the reasons given above, Coffman does not disclose, teach, or suggest at least the feature of "a multi-pass speech recognition engine that transcribes the natural language utterance, wherein the multi-pass speech recognition engine includes a primary speech recognition engine for performing a primary transcription of the

utterance and at least one secondary speech recognition engine for performing a secondary transcription of the utterance, the multi-pass speech recognition engine operable to create a speech-based transcription based on respective confidence levels for the primary transcription and the secondary transcription of the utterance," as recited in claim 30, for example.

Furthermore, for at least the reasons given above, Coffman also does not disclose, teach, or suggest at least the feature of "a knowledge-enhanced speech recognition engine that determines a most likely context for the multi-modal input" by "search[ing] a context stack for any entries that completely or partially match one or more text combinations contained in the merged transcription," as recited in claim 30, for example.

Kennewick fails to cure the deficiencies of Coffman discussed above. For at least this reason, Coffman and Kennewick, either alone or in combination, do not disclose, teach, or suggest each and every feature of claim 30.

Claims 37 and 45-48 each include at least one feature similar to those discussed above in reference to claim 30. Claims 31-36 and 38-44 depend from and add features to one of claims 30 and 37. Thus, Coffman and Kennewick, either alone or in combination, do not disclose, teach, or suggest each and every feature of the claimed invention.

CONCLUSION

Having addressed each of the foregoing rejections, it is respectfully submitted that a full and complete response has been made to the outstanding Office Action and, as such, the application is in condition for allowance. Notice to that effect is respectfully requested.

If the Examiner believes, for any reason, that personal communication will expedite prosecution of this application, the Examiner is invited to telephone the undersigned at the number provided.

Date: **November 26, 2007**

Respectfully submitted,

By: _____

Syed Jafar Ali
Registration No. 58,780

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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICANTS :	Philippe DI CRISTO *et al.*	CONFIRMATION NO.:	7092
SERIAL NUMBER :	11/197,504	EXAMINER:	Brian Louis Albertalli
FILING DATE :	August 5, 2005	ART UNIT:	2626
FOR :	SYSTEMS AND METHODS FOR RESPONDING TO NATURAL LANGUAGE SPEECH UTTERANCE		

SUPPLEMENTAL INFORMATION DISCLOSURE STATEMENT

Commissioner for Patents
P. O. Box 1450
Alexandria, VA 22313-1450

Sir:

Pursuant to the duty of disclosure under 37 C.F.R. §§ 1.56, 1.97 and 1.98, Applicants hereby make of record in the above-identified application the documents listed on the attached Form PTO-1449.

Applicants reserve the right to establish the patentability of the claimed invention over any of the information provided herewith, and/or to prove that this information may not be prior art, and/or to prove that this information may not be enabling for the teachings purportedly offered.

This Supplemental Information Disclosure Statement is being filed more than three months after the filing date of a national application other than a continued prosecution application under 37 C.F.R. §1.53(d), or more than three months after the date of entry of the national stage as set forth in 37 C.F.R. §1.491 in an international application, and after the

mailing date of the first Office Action on the merits, but before the mailing date of any of a Final Action under 37 C.F.R. §1.113, a Notice of Allowance under 37 C.F.R. §1.311, or an action that otherwise closes prosecution in the application. 37 C.F.R. §1.97(c).

I hereby certify that each item of information contained in this Supplemental Information Disclosure Statement was first cited in any communication from a foreign patent office in a counterpart foreign application not more than three months prior to the filing of this Supplemental Information Disclosure Statement. 37 C.F.R. §1.97(e)(1).

These documents were cited in a search report by a foreign patent office in a counterpart foreign application. Submission of an English language version of the search report that indicates the degree of relevance found by the foreign office is provided.

It is respectfully requested that the Examiner initial and return a copy of the enclosed PTO-1449.

Respectfully submitted,

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Dated: November 26, 2007

INFORMATION DISCLOSURE CITATION IN AN APPLICATION	Docket Number	Application Number
	090611-0316777	11/197,504
	Applicant(s)	
	Philippe DI CRISTO *et al.*	
	Filing Date	Group Art Unit
Form PTO-1449	August 5, 2005	2626

U.S. PATENT DOCUMENTS

*EXAMINER INITIAL	REF	DOCUMENT NO.	DATE	NAME	CLASS	SUBCLASS	FILING DATE IF APPROPRIATE
	A	5,799,276	08/25/1998	Komissarchik *et al.*	704	251	
	B	6,501,833	12/31/2002	Phillips *et al.*	379	88.07	

FOREIGN PATENT DOCUMENTS

	REF	DOCUMENT NO.	DATE	COUNTRY	CLASS	SUBCLASS	Translations YES	Translations NO

OTHER DOCUMENTS *(Including Author, Title, Date, Pertinent Pages, Etc.)*

EXAMINER	DATE CONSIDERED

EXAMINER: Initial if citation considered, whether or not citation is in conformance with MPEP Section 609; Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to Applicant.

400677574v1

Electronic Patent Application Fee Transmittal

Application Number:	11197504
Filing Date:	05-Aug-2005
Title of Invention:	Systems and methods for responding to natural language speech utterance
First Named Inventor/Applicant Name:	Philippe Di Cristo
Filer:	Syed Jafar Ali/Kathy Oliver
Attorney Docket Number:	090611-0316777

Filed as Small Entity

Utility Filing Fees

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Basic Filing:				
Pages:				
Claims:				
Independent claims in excess of 3	2201	3	105	315
Miscellaneous-Filing:				
Petition:				
Patent-Appeals-and-Interference:				
Post-Allowance-and-Post-Issuance:				
Extension-of-Time:				

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Miscellaneous:				
			Total in USD ($)	**315**

Electronic Acknowledgement Receipt

EFS ID:	2507969
Application Number:	11197504
International Application Number:	
Confirmation Number:	7092
Title of Invention:	Systems and methods for responding to natural language speech utterance
First Named Inventor/Applicant Name:	Philippe Di Cristo
Customer Number:	909
Filer:	Syed Jafar Ali/Kathy Oliver
Filer Authorized By:	Syed Jafar Ali
Attorney Docket Number:	090611-0316777
Receipt Date:	26-NOV-2007
Filing Date:	05-AUG-2005
Time Stamp:	16:30:56
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	Deposit Account
Payment was successfully received in RAM	$315
RAM confirmation Number	1501
Deposit Account	033975
Authorized User	

File Listing:

Document Number	Document Description	File Name	File Size(Bytes) /Message Digest	Multi Part /.zip	Pages (if appl.)

1		0316777Rsp.pdf	480115 eb42d9ab74625fe7fa11e445218602 4f6f451e54	yes	13

Multipart Description/PDF files in .zip description		
Document Description	**Start**	**End**
Amendment - After Non-Final Rejection	1	1
Claims	2	8
Applicant Arguments/Remarks Made in an Amendment	9	13

Warnings:					
Information:					
2		0316777SIDS.pdf	172917 08de907816eef27e4535810243efdfb0e2d3e011	yes	5

Multipart Description/PDF files in .zip description		
Document Description	**Start**	**End**
Information Disclosure Statement Letter	1	4
Information Disclosure Statement (IDS) Filed	5	5

Warnings:					
Information:					
3	Fee Worksheet (PTO-06)	fee-info.pdf	8197 4fb425362bd40c7b4d283df584d47da59faaf4b5	no	2
Warnings:					
Information:					
		Total Files Size (in bytes):	661229		

This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.

New Applications Under 35 U.S.C. 111

If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

National Stage of an International Application under 35 U.S.C. 371

If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

New International Application Filed with the USPTO as a Receiving Office

If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

PTO/SB/06 (07-06)
Approved for use through 1/31/2007. OMB 0651-0032
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

PATENT APPLICATION FEE DETERMINATION RECORD

Substitute for Form PTO-875

Application or Docket Number	Filing Date	☐ To be Mailed
11/197,504	08/05/2005	

APPLICATION AS FILED – PART I

FOR	(Column 1) NUMBER FILED	(Column 2) NUMBER EXTRA	SMALL ENTITY ☒ RATE ($)	SMALL ENTITY ☒ FEE ($)	OR	OTHER THAN SMALL ENTITY RATE ($)	OTHER THAN SMALL ENTITY FEE ($)
☐ BASIC FEE (37 CFR 1.16(a), (b), or (c))	N/A	N/A	N/A			N/A	
☐ SEARCH FEE (37 CFR 1.16(k), (i), or (m))	N/A	N/A	N/A			N/A	
☐ EXAMINATION FEE (37 CFR 1.16(o), (p), or (q))	N/A	N/A	N/A			N/A	
TOTAL CLAIMS (37 CFR 1.16(i))	minus 20 =	*	X $ =		OR	X $ =	
INDEPENDENT CLAIMS (37 CFR 1.16(h))	minus 3 =	*	X $ =			X $ =	
☐ APPLICATION SIZE FEE (37 CFR 1.16(s))	If the specification and drawings exceed 100 sheets of paper, the application size fee due is $250 ($125 for small entity) for each additional 50 sheets or fraction thereof. See 35 U.S.C. 41(a)(1)(G) and 37 CFR 1.16(s).						
☐ MULTIPLE DEPENDENT CLAIM PRESENT (37 CFR 1.16(j))							
* If the difference in column 1 is less than zero, enter "0" in column 2.			TOTAL			TOTAL	

APPLICATION AS AMENDED – PART II

AMENDMENT 11/26/2007

	(Column 1) CLAIMS REMAINING AFTER AMENDMENT		(Column 2) HIGHEST NUMBER PREVIOUSLY PAID FOR	(Column 3) PRESENT EXTRA	SMALL ENTITY RATE ($)	SMALL ENTITY ADDITIONAL FEE ($)	OR	OTHER THAN SMALL ENTITY RATE ($)	OTHER THAN SMALL ENTITY ADDITIONAL FEE ($)
Total (37 CFR 1.16(i))	* 19	Minus	** 29	= 0	X $25 =	0	OR	X $ =	
Independent (37 CFR 1.16(h))	* 6	Minus	***3	= 3	X $105 =	315	OR	X $ =	
☐ Application Size Fee (37 CFR 1.16(s))									
☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))							OR		
					TOTAL ADD'L FEE	315	OR	TOTAL ADD'L FEE	

AMENDMENT

	(Column 1) CLAIMS REMAINING AFTER AMENDMENT		(Column 2) HIGHEST NUMBER PREVIOUSLY PAID FOR	(Column 3) PRESENT EXTRA	RATE ($)	ADDITIONAL FEE ($)		RATE ($)	ADDITIONAL FEE ($)
Total (37 CFR 1.16(i))	*	Minus	**	=	X $ =		OR	X $ =	
Independent (37 CFR 1.16(h))	*	Minus	***	=	X $ =		OR	X $ =	
☐ Application Size Fee (37 CFR 1.16(s))									
☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))							OR		
					TOTAL ADD'L FEE		OR	TOTAL ADD'L FEE	

* If the entry in column 1 is less than the entry in column 2, write "0" in column 3.

** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 20, enter "20".

*** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 3, enter "3".

The "Highest Number Previously Paid For" (Total or Independent) is the highest number found in the appropriate box in column 1.

Legal Instrument Examiner:
Tonya Q. Mcbride

This collection of information is required by 37 CFR 1.16. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICANTS :	Philippe DI CRISTO *et al.*	CONFIRMATION NO.:	7092
SERIAL NUMBER :	11/197,504	EXAMINER:	Brian Louis Albertalli
FILING DATE :	August 5, 2005	ART UNIT:	2626
FOR :	SYSTEMS AND METHODS FOR RESPONDING TO NATURAL LANGUAGE SPEECH UTTERANCE		

SUPPLEMENTAL INFORMATION DISCLOSURE STATEMENT

Commissioner for Patents
P. O. Box 1450
Alexandria, VA 22313-1450

Sir:

Pursuant to the duty of disclosure under 37 C.F.R. §§ 1.56, 1.97 and 1.98, Applicants hereby make of record in the above-identified application the documents listed on the attached Form PTO-1449.

Applicants have listed publication dates on the attached PTO-1449 based on information presently available to the undersigned. However, the listed publication dates should not be construed as an admission that the information was actually published on the date indicated.

Applicants reserve the right to establish the patentability of the claimed invention over any of the information provided herewith, and/or to prove that this information may not be prior art, and/or to prove that this information may not be enabling for the teachings purportedly offered.

This Supplemental Information Disclosure Statement is being filed more than three months after the filing date of a national application other than a continued prosecution application under 37 C.F.R. §1.53(d), or more than three months after the date of entry of the national stage as set forth in 37 C.F.R. §1.491 in an international application, and after the mailing date of the first Office Action on the merits, but before the mailing date of any of a Final Action under 37 C.F.R. §1.113, a Notice of Allowance under 37 C.F.R. §1.311, or an action that otherwise closes prosecution in the application. 37 C.F.R. §1.97(c).

I hereby certify that each item of information contained in this Supplemental Information Disclosure Statement was first cited in any communication from a foreign patent office in a counterpart foreign application not more than three months prior to the filing of this Supplemental Information Disclosure Statement. 37 C.F.R. §1.97(e)(1).

These documents were cited in a search report by a foreign patent office in a counterpart foreign application. Submission of an English language version of the search report that indicates the degree of relevance found by the foreign office is provided.

It is respectfully requested that the Examiner initial and return a copy of the enclosed PTO-1449.

Respectfully submitted,

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Dated: January 24, 2008

INFORMATION DISCLOSURE CITATION IN AN APPLICATION	Docket Number	Application Number
	090611-0316777	11/197,504
	Applicant(s)	
	Philippe DI CRISTO *et al.*	
	Filing Date	Group Art Unit
Form PTO-1449	August 5, 2005	2626

U.S. PATENT DOCUMENTS

*EXAMINER INITIAL	REF	DOCUMENT NO.	DATE	NAME	CLASS	SUBCLASS	FILING DATE IF APPROPRIATE
	A	7,289,606	10/30/2007	Sibal *et al.*	379	52	

FOREIGN PATENT DOCUMENTS

	REF	DOCUMENT NO.	DATE	COUNTRY	CLASS	SUBCLASS	Translations YES	Translations NO

OTHER DOCUMENTS *(Including Author, Title, Date, Pertinent Pages, Etc.)*

	B	ELIO *et al.*, "On Abstract Task Models and Conversation Policies" in Workshop on Specifying and Implementing Conversation Policies, Autonomous Agents '99, Seattle, 1999, 10 pages.
	C	TURUNEN, "Adaptive Interaction Methods in Speech User Interfaces", Conference on Human Factors in Computing Systems, Seattle, Washington, 2001, pages 91-92.

EXAMINER	DATE CONSIDERED

EXAMINER: Initial if citation considered, whether or not citation is in conformance with MPEP Section 609; Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to Applicant.

Electronic Acknowledgement Receipt

EFS ID:	2760924
Application Number:	11197504
International Application Number:	
Confirmation Number:	7092
Title of Invention:	Systems and methods for responding to natural language speech utterance
First Named Inventor/Applicant Name:	Philippe Di Cristo
Customer Number:	909
Filer:	Syed Jafar Ali/Susan Trader
Filer Authorized By:	Syed Jafar Ali
Attorney Docket Number:	090611-0316777
Receipt Date:	24-JAN-2008
Filing Date:	05-AUG-2005
Time Stamp:	14:32:03
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	no

File Listing:

Document Number	Document Description	File Name	File Size(Bytes) /Message Digest	Multi Part /.zip	Pages (if appl.)
1		0316777_SIDS.pdf	305146 de94c6139f9b5cc9e52ac77d75048499c063ad4c	yes	10

	Multipart Description/PDF files in .zip description				
	Document Description		**Start**	**End**	
	Information Disclosure Statement Letter		1	9	
	Information Disclosure Statement (IDS) Filed		10	10	
Warnings:					
Information:					
2	NPL Documents	CHAI.pdf	1036235 82e5c44d0c4460a84b5763f6ca9858e2072a4f38	no	10
Warnings:					
Information:					
3	NPL Documents	CHEYER.pdf	136285 5e49cb5ed1eb7cad08bed8e144f0d4292d0d5744	no	11
Warnings:					
Information:					
4		0316777_FSIDS.pdf	107346 0a13571757d6197990e23201f5a6ef239a4f231c	yes	4
	Multipart Description/PDF files in .zip description				
	Document Description		**Start**	**End**	
	Information Disclosure Statement Letter		1	3	
	Information Disclosure Statement (IDS) Filed		4	4	
Warnings:					
Information:					
5	NPL Documents	ELIO.pdf	934896 d46aa8144b37e3a1d338415605eb1066ae6fc010	no	10
Warnings:					
Information:					
6	NPL Documents	TURUNEN.pdf	179163 b47bbd1deaa06420e04206c4216ccee446a68755	no	2
Warnings:					
Information:					
			Total Files Size (in bytes):	2699071	

This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.

New Applications Under 35 U.S.C. 111

If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

National Stage of an International Application under 35 U.S.C. 371

If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

New International Application Filed with the USPTO as a Receiving Office

If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICANTS :	Philippe DI CRISTO *et al.*	CONFIRMATION NO.:	7092
SERIAL NUMBER :	11/197,504	EXAMINER:	Brian Louis Albertalli
FILING DATE :	August 5, 2005	ART UNIT:	2626
FOR :	SYSTEMS AND METHODS FOR RESPONDING TO NATURAL LANGUAGE SPEECH UTTERANCE		

FURTHER SUPPLEMENTAL INFORMATION DISCLOSURE STATEMENT

Commissioner for Patents
P. O. Box 1450
Alexandria, VA 22313-1450

Sir:

Pursuant to the duty of disclosure under 37 C.F.R. §§ 1.56, 1.97 and 1.98, Applicants hereby make of record in the above-identified application the documents listed on the attached Form PTO-1449.

Applicants have listed publication dates on the attached PTO-1449 based on information presently available to the undersigned. However, the listed publication dates should not be construed as an admission that the information was actually published on the date indicated. Where the publication date of a listed document does not provide a month of publication, the year of publication of the listed document is sufficiently earlier than the effective U.S. filing date and any foreign priority date so that the month of publication is not an issue.

Applicants reserve the right to establish the patentability of the claimed invention over any of the information provided herewith, and/or to prove that this information may not be prior art, and/or to prove that this information may not be enabling for the teachings purportedly offered.

This Supplemental Information Disclosure Statement is being filed more than three months after the filing date of a national application other than a continued prosecution application under 37 C.F.R. §1.53(d), or more than three months after the date of entry of the national stage as set forth in 37 C.F.R. §1.491 in an international application, and after the mailing date of the first Office Action on the merits, but before the mailing date of any of a Final Action under 37 C.F.R. §1.113, a Notice of Allowance under 37 C.F.R. §1.311, or an action that otherwise closes prosecution in the application. 37 C.F.R. §1.97(c).

I hereby certify that no item of information contained in this Supplemental Information Disclosure Statement was cited in a communication from a foreign patent office in a counterpart foreign application, and, to my knowledge after making reasonable inquiry, no item of information contained in this Supplemental Information Disclosure Statement was known to any individual designated in 37 C.F.R. §1.56(c) more than three months prior to the filing of this Supplemental Information Disclosure Statement. 37 C.F.R. §1.97(e)(2).

It is respectfully requested that the Examiner initial and return a copy of the enclosed PTO-1449.

Respectfully submitted,

PILLSBURY WINTHROP SHAW PITTMAN LLP

By_____
Syed Jafar Ali
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Dated: January 24, 2008

INFORMATION DISCLOSURE CITATION IN AN APPLICATION	Docket Number	Application Number
	090611-0316777	11/197,504
	Applicant(s)	
	Philippe DI CRISTO *et al.*	
	Filing Date	Group Art Unit
Form PTO-1449	August 5, 2005	2626

U.S. PATENT DOCUMENTS

*EXAMINER INITIAL	REF	DOCUMENT NO.	DATE	NAME	CLASS	SUBCLASS	FILING DATE IF APPROPRIATE
	A	6,567,797	05/20/2003	Schuetze *et al.*	707	2	
	B	6,570,555	05/27/2003	Prevost *et al.*	345	156	
	C	6,735,592	05/11/2004	Neumann *et al.*	707	101	
	D	6,757,718	06/29/2004	Halverson *et al.*	709	218	
	E	2002/0188602	12/12/2002	Stubler *et al.*	707	3	
	F	2003/0112267	06/19/2003	Belrose	345	728	

FOREIGN PATENT DOCUMENTS

	REF	DOCUMENT NO.	DATE	COUNTRY	CLASS	SUBCLASS	Translations YES	Translations NO

OTHER DOCUMENTS *(Including Author, Title, Date, Pertinent Pages, Etc.)*

	G	CHAI *et al.*, "MIND: A Semantics-Based Multimodal Interpretation Framework for Conversational System", Proceedings of the International CLASS Workshop on Natural, Intelligent and Effective Interaction in Multimodal Dialogue Systems, June 2002, pages 37-46.
	H	CHEYER *et al.*, "Multimodal Maps: An Agent-Based Approach", International Conference on Cooperative Multimodal Communication (CMC/95), May 24-26, 1995, pages 111-121.

EXAMINER	DATE CONSIDERED

EXAMINER: Initial if citation considered, whether or not citation is in conformance with MPEP Section 609; Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to Applicant.

EAST Search History

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
L1	31	(agent$5 with command$5) and (agent$5 with request$5) and (agent$5 with multiple$5 with quer$5)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2008/02/19 10:06
L2	152	"704"/$.ccls. and (multipass$5 or (multi near2 pass$2))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2008/02/19 10:07
L3	698	"704"/$.ccls. and (knowledge$5 with recogni$10)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2008/02/19 10:07
L4	10	l3 and (context$5 with stack$5)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2008/02/19 10:07

UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
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Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
11/197,504	08/05/2005	Philippe Di Cristo	090611-0316777	7092

909 7590 02/22/2008

PILLSBURY WINTHROP SHAW PITTMAN, LLP
P.O. BOX 10500
MCLEAN, VA 22102

EXAMINER	
ALBERTALLI, BRIAN LOUIS	
ART UNIT	**PAPER NUMBER**
2626	

MAIL DATE	DELIVERY MODE
02/22/2008	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	11/197,504	CRISTO ET AL.	
	Examiner	Art Unit	
	Brian L. Albertalli	2626	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on _____.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) 30-48 is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) 30-48 is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Response to Arguments

1. Applicant's arguments filed 26 November 2007 have been fully considered but they are not persuasive.

Applicants have cancelled all originally filed claims 1-29 and submitted new claims 30-48. Applicants argue that Coffmann et al. do not teach various features of the newly submitted claims. However, as is shown below, claims 30-48 contain "new matter" that was not described in the originally filed application. In particular, the various features Applicants argue are not disclosed by Coffmann et al. comprise the "new matter" added to the application.

Therefore, for the purposes of examination, claims 30-48 are rejected under 35 U.S.C. 112, 1st paragraph, below and Applicant's arguments regarding Coffmann et al. are considered moot, as the features which are allegedly not taught or suggested by Coffman et al. are "new matter".

Claim Rejections - 35 USC § 112

2. The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

3. Claims 30-48 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to

one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

Independent claim 30 recites a "multi-pass speech recognition engine" that includes "a primary speech recognition engine for performing a primary transcription of the utterance and at least one secondary speech recognition engine for perform a secondary transcription of the utterance", wherein the first and second speech recognition engines create a transcription "based on respective confidence levels" from the primary and secondary speech recognition engines. Page 27, paragraph 62 of the originally filed specification provides the only description of a "multi-pass speech recognition engine". However, this paragraph simply describes an alternative embodiment that may include "a multi-pass speech recognition module that transcribes the verbal utterance into a text message". There is no description of a primary recognition engine, a secondary recognition engine, or scoring based on respective confidence levels of the primary and secondary recognition engines.

Furthermore, claim 30 recites "a knowledge-enhanced speech recognition engine" that searches a context stack, scores entries identified in the context stack, weighs the scored entries by comparing text combination contained in the merged transcription entries in the context description grammar, and selecting the entry in the context stack having the highest weighted score. Page 28, paragraph 64 of the originally filed specification provides the only description of a "knowledge-enhanced speech recognition engine". Paragraph 64 discloses the knowledge enhanced speech recognition engine may "access a set of expected contexts that are stored in a context

stack to determine a most likely context". However, this does not provide any support for the steps of searching, scoring, weighing scored entries, and selecting the highest weighed scores recited in claim 30.

Independent claim 37 recites a primary speech recognition engine and a secondary recognition engine which, as described above, is not supported by the originally filed application. Additionally, claim 37 recites using a dictation grammar for the primary transcription of an utterance, and using a virtual dictation grammar for the secondary transcription of an utterance, then merging the transcription based on confidence levels from the primary transcription and secondary transcription. The description of the multi-pass recognition engine on page 27, paragraph 62 states that a virtual dictation grammar may be used "where a dictation grammar is not available". There is no support for using a dictation grammar and a virtual dictation on a single utterance to create a merged transcription of an utterance.

Independent claim 45 recites the "knowledge-enhanced speech recognition engine" process of searching, scoring, weighing, and selecting described above in relation to claim 30. As described above, there is no support for such steps in the originally filed specification, thus claim 45 is rejected for the same reasons as given above.

Independent claim 46 recites the primary speech recognition engine and a secondary speech recognition engine described above in relation to claim 30. As described above, there is no support for a primary recognition engine and a secondary recognition engine in the originally filed specification, thus claim 46 is rejected for the same reasons as given above.

Independent claim 47 recites the primary speech recognition engine and a secondary speech recognition engine described above in relation to claim 30, and the use of a dictation grammar and virtual dictation grammar described above in relation to claim 37. As described above, there is no support for a primary recognition engine and a secondary recognition engine, and no support for using a dictation grammar and virtual dictation grammar on a single utterance in the originally filed specification, thus claim 47 is rejected for the same reasons as given above.

Independent claim 48 recites the "knowledge-enhanced speech recognition engine" process of searching, scoring, weighing, and selecting described above in relation to claim 30. As described above, there is no support for such steps in the originally filed specification, thus claim 48 is rejected for the same reasons as given above.

Conclusion

4. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

5. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Brian L. Albertalli whose telephone number is (571) 272-7616. The examiner can normally be reached on Mon - Fri, 8:00 AM - 5:30 PM, every second Fri off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Hudspeth can be reached on (571) 272-7843. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

BLA 2/19/08

DAVID HUDSPETH
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2600

INFORMATION DISCLOSURE CITATION IN AN APPLICATION	Docket Number	Application Number
	090611-0316777	11/197,504
	Applicant(s)	
	Philippe DI CRISTO *et al.*	
	Filing Date	Group Art Unit
Form PTO-1449	August 5, 2005	2626

U.S. PATENT DOCUMENTS

*EXAMINER INITIAL	REF	DOCUMENT NO.	DATE	NAME	CLASS	SUBCLASS	FILING DATE IF APPROPRIATE
	A	7,289,606	10/30/2007	Sibal *et al.*	379	52	

FOREIGN PATENT DOCUMENTS

	REF	DOCUMENT NO.	DATE	COUNTRY	CLASS	SUBCLASS	Translations YES	Translations NO

OTHER DOCUMENTS *(Including Author, Title, Date, Pertinent Pages, Etc.)*

	B	ELIO *et al.*, "On Abstract Task Models and Conversation Policies" in Workshop on Specifying and Implementing Conversation Policies, Autonomous Agents '99, Seattle, 1999, 10 pages.
	C	TURUNEN, "Adaptive Interaction Methods in Speech User Interfaces", Conference on Human Factors in Computing Systems, Seattle, Washington, 2001, pages 91-92.

EXAMINER: DATE CONSIDERED 2/18/08

EXAMINER: Initial if citation considered, whether or not citation is in conformance with MPEP Section 609; Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to Applicant.

400705167v1

INFORMATION DISCLOSURE CITATION IN AN APPLICATION	Docket Number	Application Number
	090611-0316777	11/197,504
	Applicant(s)	
	Philippe DI CRISTO *et al.*	
	Filing Date	Group Art Unit
Form PTO-1449	August 5, 2005	2626

U.S. PATENT DOCUMENTS

*EXAMINER INITIAL	REF	DOCUMENT NO.	DATE	NAME	CLASS	SUBCLASS	FILING DATE IF APPROPRIATE
	A	6,567,797	05/20/2003	Schuetze *et al.*	707	2	
	B	6,570,555	05/27/2003	Prevost *et al.*	345	156	
	C	6,735,592	05/11/2004	Neumann *et al.*	707	101	
	D	6,757,718	06/29/2004	Halverson *et al.*	709	218	
	E	2002/0188602	12/12/2002	Stubler *et al.*	707	3	
	F	2003/0112267	06/19/2003	Belrose	345	728	

FOREIGN PATENT DOCUMENTS

	REF	DOCUMENT NO.	DATE	COUNTRY	CLASS	SUBCLASS	Translations YES	Translations NO

OTHER DOCUMENTS *(Including Author, Title, Date, Pertinent Pages, Etc.)*

	G	CHAI *et al.*, "MIND: A Semantics-Based Multimodal Interpretation Framework for Conversational System", Proceedings of the International CLASS Workshop on Natural, Intelligent and Effective Interaction in Multimodal Dialogue Systems, June 2002, pages 37-46.
	H	CHEYER *et al.*, "Multimodal Maps: An Agent-Based Approach", International Conference on Cooperative Multimodal Communication (CMC/95), May 24-26, 1995, pages 111-121.

EXAMINER	DATE CONSIDERED
	8/19/05

EXAMINER: Initial if citation considered, whether or not citation is in conformance with MPEP Section 609; Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to Applicant.

400705161v1

INFORMATION DISCLOSURE CITATION IN AN APPLICATION	Docket Number	Application Number
	090611-0316777	11/197,504
	Applicant(s)	
	Philippe DI CRISTO *et al.*	
	Filing Date	Group Art Unit
Form PTO-1449	August 5, 2005	2626

U.S. PATENT DOCUMENTS

*EXAMINER INITIAL	REF	DOCUMENT NO.	DATE	NAME	CLASS	SUBCLASS	FILING DATE IF APPROPRIATE
	A	5,799,276	08/25/1998	Komissarchik *et al.*	704	251	
	B	6,501,833	12/31/2002	Phillips *et al.*	379	88.07	

FOREIGN PATENT DOCUMENTS

	REF	DOCUMENT NO.	DATE	COUNTRY	CLASS	SUBCLASS	Translations YES	Translations NO

OTHER DOCUMENTS *(Including Author, Title, Date, Pertinent Pages, Etc.)*

EXAMINER	DATE CONSIDERED
	2/19/08

EXAMINER: Initial if citation considered, whether or not citation is in conformance with MPEP Section 609; Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to Applicant.

400677574v1

INFORMATION DISCLOSURE CITATION IN AN APPLICATION	Docket Number	Application Number
	090611-0316777	11/197,504
	Applicant(s)	
	Philippe DI CRISTO *et al.*	
	Filing Date	Group Art Unit
Form PTO-1449	August 5, 2005	2626

U.S. PATENT DOCUMENTS

*EXAMINER INITIAL	REF	DOCUMENT NO.	DATE	NAME	CLASS	SUBCLASS	FILING DATE IF APPROPRIATE
	A	6,185,535	02/06/2001	Hedin *et al.*	704	270	
	B	6,195,651	02/27/2001	Handel *et al.*	707	2	
	C	6,208,972	03/27/2001	Grant *et al.*	704	275	
	D	6,233,559	05/15/2001	Balakrishnan	704	275	
	E	6,408,272	06/18/2002	White *et al.*	704	270.1	
	F	6,420,975	07/16/2002	DeLine *et al.*	340	815.4	
	G	6,615,172	09/02/2003	Bennett *et al.*	704	257	
	H	6,741,931	05/25/2004	Kohut *et al.*	701	209	
	I	6,937,977	08/30/2005	Gerson	704	201	
	J	6,980,092	12/27/2005	Turnbull *et al.*	340	425.5	
	K	7,062,488	06/13/2006	Reisman	707	8	
	L	2002/0143535	10/03/2002	Kist *et al.*	704	251	
	M	2003/0182132	09/25/2003	Niemoeller	704	275	
	N	2004/0193420	09/30/2004	Kennewick *et al.*	704	257	

FOREIGN PATENT DOCUMENTS

	REF	DOCUMENT NO.	DATE	COUNTRY	CLASS	SUBCLASS	Translations YES	Translations NO

OTHER DOCUMENTS *(Including Author, Title, Date, Pertinent Pages, Etc.)*

	O	LIN, Bor-shen, *et al.*, "A Distributed Architecture for Cooperative Spoken Dialogue Agents with Coherent Dialogue State and History", ASRU'99, 1999, 4 pages.
	P	KUHN, Thomas, *et al.*, "Hybrid In-Car Speech Recognition for Mobile Multimedia Applications", Vehicular Technology Conference, IEEE, July 1999, pages 2009-2013.
	Q	BELVIN, Robert, *et al.*, "Development of the HRL Route Navigation Dialogue System", Proceedings of the First International Conference on Human Language Technology Research, San Diego, 2001, pages 1-5.
	R	LIND, R., *et al.*, "The Network Vehicle—A Glimpse into the Future of Mobile Multi-Media", IEEE Aerosp. Electron. Systems Magazine, Volume 14, No. 9, September 1999, pages 27-32.
	S	ZHAO, Yilin, "Telematics: Safe and Fun Driving", IEEE Intelligent Systems, Volume 17, Issue 1, 2002, pages 10-14.

EXAMINER	DATE CONSIDERED
	2/19/08

EXAMINER: Initial if citation considered, whether or not citation is in conformance with MPEP Section 609; Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to Applicant.

400628265v1

Search Notes	Application/Control No.	Applicant(s)/Patent under Reexamination	
	11/197,504	CRISTO ET AL.	
	Examiner	Art Unit	
	Brian L. Albertalli	2626	

SEARCHED			
Class	Subclass	Date	Examiner

INTERFERENCE SEARCHED			
Class	Subclass	Date	Examiner

SEARCH NOTES (INCLUDING SEARCH STRATEGY)		
	DATE	EXMR
Updated EAST Search (US-PGPUB, USPAT, USOCR, EPO, JPO, DERWENT, IBM_TDB) - See Search History Printout	2/19/2008	BA

PTO/SB/30EFS (08/06)
Approved for use through 08/31/2006. OMB 0651-0031
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

REQUEST FOR CONTINUED EXAMINATION(RCE)TRANSMITTAL
(Submitted Only via EFS-Web)

Application Number	11197504	Filing Date	2005-08-05	Docket Number (if applicable)	090611-0316777	Art Unit	2626
First Named Inventor	DI CRISTO, Philippe			Examiner Name	ALBERTALLI, Brian Louis		

This is a Request for Continued Examination (RCE) under 37 CFR 1.114 of the above-identified application.
Request for Continued Examination (RCE) practice under 37 CFR 1.114 does not apply to any utility or plant application filed prior to June 8, 1995, or to any design application. The Instruction Sheet for this form is located at WWW.USPTO.GOV

SUBMISSION REQUIRED UNDER 37 CFR 1.114

Note: If the RCE is proper, any previously filed unentered amendments and amendments enclosed with the RCE will be entered in the order in which they were filed unless applicant instructs otherwise. If applicant does not wish to have any previously filed unentered amendment(s) entered, applicant must request non-entry of such amendment(s).

☐ Previously submitted. If a final Office action is outstanding, any amendments filed after the final Office action may be considered as a submission even if this box is not checked.

- ☐ Consider the arguments in the Appeal Brief or Reply Brief previously filed on _____
- ☐ Other _____

☒ Enclosed

- ☒ Amendment/Reply
- ☒ Information Disclosure Statement (IDS)
- ☐ Affidavit(s)/ Declaration(s)
- ☐ Other _____

MISCELLANEOUS

☐ Suspension of action on the above-identified application is requested under 37 CFR 1.103(c) for a period of months _____ (Period of suspension shall not exceed 3 months; Fee under 37 CFR 1.17(i) required)

☐ Other _____

FEES

The RCE fee under 37 CFR 1.17(e) is required by 37 CFR 1.114 when the RCE is filed.

☒ The Director is hereby authorized to charge any underpayment of fees, or credit any overpayments, to Deposit Account No 033975

SIGNATURE OF APPLICANT, ATTORNEY, OR AGENT REQUIRED

☒ Patent Practitioner Signature

☐ Applicant Signature

Signature of Registered U.S. Patent Practitioner			
Signature	/S. Jafar Ali/	Date (YYYY-MM-DD)	2008-06-23
Name	S. Jafar Ali	Registration Number	58780

This collection of information is required by 37 CFR 1.114. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450.

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.

Privacy Act Statement

The Privacy Act of 1974 (P.L. 93-579) requires that you be given certain information in connection with your submission of the attached form related to a patent application or patent. Accordingly, pursuant to the requirements of the Act, please be advised that: (1) the general authority for the collection of this information is 35 U.S.C. 2(b)(2); (2) furnishing of the information solicited is voluntary; and (3) the principal purpose for which the information is used by the U.S. Patent and Trademark Office is to process and/or examine your submission related to a patent application or patent. If you do not furnish the requested information, the U.S. Patent and Trademark Office may not be able to process and/or examine your submission, which may result in termination of proceedings or abandonment of the application or expiration of the patent.

The information provided by you in this form will be subject to the following routine uses:

1. The information on this form will be treated confidentially to the extent allowed under the Freedom of Information Act (5 U.S.C. 552) and the Privacy Act (5 U.S.C. 552a). Records from this system of records may be disclosed to the Department of Justice to determine whether the Freedom of Information Act requires disclosure of these record s.

2. A record from this system of records may be disclosed, as a routine use, in the course of presenting evidence to a court, magistrate, or administrative tribunal, including disclosures to opposing counsel in the course of settlement negotiations.

3. A record in this system of records may be disclosed, as a routine use, to a Member of Congress submitting a request involving an individual, to whom the record pertains, when the individual has requested assistance from the Member with respect to the subject matter of the record.

4. A record in this system of records may be disclosed, as a routine use, to a contractor of the Agency having need for the information in order to perform a contract. Recipients of information shall be required to comply with the requirements of the Privacy Act of 1974, as amended, pursuant to 5 U.S.C. 552a(m).

5. A record related to an International Application filed under the Patent Cooperation Treaty in this system of records may be disclosed, as a routine use, to the International Bureau of the World Intellectual Property Organization, pursuant to the Patent Cooperation Treaty.

6. A record in this system of records may be disclosed, as a routine use, to another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c)).

7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (i.e., GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.

8. A record from this system of records may be disclosed, as a routine use, to the public after either publication of the application pursuant to 35 U.S.C. 122(b) or issuance of a patent pursuant to 35 U.S.C. 151. Further, a record may be disclosed, subject to the limitations of 37 CFR 1.14, as a routine use, to the public if the record was filed in an application which became abandoned or in which the proceedings were terminated and which application is referenced by either a published application, an application open to public inspections or an issued patent.

9. A record from this system of records may be disclosed, as a routine use, to a Federal, State, or local law enforcement agency, if the USPTO becomes aware of a violation or potential violation of law or regulation.

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICANTS :	Philippe DI CRISTO et al.	CONFIRMATION NO.:	7092
SERIAL NUMBER :	11/197,504	EXAMINER:	Brian Louis Albertalli
FILING DATE :	August 5, 2005	ART UNIT:	2626
FOR :	SYSTEMS AND METHODS FOR RESPONDING TO NATURAL LANGUAGE SPEECH UTTERANCE		

REPLY AND AMENDMENT ACCOMPANYING REQUEST FOR CONTINUED EXAMINATION

Mail Stop RCE
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Dear Sir:

In response to the Final Office Action mailed **February 22, 2008**, please amend the above-identified application as follows:

Amendments to the Claims begin on page **2** of this paper.

Remarks/Arguments begin on page **10** of this paper.

It is not believed that extensions of time or fees for net addition of claims are required beyond those that may otherwise be provided for in documents accompanying this paper. However, if additional extensions of time are necessary to prevent abandonment of this application, then such extensions of time are hereby petitioned for under 37 C.F.R. § 1.136(a), and any fees required therefore (including fees for net addition of claims) are hereby authorized to be charged to our Deposit Account No. 033975 (**Ref. No. 090611-0316777**).

AMENDMENT

Amendments to the Claims: Please replace all prior versions and listings of claims with the following listing of claims.

LISTING OF CLAIMS:

1-29. (**Cancelled**)

30. (**Currently Amended**) A system for processing multi-modal natural language inputs, comprising:

a multi-modal voice user interface that receives a multi-modal input, the multi-modal input including a natural language utterance and a non-speech input, wherein a transcription module coupled to the multi-modal voice user interface transcribes the non-speech input to create a non-speech-based transcription;

a multi-pass speech recognition ~~engine that~~ module configured to transcribe ~~transcribes~~ the natural language utterance into text~~, wherein the multi-pass speech recognition engine includes a primary speech recognition engine for performing a primary transcription of the utterance and at least one secondary speech recognition engine for performing a secondary transcription of the utterance, the multi-pass speech recognition engine operable to create a speech-based transcription based on respective confidence levels for the primary transcription and the secondary transcription of the utterance~~;

a merging module ~~that merges~~ configured to merge the text of the transcribed utterance ~~speech-based transcription~~ and the non-speech-based transcription to create a merged transcription;

a plurality of domain agents, wherein a context description grammar ~~describes expected formats~~ includes one or more grammar expression entries that one or more of the plurality of domain agents use to process requests in respective ~~contextual domains~~ contexts;

a knowledge-enhanced speech recognition engine ~~that determines~~ configured to determine a most likely context for the multi-modal input, the knowledge-enhanced speech recognition engine ~~operable~~ configured to:

identify one or more contexts ~~search a context stack to identify any entries~~ that completely or partially match one or more text combinations contained in the merged transcription, wherein identifying the matching contexts includes comparing the text combinations against the grammar expression entries in the context description grammar and against one or more expected contexts stored in a context stack;

score each of the ~~entries~~ identified ~~in the context stack as completely or partially~~ matching contexts ~~the text combinations contained in the merged transcription, the matching entries scored according to respective rankings in the context stack~~; and

~~weigh the scored entries by comparing the text combinations contained in the merged transcription to entries in the context description grammar; and~~

select ~~the entry in~~ the matching context ~~stack~~ having a highest ~~weighted~~ score as ~~being~~ the most likely context for the multi-modal input; and

a response generating module ~~that identifies~~ configured to identify one or more of the plurality of ~~domain agents, the identified~~ domain agents that process requests in ~~associated with~~ the most likely context for the multi-modal input, the response generating module ~~operable~~ configured to:

communicate a request to the identified domain agents, the request formulated using at least one grammar expression entry in the context description grammar ~~expected format that the identified domain agents use to process requests in respective contexts~~; and

generate a response to the multi-modal input using content gathered as a result of the identified domain agents processing the request.

31. (**Previously Presented**) The system of claim 30, wherein the domain agents identified by the response generating module include a plurality of the domain agents, and wherein the

response generated by the response generating module includes an aggregation of content gathered as a result of the plurality of identified domain agents processing the request.

32. (**Previously Presented**) The system of claim 30, wherein the multi-modal user interface subsequently receives one or more follow-up multi-modal inputs, the follow-up multi-modal inputs including at least one of a follow-up natural language utterance or a follow-up non-speech input.

33. (**Previously Presented**) The system of claim 32, wherein the identified domain agents update the context stack in response to successfully processing the request, and wherein the knowledge-enhanced speech recognition engine determines a most likely context for the follow-up multi-modal input using the updated context stack.

34. (**Currently Amended**) The system of claim 30, wherein the ~~expected formats described by~~ grammar expression entries in the context description grammar include relationships between criteria associated with requests in the ~~request~~ respective contexts.

35. (**Currently Amended**) The system of claim 34, wherein the ~~expected formats described by~~ grammar expression entries in the context description grammar further include sequence orders for the criteria associated with the ~~request~~ requests.

36. (**Currently Amended**) The system of claim 34, wherein the identified domain agents push ~~the~~ criteria ~~associated with the request~~ onto the context stack in response to successfully processing the request.

37. (**Currently Amended**) A method for interpreting natural language utterances using multi-pass automatic speech recognition, comprising:

receiving ~~transcribing~~ a natural language utterance ~~using~~ at a ~~primary~~ multi-pass speech recognition ~~engine~~ module~~, wherein the primary speech recognition engine includes a dictation grammar for performing a primary transcription of the utterance~~; and

transcribing ~~requesting a secondary transcription of~~ the utterance ~~from one or more secondary~~ using the multi-pass speech recognition ~~engines~~ module, ~~wherein at least one of~~ the ~~secondary~~ multi-pass speech recognition ~~engines includes~~ module configured to use at least one of a dictation grammar or a virtual dictation grammar ~~for performing the secondary transcription of~~ to transcribe the utterance into text~~; and~~

~~creating a merged transcription of the utterance based on respective confidence levels for the primary transcription and the secondary transcription of the utterance~~.

38. (**Previously Presented**) The method of claim 37, wherein the dictation grammar includes an unconstrained large vocabulary of words.

39. (**Previously Presented**) The method of claim 38, wherein the virtual dictation grammar includes a constrained vocabulary of words and a plurality of decoy words for out-of-vocabulary words.

40. (**Previously Presented**) The method of claim 39, further comprising dynamically generating the constrained vocabulary of words based on one or more previously successful transcriptions.

41. (**Previously Presented**) The method of claim 39, wherein the decoy words include utility words, nonsense words, isolated syllables, and isolated distinct sounds associated with a particular spoken language.

42. (**Currently Amended**) The method of claim 37, wherein the ~~requested secondary~~ text of the transcribed utterance ~~transcription~~ includes a complete transcription of the utterance ~~by one or more of the secondary speech recognition engines~~.

43. (**Currently Amended**) The method of claim 37, wherein the ~~requested secondary~~ text of the transcribed utterance ~~transcription~~ includes a partial transcription of the utterance ~~by one or more of the secondary speech recognition engines~~.

44. (**Cancelled**)

45. (**Currently Amended**) A method for interpreting natural language utterances using knowledge-enhanced speech recognition, wherein the knowledge-enhanced speech recognition can be used to determine an intent and correct false recognitions of the natural language utterances, comprising:

receiving a transcription of a natural language utterance;

identifying one or more contexts ~~searching a context stack to identify any entries~~ that completely or partially match one or more text combinations contained in the transcription, wherein identifying the matching contexts includes comparing the text combinations against the grammar expression entries in the context description grammar and against one or more expected contexts stored in a context stack;

scoring each of the ~~entries~~ identified matching contexts ~~in the context stack as completely or partially matching the text combinations contained in the transcription, the entries scored according to respective rankings in the context stack~~;

selecting ~~weighing~~ the matching context having a highest score ~~scored entries~~ to determine a most likely context for the utterance~~, wherein weighing the scored entries includes comparing the text combinations contained in the transcription to entries in a context description grammar~~; and

communicating a request to a domain agent that processes requests in ~~associated with~~ the most likely context for the utterance, the request formulated using at least one grammar expression entry in ~~accordance with an expected format for the request, wherein~~ the context description grammar ~~describes the expected format for the request~~.

46. (**Currently Amended**) A method for processing natural language utterances, comprising:

receiving ~~transcribing~~ a natural language utterance ~~using~~ at a ~~primary~~ multi-pass speech recognition ~~engine~~ module~~, wherein the primary speech recognition engine performs a primary transcription of the utterance~~;

transcribing ~~requesting a secondary transcription of~~ the utterance ~~from one or more secondary~~ using the multi-pass speech recognition ~~engines~~ module, the multi-pass speech recognition module configured to transcribe the utterance into text;

~~creating a merged transcription of the utterance based on respective confidence levels for the primary transcription and the secondary transcription of the utterance;~~

identifying one or more contexts ~~searching a context stack to identify any entries~~ that completely or partially match one or more text combinations contained in the ~~merged transcription~~ text of the transcribed utterance, wherein identifying the matching contexts includes comparing the text combinations against the grammar expression entries in the context description grammar and against one or more expected contexts stored in a context stack;

scoring each of the ~~entries~~ identified matching contexts ~~in the context stack as completely or partially matching the merged transcription, the entries scored according to respective rankings in the context stack~~;

selecting ~~weighing~~ the matching context having a highest score ~~scored entries~~ to determine a most likely context for the utterance~~, wherein weighing the scored entries includes comparing the merged transcription and the scored entries to a context description grammar~~; and

communicating a request to a domain agent that processes requests in ~~associated with~~ the most likely context for the utterance, the request formulated using at least one grammar expression entry in ~~accordance with an expected format for the request, wherein~~ the context description grammar ~~describes the expected format for the request~~.

47. (**Currently Amended**) A system for interpreting natural language utterances, comprising:

a voice user interface that receives a natural language utterance; and

a multi-pass speech recognition ~~engine that~~ module configured to creates a speech-based transcription of ~~transcribes~~ the natural language utterance, wherein the multi-pass speech recognition engine includes:

a ~~primary speech recognition engine having a~~ dictation grammar for performing a ~~primary~~ first pass transcription of the utterance; and

a virtual dictation grammar ~~one or more secondary speech recognition engines~~ for performing ~~a secondary transcription of the utterance,~~ at least one second pass ~~of the secondary speech recognition engines having a virtual dictation grammar for performing the secondary~~ transcription of the utterance, wherein the multi-pass speech recognition engine creates [[a]] the speech-based transcription based on respective confidence levels for the ~~primary~~ first pass transcription and the ~~secondary~~ at least one second pass transcription of the utterance.

48. (**Currently Amended**) A system for interpreting natural language utterances, comprising:

a voice user interface that receives a natural language utterance;

a multi-pass speech recognition configured to transcribe ~~engine that creates a transcription of~~ the natural language utterance into text; and

a knowledge-enhanced speech recognition engine that determines a most likely context for the natural language utterance, the knowledge-enhanced speech recognition engine ~~operable~~ configured to:

receive the ~~transcription~~ text of the transcribed natural language utterance;

identify one or more contexts ~~search a context stack to identify any entries~~ that completely or partially match one or more text combinations contained in the ~~transcription~~ text of the transcribed utterance, wherein identifying the matching contexts includes comparing the text combinations against the grammar expression

entries in the context description grammar and against one or more expected contexts stored in a context stack;

score each of the ~~entries~~ identified matching contexts ~~in the context stack as completely or partially matching the text combinations contained in the transcription, the entries scored according to respective rankings in the context stack~~;

select ~~weigh~~ the matching context having a highest score ~~scored entries~~ to determine the most likely context for the utterance~~, wherein weighing the scored entries includes comparing the text combinations contained in the transcription to entries in a context description grammar~~; and

communicate a request to a domain agent that processes requests in ~~associated with~~ the most likely context for the utterance, the request formulated using at least one grammar expression entry in ~~accordance with an expected format for the request, wherein~~ the context description grammar ~~describes the expected format for the request~~.

REMARKS

Upon entry of the foregoing Amendment, claims 30-43 and 45-48 are pending in the application. Claims 30, 34-37, 42-43, and 45-48 have been amended. Claim 44 has been cancelled. No claims have been newly added. Applicants believe that this Amendment does not add new matter. In view of the foregoing Amendment and the following Remarks, allowance of all the pending claims is requested.

EXAMINER INTERVIEW

Applicants thank Examiner Albertalli for granting Applicants' representative the courtesy of an Examiner Interview on June 4, 2008. During the Examiner interview, Applicants' representative discussed the claimed invention in light of the rejection, as set forth below in further detail.

REJECTION UNDER 35 U.S.C. § 112, FIRST PARAGRAPH

The Examiner has rejected claims 30-43 and 45-48 under 35 U.S.C. § 112, first paragraph, as allegedly failing to comply with the written description requirement. In particular, the Examiner alleges that "claims 30-48 contain 'new matter' that was not described in the originally filed application." Office Action, pg. 2.

Although Applicants disagree with the propriety of the alleged basis for the rejection, *solely* for purposes of expediting prosecution of this application, claims 30, 34-37, 42-43, and 45-48 have been amended as indicated above to further clarify various aspects of the invention. Accordingly, for at least the reason that the specification does describe the claimed invention in sufficient detail to convey to one skilled in the art that Applicants had possession of the claimed invention, as set forth in further detail below, Applicants request that the Examiner withdraw this rejection of the claims.

More particularly, regarding independent claim 30, the Examiner identifies the previously recited language of "a multi-pass speech recognition engine" that includes "a primary speech recognition engine . . . and at least one secondary speech recognition engine" as allegedly not being described in the specification. Although Applicants disagree with the

Examiner's allegation, independent claim 30 has been amended to broadly recite "a multi-pass speech recognition module configured to transcribe the natural language utterance into text." Such features find clear support in the specification at least on pg. 5, paragraph 10 and pg. 27, paragraph 62, which discuss a "multi-pass speech recognition module that transcribes the utterance to a text message."

Furthermore, in the context of independent claim 37, the Examiner alleges that "[t]here is no support for using a dictation grammar and a virtual dictation on a single utterance." Office Action, pg. 4. Although Applicants disagree with the Examiner's allegation, independent claim 37 has been amended to recite that the "multi-pass speech recognition module" is "configured to use at least one of a dictation grammar or a virtual dictation grammar to transcribe the utterance into text." Such features also find clear support in the specification at least on pg. 27, paragraph 62, which describes the "multi-pass speech recognition module" as being able to use "a dictation grammar or a large vocabulary grammar," in addition to "a virtual dictation grammar that uses decoy words for out-of-vocabulary words."

Finally, regarding the features that relate to the "knowledge-enhanced speech recognition," the Examiner alleges that the specification "does not provide any support for the steps of searching, scoring, weighing scored entries, and selecting the highest weighed scores." Office Action, pg. 4. Although Applicants also disagree with the alleged basis for this rejection, Applicants note that the independent claims have been amended to clarify the manner in which the knowledge-enhanced speech recognition determines the most likely context. In particular, independent claim 30 has been amended to recite the knowledge-enhanced speech recognition engine being configured to "identify one or more contexts that completely or partially match one or more text combinations contained in the merged transcription," "score each of the identified matching contexts," and "select the matching context having a highest score as the most likely context for the multi-modal input." Independent claims 45-46 and 48 have been similarly amended.

This language finds clear support at least on pgs. 27-28, paragraphs 63-64, which describe the knowledge-enhanced speech recognition performing a broadened semantic search, which includes comparing a "text combination . . . against entries in a context

description grammar," accessing "a set of expected contexts that are stored in a context stack," and using "context specific matchers that are able to identify context . . . by comparing a character, group, of characters, a word, group of words, and other text combinations." The specification further describes how when a matching context is identified, "then the match may be scored," wherein domain agents associated with various respective contexts may be selected or otherwise "ranked based on the determined score." The scoring process used at various stages of a dialog is described throughout the specification (e.g., pgs. 10-11, paragraphs 23-24, pg. 42, paragraph 91, pg. 46, paragraph 101, etc.). For example, the specification even specifically indicates that "the possible contexts are scored and the top one or few are used for further processing" (pg. 43, paragraph 92). As such, the specification as originally filed does provide support for the features relating to the "knowledge-enhanced speech recognition engine," including identifying matching contexts, scoring the matching contexts, and selecting a context with the highest score as the "most likely" context.

Accordingly, for at least the foregoing reasons, each of the features recited in independent claims 30, 37, and 45-48 are described and have support in the specification as originally filed. Claims 30-43 and 45-48 therefore do comply with the written description requirement, and do not contain any new matter. For at least this reason, the rejection is improper and should be withdrawn.

CONCLUSION

Having addressed the outstanding rejection, it is respectfully submitted that a full and complete response has been made to the outstanding Office Action and, as such, the application is in condition for allowance. Notice to that effect is respectfully requested.

If the Examiner believes, for any reason, that personal communication will expedite prosecution of this application, the Examiner is invited to telephone the undersigned at the number provided.

Date: **June 23, 2008**

Respectfully submitted,

By: _____

Syed Jafar Ali
Registration No. 58,780

PILLSBURY WINTHROP SHAW PITTMAN LLP
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McLean, Virginia 22102
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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICANTS :	Philippe DI CRISTO *et al.*	CONFIRMATION NO.:	7092
SERIAL NUMBER :	11/197,504	EXAMINER:	Brian Louis Albertalli
FILING DATE :	August 5, 2005	ART UNIT:	2626
FOR :	SYSTEMS AND METHODS FOR RESPONDING TO NATURAL LANGUAGE SPEECH UTTERANCE		

SUPPLEMENTAL INFORMATION DISCLOSURE STATEMENT

Commissioner for Patents
P. O. Box 1450
Alexandria, VA 22313-1450

Sir:

Pursuant to the duty of disclosure under 37 C.F.R. §§ 1.56, 1.97 and 1.98, Applicants hereby make of record in the above-identified application the documents listed on the attached Form PTO-1449.

Applicants have listed publication dates on the attached PTO-1449 based on information presently available to the undersigned. However, the listed publication dates should not be construed as an admission that the information was actually published on the date indicated. Where the publication date of a listed document does not provide a month of publication, the year of publication of the listed document is sufficiently earlier than the effective U.S. filing date and any foreign priority date so that the month of publication is not an issue.

Applicants reserve the right to establish the patentability of the claimed invention over any of the information provided herewith, and/or to prove that this information may not be prior art, and/or to prove that this information may not be enabling for the teachings purportedly offered.

This Supplemental Information Disclosure Statement is being filed within three months of the filing date of a national application other than a continued prosecution application under 37 C.F.R. §1.53(d), or within three months of the date of entry of the national stage as set forth in 37 C.F.R. §1.491 in an international application, or before the mailing date of a first Office Action on the merits, or before the mailing date of a first Office Action after the filing of a request for continued examination under 37 C.F.R. §1.114. No certification or fee is required. 37 C.F.R. §1.97(b).

Document A was cited in a search report by a foreign patent office in a counterpart foreign application. Submission of an English language version of the search report that indicates the degree of relevance found by the foreign office is provided.

Documents C and F were cited by the U.S. Patent Office in co-pending Application Serial No. 10/452,147, filed June 3, 2003, in an Office Action dated April 18, 2008. Documents B, D, E, and G were cited by the U.S. Patent Office in co-pending Application Serial No. 10/452,147, filed June 3, 2003, in a Notice of Allowability dated May 21, 2008.

It is respectfully requested that the Examiner initial and return a copy of the enclosed PTO-1449.

Respectfully submitted,

PILLSBURY WINTHROP SHAW PITTMAN LLP

By _____
Syed Jafar Ali
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Dated: June 23, 2008

INFORMATION DISCLOSURE CITATION IN AN APPLICATION	Docket Number	Application Number
	090611-0316777	11/197,504
	Applicant(s)	
	Philippe DI CRISTO *et al.*	
	Filing Date	Group Art Unit
Form PTO-1449	August 5, 2005	2626

U.S. PATENT DOCUMENTS

*EXAMINER INITIAL	REF	DOCUMENT NO.	DATE	NAME	CLASS	SUBCLASS	FILING DATE IF APPROPRIATE
	A	5,696,965	12/09/1997	Dedrick	395	610	
	B	5,878,385	03/02/1999	Bralich *et al.*	704	9	
	C	6,415,257	07/02/2002	Junqua *et al.*	704	275	
	D	6,466,654	10/15/2002	Cooper *et al.*	379	88.01	
	E	6,721,706	04/13/2004	Strubbe *et al.*	704	275	
	F	6,901,366	05/31/2005	Kuhn *et al.*	704	275	
	G	7,127,400	10/24/2006	Koch	704	270.1	

FOREIGN PATENT DOCUMENTS

	REF	DOCUMENT NO.	DATE	COUNTRY	CLASS	SUBCLASS	Translations YES	Translations NO

OTHER DOCUMENTS *(Including Author, Title, Date, Pertinent Pages, Etc.)*

	H	MAO, Mark Z., "Automatic Training Set Segmentation for Multi-Pass Speech Recognition", Department of Electrical Engineering, Stanford University, CA, copyright 2005, IEEE, pages I-685 to I-688.
	I	VANHOUCKE, Vincent, "Confidence Scoring and Rejection Using Multi-Pass Speech Recognition", Nuance Communications, Menlo Park, CA, [no date], 4 pages.
	J	WENG, Fuliang, *et al.*, "Efficient Lattice Representation and Generation", Speech Technology and Research Laboratory, SRI International, Menlo Park, CA, [no date], 4 pages.

EXAMINER	DATE CONSIDERED

EXAMINER: Initial if citation considered, whether or not citation is in conformance with MPEP Section 609; Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to Applicant.

PTO/SB/22 (11-07)
Approved for use through 11/30/2007. OMB 0651-0031
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless if displays a valid OMB control number.

PETITION FOR EXTENSION OF TIME UNDER 37 CFR 1.136(a) FY 2008 *(Fees pursuant to the Consolidated Appropriations Act, 2005 (H.R. 4818).)*	Docket Number (Optional) 090611-0316777
Application Number 11/197,504	Filed 08-05-2005
For SYSTEMS AND METHODS FOR RESPONDING TO NATURAL LANGUAGE SPEECH UTTERANCE	
Art Unit 2626	Examiner ALBERTALLI, Brian Louis

This is a request under the provisions of 37 CFR 1.136(a) to extend the period for filing a reply in the above identified application.

The requested extension and fee are as follows (check time period desired and enter the appropriate fee below):

		Fee	Small Entity Fee	
[x]	One month (37 CFR 1.17(a)(1))	$120	$60	$ 60.00
[ ]	Two months (37 CFR 1.17(a)(2))	$460	$230	$
[ ]	Three months (37 CFR 1.17(a)(3))	$1050	$525	$
[ ]	Four months (37 CFR 1.17(a)(4))	$1640	$820	$
[ ]	Five months (37 CFR 1.17(a)(5))	$2230	$1115	$

[ ] Applicant claims small entity status. See 37 CFR 1.27.

[ ] A check in the amount of the fee is enclosed.

[ ] Payment by credit card. Form PTO-2038 is attached.

[ ] The Director has already been authorized to charge fees in this application to a Deposit Account.

[x] The Director is hereby authorized to charge any fees which may be required, or credit any overpayment, to Deposit Account Number 03-3975 . I have enclosed a duplicate copy of this sheet.

WARNING: Information on this form may become public. Credit card information should not be included on this form. Provide credit card information and authorization on PTO-2038.

I am the

[ ] applicant/inventor.

[ ] assignee of record of the entire interest. See 37 CFR 3.71. Statement under 37 CFR 3.73(b) is enclosed. (Form PTO/SB/96).

[x] attorney or agent of record. Registration Number 43,193

[ ] attorney or agent under 37 CFR 1.34. Registration number if acting under 37 CFR 1.34 _____

Signature	June 23, 2008 Date
Rick A. Toering Typed or printed name	703.770.7620 Telephone Number

NOTE: Signatures of all the inventors or assignees of record of the entire interest or their representative(s) are required. Submit multiple forms if more than one signature is required, see below.

[ ] Total of _____ forms are submitted.

Electronic Patent Application Fee Transmittal

Application Number:	11197504
Filing Date:	05-Aug-2005
Title of Invention:	Systems and methods for responding to natural language speech utterance
First Named Inventor/Applicant Name:	Philippe Di Cristo
Filer:	Syed Jafar Ali/Amanda Childs
Attorney Docket Number:	090611-0316777

Filed as Small Entity

Utility Filing Fees

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Basic Filing:				
Pages:				
Claims:				
Miscellaneous-Filing:				
Petition:				
Patent-Appeals-and-Interference:				
Post-Allowance-and-Post-Issuance:				
Extension-of-Time:				
Extension - 1 month with $0 paid	2251	1	60	60

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Miscellaneous:				
Request for continued examination	2801	1	405	405
		Total in USD ($)		**465**

Electronic Acknowledgement Receipt

EFS ID:	3504028
Application Number:	11197504
International Application Number:	
Confirmation Number:	7092
Title of Invention:	Systems and methods for responding to natural language speech utterance
First Named Inventor/Applicant Name:	Philippe Di Cristo
Customer Number:	909
Filer:	Syed Jafar Ali/Amanda Childs
Filer Authorized By:	Syed Jafar Ali
Attorney Docket Number:	090611-0316777
Receipt Date:	23-JUN-2008
Filing Date:	05-AUG-2005
Time Stamp:	17:58:55
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	no

File Listing:

Document Number	Document Description	File Name	File Size(Bytes) /Message Digest	Multi Part /.zip	Pages (if appl.)
1	Request for Continued Examination (RCE)	090611-0316777_RCE.pdf	645720 711b776f57765ea9f91b97aca5fb7bf4b66859c0	no	3

Warnings:	
Information:	

2		090611-0316777_Reply.pdf	510685 bdf5641962879be9220e5f7bd206dfdeb71e3d3f	yes	13

Multipart Description/PDF files in .zip description		
Document Description	**Start**	**End**
Amendment After Final	1	1
Claims	2	9
Applicant Arguments/Remarks Made in an Amendment	10	13

Warnings:

Information:

3	Information Disclosure Statement (IDS) Filed	090611-0316777_SIDS.pdf	208555 c6aca30cb2d9e65cdd8c0f8013a76e2cdd555050	no	6

Warnings:

Information:

This is not an USPTO supplied IDS fillable form

4	NPL Documents	VANHOUCKE3.pdf	267219 8a86faf711e94251bb3613c12fe524c859b10e20	no	4

Warnings:

Information:

5	NPL Documents	MAO3.pdf	362852 26ff3a7bdb3672cf0e3e10af6adafcac374332c2	no	4

Warnings:

Information:

6	NPL Documents	WENG3.pdf	345428 8913366d94f25ab079127075e33606a323efbd11	no	4

Warnings:

Information:

7	Extension of Time	090611-0316777_EOT.pdf	47797 0ad06a352d69524463eb640e34045ae0e84d5d9e	no	1

Warnings:

Information:

8	Fee Worksheet (PTO-06)	fee-info.pdf	8345 c45ff3a3bdbdc2dae2b04bd4a13291ba064fcb59	no	2

Warnings:

Information:	
Total Files Size (in bytes):	2396601

This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.

New Applications Under 35 U.S.C. 111
If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

National Stage of an International Application under 35 U.S.C. 371
If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

New International Application Filed with the USPTO as a Receiving Office
If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

Electronic Patent Application Fee Transmittal

Application Number:	11197504
Filing Date:	05-Aug-2005
Title of Invention:	Systems and methods for responding to natural language speech utterance
First Named Inventor/Applicant Name:	Philippe Di Cristo
Filer:	Syed Jafar Ali/Amanda Childs
Attorney Docket Number:	090611-0316777

Filed as Small Entity

Utility Filing Fees

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Basic Filing:				
Pages:				
Claims:				
Miscellaneous-Filing:				
Petition:				
Patent-Appeals-and-Interference:				
Post-Allowance-and-Post-Issuance:				
Extension-of-Time:				
Extension - 1 month with $0 paid	2251	1	60	60

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Miscellaneous:				
Request for continued examination	2801	1	405	405
		Total in USD ($)		**465**

Electronic Acknowledgement Receipt

EFS ID:	3504068
Application Number:	11197504
International Application Number:	
Confirmation Number:	7092
Title of Invention:	Systems and methods for responding to natural language speech utterance
First Named Inventor/Applicant Name:	Philippe Di Cristo
Customer Number:	909
Filer:	Syed Jafar Ali/Amanda Childs
Filer Authorized By:	Syed Jafar Ali
Attorney Docket Number:	090611-0316777
Receipt Date:	23-JUN-2008
Filing Date:	05-AUG-2005
Time Stamp:	18:01:53
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	Deposit Account
Payment was successfully received in RAM	$465
RAM confirmation Number	4505
Deposit Account	033975
Authorized User	

The Director of the USPTO is hereby authorized to charge indicated fees and credit any overpayment as follows:

Charge any Additional Fees required under 37 C.F.R. Section 1.16 (National application filing, search, and examination fees)

Charge any Additional Fees required under 37 C.F.R. Section 1.17 (Patent application and reexamination processing fees)

Charge any Additional Fees required under 37 C.F.R. Section 1.19 (Document supply fees)

Charge any Additional Fees required under 37 C.F.R. Section 1.20 (Post Issuance fees)

Charge any Additional Fees required under 37 C.F.R. Section 1.21 (Miscellaneous fees and charges)

File Listing:

Document Number	Document Description	File Name	File Size(Bytes) /Message Digest	Multi Part /.zip	Pages (if appl.)
1	Fee Worksheet (PTO-06)	fee-info.pdf	8345 8ad162ea80e77c25f096a30a6457ceb8c699f830	no	2

Warnings:

Information:

Total Files Size (in bytes):	8345

This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.

New Applications Under 35 U.S.C. 111
If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

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If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

New International Application Filed with the USPTO as a Receiving Office
If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

PTO/SB/06 (07-06)
Approved for use through 1/31/2007. OMB 0651-0032
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

PATENT APPLICATION FEE DETERMINATION RECORD

Substitute for Form PTO-875

Application or Docket Number	Filing Date	☒ To be Mailed
11/197,504	08/05/2005	

APPLICATION AS FILED – PART I

FOR	(Column 1) NUMBER FILED	(Column 2) NUMBER EXTRA	SMALL ENTITY ☒ RATE ($)	SMALL ENTITY ☒ FEE ($)	OR	OTHER THAN SMALL ENTITY RATE ($)	OTHER THAN SMALL ENTITY FEE ($)
☐ BASIC FEE (37 CFR 1.16(a), (b), or (c))	N/A	N/A	N/A			N/A	
☐ SEARCH FEE (37 CFR 1.16(k), (i), or (m))	N/A	N/A	N/A			N/A	
☐ EXAMINATION FEE (37 CFR 1.16(o), (p), or (q))	N/A	N/A	N/A			N/A	
TOTAL CLAIMS (37 CFR 1.16(i))	minus 20 =	*	X $ =		OR	X $ =	
INDEPENDENT CLAIMS (37 CFR 1.16(h))	minus 3 =	*	X $ =			X $ =	
☐ APPLICATION SIZE FEE (37 CFR 1.16(s))	If the specification and drawings exceed 100 sheets of paper, the application size fee due is $250 ($125 for small entity) for each additional 50 sheets or fraction thereof. See 35 U.S.C. 41(a)(1)(G) and 37 CFR 1.16(s).						
☐ MULTIPLE DEPENDENT CLAIM PRESENT (37 CFR 1.16(j))							
* If the difference in column 1 is less than zero, enter "0" in column 2.			TOTAL			TOTAL	

APPLICATION AS AMENDED – PART II

AMENDMENT 06/23/2008

	(Column 1) CLAIMS REMAINING AFTER AMENDMENT		(Column 2) HIGHEST NUMBER PREVIOUSLY PAID FOR	(Column 3) PRESENT EXTRA	SMALL ENTITY RATE ($)	SMALL ENTITY ADDITIONAL FEE ($)	OR	OTHER THAN SMALL ENTITY RATE ($)	OTHER THAN SMALL ENTITY ADDITIONAL FEE ($)
Total (37 CFR 1.16(i))	* 18	Minus	** 29	= 0	X $25 =	0	OR	X $ =	
Independent (37 CFR 1.16(h))	* 6	Minus	***6	= 0	X $105 =	0	OR	X $ =	
☐ Application Size Fee (37 CFR 1.16(s))									
☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))							OR		
					TOTAL ADD'L FEE	0	OR	TOTAL ADD'L FEE	

AMENDMENT

	(Column 1) CLAIMS REMAINING AFTER AMENDMENT		(Column 2) HIGHEST NUMBER PREVIOUSLY PAID FOR	(Column 3) PRESENT EXTRA	RATE ($)	ADDITIONAL FEE ($)		RATE ($)	ADDITIONAL FEE ($)
Total (37 CFR 1.16(i))	*	Minus	**	=	X $ =		OR	X $ =	
Independent (37 CFR 1.16(h))	*	Minus	***	=	X $ =		OR	X $ =	
☐ Application Size Fee (37 CFR 1.16(s))									
☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))							OR		
					TOTAL ADD'L FEE		OR	TOTAL ADD'L FEE	

* If the entry in column 1 is less than the entry in column 2, write "0" in column 3.

** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 20, enter "20".

*** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 3, enter "3".

The "Highest Number Previously Paid For" (Total or Independent) is the highest number found in the appropriate box in column 1.

Legal Instrument Examiner:
/NICHELE PETERSON/

This collection of information is required by 37 CFR 1.16. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
11/197,504	08/05/2005	Philippe Di Cristo	090611-0316777	7092

909 7590 09/29/2008

PILLSBURY WINTHROP SHAW PITTMAN, LLP
P.O. BOX 10500
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EXAMINER	
ALBERTALLI, BRIAN LOUIS	
ART UNIT	PAPER NUMBER
2626	
MAIL DATE	DELIVERY MODE
09/29/2008	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	11/197,504	CRISTO ET AL.	
	Examiner	Art Unit	
	BRIAN L. ALBERTALLI	2626	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *23 June 2008*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *30-43 and 45-48* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☒ Claim(s) *30-36,45,46 and 48* is/are allowed.

6)☒ Claim(s) *37-39, 42, 43, and 47* is/are rejected.

7)☒ Claim(s) *40 and 41* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Response to Arguments

1. Applicant's arguments filed 23 June 2008 with respect to claim 47 have been fully considered but they are not persuasive. Claim 47 was previously rejected under 35 U.S.C. 112, 1st paragraph for containing subject matter which was not described in the originally filed application ("new matter"). Applicant has amended claim 47 herein, however, as outlined below, claim 47 still contains new matter, and is thus rejected under 35 U.S.C. 112, 1st paragraph.

Applicant's arguments with respect to claims 30-43, 45, 46, and 48 have been fully considered and are persuasive. Specifically, the amendments to the claims remove the "new matter" indicated in the previous Office Action, and 30-43, 45, 46, and 48, as amended, are fully supported by the originally filed disclosure. Thus, the rejections of claims 30-43, 45, 46, and 48 under 35 U.S.C. 112, 1st paragraph have been withdrawn.

However, upon further consideration, claims 37-39, 42, and 43 are rejected below in view of prior art.

Claims 30-36, 45, 46, and 48 are allowed for the reasons give below.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

3. Claim 47 is rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

Claim 47 requires performing, with a multi-pass speech recognizer, a first pass transcription of an utterance using a dictation grammar and a second pass transcription using a virtual dictation grammar. There is only one paragraph in the specification that mentions dictation grammars and virtual dictation grammars (page 27, paragraph 62). This paragraph states "On platforms where a dictation grammar is not available, the multi-pass automatic speech recognition may use a virtual dictation grammar..." Thus, the specification discloses only using a virtual dictation grammar when a dictation grammar is not available. There is no suggestion of even using a dictation grammar and a virtual dictation grammar in the same system, let alone using the dictation grammar for a first pass recognition and a virtual dictation grammar for a second pass recognition.

Therefore, the subject matter of claim 47 is not supported by the originally filed disclosure.

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

5. Claims 37 and 43 are rejected under 35 U.S.C. 102(b) as being anticipated by Dudemaine et al. (U.S. Patent 6,195,634).

In regard to claim 37, Dudemaine et al. disclose a method for interpreting natural language utterances using multi-pass automatic speech recognition (a multiple-pass recognition approach, column 5, lines 47-57), comprising:

receiving a natural language utterance at a multi-pass speech recognition module (a recognition processor, column 17, lines 49-59; which uses a multiple-pass recognition approach, column 5, lines 47-57; receives input words, column 11, lines 7-10);

transcribing the utterance using the multi-pass speech recognition module (the recognition algorithm performs a first fast match pass, then a second rescoring pass to transcribe an utterance, column 18, lines 1-15; this is the a multiple-pass recognition approach described at column 5, lines 47-57), the multi-pass speech recognition module configured to use at least one of a dictation grammar or a virtual dictation grammar to transcribe the utterance into text (as defined by the specification, a "virtual dictation grammar" comprises a vocabulary of decoy words for out-of-vocabulary words;

equivalently, Dudemaine et al. disclose recognition is performed using a dictionary of decoy words, column 10, line 59 to column 11, line 5).

In regard to claim 43, Mohri et al. disclose the text of the transcribed utterance includes a partial transcription of the utterance (word spotting is used to transcribe only those words which are in the desired recognition vocabulary, column 18, lines 16-34).

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

7. Claims 38 and 39 are rejected under 35 U.S.C. 103(a) as being unpatentable over Dudemaine et al., in view of Mohri et al. (U.S. Patent 6,574,597).

In regard to claim 38, Dudemaine et al. do not disclose the dictation grammar includes an unconstrained large vocabulary of words.

Mohri et al. disclose a multi-pass speech recognition system (column 10, lines 18-24), wherein a dictation grammar includes an unconstrained large vocabulary of words (a language model, column 4, lines 30-35; equivalent to a grammar, is generated for recognizing a large vocabulary of words, column 8, lines 30-43).

It would have been obvious to one of ordinary skill in the art at the time of invention to modify Dudemaine et al. to additionally include a dictation grammar

including an unconstrained large vocabulary of words, because such a grammar (model) improves the accuracy and speech of recognition, as taught by Mohri et al. (column 10, lines 25-28).

In regard to claim 39, Dudemaine et al. disclose the virtual dictation grammar includes a constrained vocabulary of words and a plurality of decoy words for out-of-vocabulary words (the dictionary includes the words desired for a given application, as well as decoys made up of random sub-word elements, column 7, lines 24-36 and lines 51-54; the random-sub word elements are not included in the constrained vocabulary, and thus "out-of-vocabulary").

8. Claim 42 is rejected under 35 U.S.C. 103(a) as being unpatentable over Dudemaine et al., in view of El meliani et al. (*A Syllabic-Filler-Based Continuous Speech Recognizer for Unlimited Vocabulary*).

In regard to claim 42, Dudemaine et al. do not disclose the text of the transcribed utterance includes a complete transcription of the utterance (filler words such as “ah” are ignored).

El meliani et al. disclose a recognition system wherein the text of the transcribed utterance includes a complete transcription of the utterance (new words are detected and transcribed, see abstract; the new words comprising the filler-type words not recognized by Dudemaine et al., see Introduction section, 1st paragraph).

It would have been obvious to one of ordinary skill in the art at the time of invention to modify Dudemaine et al. to transcribe a complete transcription of the utterance, because this would capture the entirety of the user's spoken input.

Allowable Subject Matter

9. Claims 30-36, 45, 46, and 48 are allowed.

The following is an examiner's statement of reasons for allowance:

Each of independent claims 30, 45, 46, and 48 require identifying matching contexts in a transcribed utterance by comparing the text combinations against grammar expression entries in the context description grammar and against one or more expected contexts stored in a context stack. Dudemaine et al. and the additional prior art used in this Office action do not disclose or suggest such a feature. Additionally, Coffman et al. (used in a previous Office Action for teaching similar features) include a context stack, however, Coffman et al. do not disclose or suggest comparing text combinations against both grammar expression entries in the context description grammar and against one or more expected contexts stored in a context stack.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

10. Claims 40 and 41 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The following is a statement of reasons for the indication of allowable subject matter:

Regarding claim 40, Dudemaine et al. suggest updating a recognition vocabulary used (flexible vocabulary recognition). However, there is no suggestion that the constrained vocabulary is generated dynamically based on one or more previously successful transcriptions. Additionally, Mohri et al. and El meliani et al. do not disclose or suggest such a feature.

Regarding claim 41, Dudemaine et al. disclose the decoy words are made up of random sub-word elements. However, Dudemaine et al. do not disclose or suggest including each of utility words, nonsense words, isolated syllable, and isolated distinct sounds associated with a particular spoken feature. Additionally, Mohri et al. and El meliani et al. do not disclose or suggest such a feature.

Conclusion

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to BRIAN L. ALBERTALLI whose telephone number is (571)272-7616. The examiner can normally be reached on Monday-Thursday, 8 AM to 6:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Hudspeth can be reached on (571) 272-7843. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/David R Hudspeth/
Supervisory Patent Examiner, Art Unit 2626

BLA 9/25/08

Notice of References Cited	Application/Control No. 11/197,504	Applicant(s)/Patent Under Reexamination CRISTO ET AL.	
	Examiner BRIAN L. ALBERTALLI	Art Unit 2626	Page 1 of 1

U.S. PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Name	Classification
*	A	US-6,195,634	02-2001	Dudemaine et al.	704/231
*	B	US-6,574,597	06-2003	Mohri et al.	704/251
	C	US-			
	D	US-			
	E	US-			
	F	US-			
	G	US-			
	H	US-			
	I	US-			
	J	US-			
	K	US-			
	L	US-			
	M	US-			

FOREIGN PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Country	Name	Classification
	N					
	O					
	P					
	Q					
	R					
	S					
	T					

NON-PATENT DOCUMENTS

*		Include as applicable: Author, Title Date, Publisher, Edition or Volume, Pertinent Pages)
	U	El meliani et al., "A Syllabic-Filler-Based Continuous Speech Recognizer for Unlimited Vocabulary", Canadian Conference on Electrical and Computer Engineering, pages 1007-1010, vol. 2, 5-8 Sep 1995.
	V	
	W	
	X	

*A copy of this reference is not being furnished with this Office action. (See MPEP § 707.05(a).)
Dates in MM-YYYY format are publication dates. Classifications may be US or foreign.

Index of Claims	Application/Control No.	Applicant(s)/Patent Under Reexamination
	11197504	CRISTO ET AL.
	Examiner	Art Unit
	BRIAN L ALBERTALLI	2626

✓	Rejected	-	Cancelled	N	Non-Elected	A	Appeal
=	Allowed	÷	Restricted	I	Interference	O	Objected

☐ Claims renumbered in the same order as presented by applicant ☐ CPA ☐ T.D. ☐ R.1.47

CLAIM		DATE								
Final	Original	09/25/2008								
	1	-								
	2	-								
	3	-								
	4	-								
	5	-								
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	7	-								
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	34	=								
	35	=								
	36	=								

Index of Claims	Application/Control No.	Applicant(s)/Patent Under Reexamination
	11197504	CRISTO ET AL.
	Examiner	Art Unit
	BRIAN L ALBERTALLI	2626

✓	Rejected	-	Cancelled	N	Non-Elected	A	Appeal
=	Allowed	÷	Restricted	I	Interference	O	Objected

☐ Claims renumbered in the same order as presented by applicant ☐ CPA ☐ T.D. ☐ R.1.47

CLAIM		DATE								
Final	Original	09/25/2008								
	37	✓								
	38	✓								
	39	✓								
	40	O								
	41	O								
	42	✓								
	43	✓								
	44	-								
	45	=								
	46	=								
	47	✓								
	48	=								

Search Notes	Application/Control No.	Applicant(s)/Patent Under Reexamination
	11197504	CRISTO ET AL.
	Examiner	Art Unit
	BRIAN L ALBERTALLI	2626

SEARCHED			
Class	Subclass	Date	Examiner

SEARCH NOTES		
Search Notes	Date	Examiner
Updated EAST Search - see search history printout	9/25/08	BA

INTERFERENCE SEARCH			
Class	Subclass	Date	Examiner

EAST Search History

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
S41	67	"704"/$.ccls. and agent$5 with grammar $5	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2008/09/16 14:13
S42	64	"704"/$.ccls. and (context $5 with stack $5)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2008/09/16 14:15
S43	9	S41 and S42	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2008/09/16 14:19
S44	33	"704"/$.ccls. and decoy$5	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2008/09/16 14:31
S45	64	"704"/$.ccls. and (context $5 with stack $5)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2008/09/17 10:17
S46	22	S45 and agent $5	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2008/09/17 10:17

S47	3	"704"/$.ccls. and (multipass $5 or (multi near2 pass $3)) and (decoy$5 or imposter$5)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2008/09/18 11:02
S48	5	"704"/$.ccls. and (multipass $5 or (multi near2 pass $3)) and (decoy$5 or impostor$5)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2008/09/18 11:06
S50	44	"704"/$.ccls. and (multipass $5 or (multi near2 pass $3)) and (large near2 vocabular$5)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2008/09/18 17:10

9/25/08 1:40:57 PM
C:\Documents and Settings\balbertalli\My Documents\EAST\Workspaces\11197504.wsp

INFORMATION DISCLOSURE CITATION IN AN APPLICATION	Docket Number	Application Number
	090611-0316777	11/197,504
	Applicant(s)	
	Philippe DI CRISTO *et al.*	
	Filing Date	Group Art Unit
Form PTO-1449	August 5, 2005	2626

U.S. PATENT DOCUMENTS

*EXAMINER INITIAL	REF	DOCUMENT NO.	DATE	NAME	CLASS	SUBCLASS	FILING DATE IF APPROPRIATE
	A	5,696,965	12/09/1997	Dedrick	395	610	
	B	5,878,385	03/02/1999	Bralich *et al.*	704	9	
	C	6,415,257	07/02/2002	Junqua *et al.*	704	275	
	D	6,466,654	10/15/2002	Cooper *et al.*	379	88.01	
	E	6,721,706	04/13/2004	Strubbe *et al.*	704	275	
	F	6,901,366	05/31/2005	Kuhn *et al.*	704	275	
	G	7,127,400	10/24/2006	Koch	704	270.1	

FOREIGN PATENT DOCUMENTS

	REF	DOCUMENT NO.	DATE	COUNTRY	CLASS	SUBCLASS	Translations YES	Translations NO

OTHER DOCUMENTS *(Including Author, Title, Date, Pertinent Pages, Etc.)*

	H	MAO, Mark Z., "Automatic Training Set Segmentation for Multi-Pass Speech Recognition", Department of Electrical Engineering, Stanford University, CA, copyright 2005, IEEE, pages I-685 to I-688.
	I	VANHOUCKE, Vincent, "Confidence Scoring and Rejection Using Multi-Pass Speech Recognition", Nuance Communications, Menlo Park, CA, [no date], 4 pages.
	J	WENG, Fuliang, *et al.*, "Efficient Lattice Representation and Generation", Speech Technology and Research Laboratory, SRI International, Menlo Park, CA, [no date], 4 pages.

EXAMINER	DATE CONSIDERED
/Brian Albertalli/	09/25/2008

EXAMINER: Initial if citation considered, whether or not citation is in conformance with MPEP Section 609; Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to Applicant.

ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /B.A./

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICANTS :	Philippe DI CRISTO *et al.*	CONFIRMATION NO.:	7092
SERIAL NUMBER :	11/197,504	EXAMINER:	Brian Louis Albertalli
FILING DATE :	August 5, 2005	ART UNIT:	2626
FOR :	SYSTEMS AND METHODS FOR RESPONDING TO NATURAL LANGUAGE SPEECH UTTERANCE		

SUPPLEMENTAL INFORMATION DISCLOSURE STATEMENT

Commissioner for Patents
P. O. Box 1450
Alexandria, VA 22313-1450

Sir:

Pursuant to the duty of disclosure under 37 C.F.R. §§ 1.56, 1.97 and 1.98, Applicants hereby make of record in the above-identified application the documents listed on the attached Form PTO-1449.

Applicants reserve the right to establish the patentability of the claimed invention over any of the information provided herewith, and/or to prove that this information may not be prior art, and/or to prove that this information may not be enabling for the teachings purportedly offered.

This Supplemental Information Disclosure Statement is being filed more than three months after the filing date of a national application other than a continued prosecution

application under 37 C.F.R. §1.53(d), or more than three months after the date of entry of the national stage as set forth in 37 C.F.R. §1.491 in an international application, and after the mailing date of the first Office Action on the merits, but before the mailing date of any of a Final Action under 37 C.F.R. §1.113, a Notice of Allowance under 37 C.F.R. §1.311, or an action that otherwise closes prosecution in the application. 37 C.F.R. §1.97(c).

Document J was cited by the U.S. Patent Office in co-pending Application Serial No. 11/200,164, filed August 10, 2005, in an Office Action dated June 30, 2008. Documents E and I were cited by the U.S. Patent Office in co-pending Application Serial No. 10/618,633, filed July 15, 2003, in an Office Action dated July 22, 2008. Documents A-D, F, and H were cited by the U.S. Patent Office in co-pending Application Serial No. 11/747,547, filed May 11, 2007, in an Office Action dated September 9, 2008. I hereby certify that no item of information contained in this Supplemental Information Disclosure Statement was cited in a communication from a foreign patent office in a counterpart foreign application, and, to my knowledge after making reasonable inquiry, no item of information contained in this Supplemental Information Disclosure Statement was known to any individual designated in 37 C.F.R. §1.56(c) more than three months prior to the filing of this Supplemental Information Disclosure Statement. 37 C.F.R. §1.97(e)(2).

It is respectfully requested that the Examiner initial and return a copy of the enclosed PTO-1449.

Respectfully submitted,

PILLSBURY WINTHROP SHAW PITTMAN LLP

By _____
Syed Jafar Ali
Registration No.: 58,780

Customer No.
00909

P. O. Box 10500
McLean, Virginia 22102
Telephone: (703) 770-7900
Telefax: (703) 770-7901

Dated: September 30, 2008

INFORMATION DISCLOSURE CITATION IN AN APPLICATION	Docket Number	Application Number
	090611-0316777	11/197,504
	Applicant(s)	
	Philippe DI CRISTO *et al.*	
	Filing Date	Group Art Unit
Form PTO-1449	August 5, 2005	2626

U.S. PATENT DOCUMENTS

*EXAMINER INITIAL	REF	DOCUMENT NO.	DATE	NAME	CLASS	SUBCLASS	FILING DATE IF APPROPRIATE
	A	6,513,006	01/28/2003	Howard *et al.*	704	257	
	B	6,631,346	10/07/2003	Karaorman *et al.*	704	9	
	C	6,643,620	11/04/2003	Contolini *et al.*	704	270	
	D	6,795,808	09/21/2004	Strubbe *et al.*	704	275	
	E	6,944,594	09/13/2005	Busayapongchai *et al.*	704	275	
	F	7,398,209	07/08/2008	Kennewick *et al.*	704	255	
	G	7,424,431	09/09/2008	Greene *et al.*	704	270	
	H	2001/0041980	11/15/2001	Howard *et al.*	704	270	
	I	2002/0049805	04/25/2002	Yamada *et al.*	709	202	
	J	2002/0198714	12/26/2002	Zhou	704	252	

FOREIGN PATENT DOCUMENTS

	REF	DOCUMENT NO.	DATE	COUNTRY	CLASS	SUBCLASS	Translations YES	Translations NO

OTHER DOCUMENTS *(Including Author, Title, Date, Pertinent Pages, Etc.)*

EXAMINER	DATE CONSIDERED

EXAMINER: Initial if citation considered, whether or not citation is in conformance with MPEP Section 609; Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to Applicant.

Electronic Acknowledgement Receipt

EFS ID:	4032647
Application Number:	11197504
International Application Number:	
Confirmation Number:	7092
Title of Invention:	Systems and methods for responding to natural language speech utterance
First Named Inventor/Applicant Name:	Philippe Di Cristo
Customer Number:	00909
Filer:	Syed Jafar Ali/Susan Trader
Filer Authorized By:	Syed Jafar Ali
Attorney Docket Number:	090611-0316777
Receipt Date:	30-SEP-2008
Filing Date:	05-AUG-2005
Time Stamp:	14:44:26
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	no

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1		0316777_SIDS.pdf	113706 acb12eb81fcedaed687fe5a77388332cd67b111a	yes	4

	Multipart Description/PDF files in .zip description		
	Document Description	**Start**	**End**
	Information Disclosure Statement Letter	1	3
	Information Disclosure Statement (IDS) Filed (SB/08)	4	4
Warnings:			
Information:			
	Total Files Size (in bytes):	113706	

This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.

New Applications Under 35 U.S.C. 111
If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

National Stage of an International Application under 35 U.S.C. 371
If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

New International Application Filed with the USPTO as a Receiving Office
If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICANTS :	Philippe DI CRISTO et al.	CONFIRMATION NO.:	7092
SERIAL NUMBER :	11/197,504	EXAMINER:	Brian Louis Albertalli
FILING DATE :	August 5, 2005	ART UNIT:	2626
FOR :	SYSTEMS AND METHODS FOR RESPONDING TO NATURAL LANGUAGE SPEECH UTTERANCE		

RESPONSE TO NON-FINAL OFFICE ACTION

Mail Stop Amendment
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Dear Sir:

In response to the Non-Final Office Action mailed **September 29, 2008**, please amend the above-identified application as follows:

Amendments to the Claims begin on page 2 of this paper.

Remarks/Arguments begin on page 9 of this paper.

It is not believed that extensions of time or fees for net addition of claims are required beyond those that may otherwise be provided for in documents accompanying this paper. However, if additional extensions of time are necessary to prevent abandonment of this application, then such extensions of time are hereby petitioned for under 37 C.F.R. § 1.136(a), and any fees required therefore (including fees for net addition of claims) are hereby authorized to be charged to our Deposit Account No. 033975 (**Ref. No. 090611-0316777**).

AMENDMENT

Amendments to the Claims: Please replace all prior versions and listings of claims with the following listing of claims.

LISTING OF CLAIMS:

1-29. **(Cancelled)**

30. **(Allowed)** A system for processing multi-modal natural language inputs, comprising:

a multi-modal voice user interface that receives a multi-modal input, the multi-modal input including a natural language utterance and a non-speech input, wherein a transcription module coupled to the multi-modal voice user interface transcribes the non-speech input to create a non-speech-based transcription;

a multi-pass speech recognition module configured to transcribe the natural language utterance into text;

a merging module configured to merge the text of the transcribed utterance and the non-speech-based transcription to create a merged transcription;

a plurality of domain agents, wherein a context description grammar includes one or more grammar expression entries that one or more of the plurality of domain agents use to process requests in respective contexts;

a knowledge-enhanced speech recognition engine configured to determine a most likely context for the multi-modal input, the knowledge-enhanced speech recognition engine configured to:

identify one or more contexts that completely or partially match one or more text combinations contained in the merged transcription, wherein identifying the matching contexts includes comparing the text combinations against the grammar expression entries in the context description grammar and against one or more expected contexts stored in a context stack;

score each of the identified matching contexts; and

select the matching context having a highest score as the most likely context for the multi-modal input; and

a response generating module configured to identify one or more of the plurality of domain agents that process requests in the most likely context for the multi-modal input, the response generating module configured to:

communicate a request to the identified domain agents, the request formulated using at least one grammar expression entry in the context description grammar; and

generate a response to the multi-modal input using content gathered as a result of the identified domain agents processing the request.

31. (**Allowed**) The system of claim 30, wherein the domain agents identified by the response generating module include a plurality of the domain agents, and wherein the response generated by the response generating module includes an aggregation of content gathered as a result of the plurality of identified domain agents processing the request.

32. (**Allowed**) The system of claim 30, wherein the multi-modal user interface subsequently receives one or more follow-up multi-modal inputs, the follow-up multi-modal inputs including at least one of a follow-up natural language utterance or a follow-up non-speech input.

33. (**Allowed**) The system of claim 32, wherein the identified domain agents update the context stack in response to successfully processing the request, and wherein the knowledge-enhanced speech recognition engine determines a most likely context for the follow-up multi-modal input using the updated context stack.

34. (**Allowed**) The system of claim 30, wherein the grammar expression entries in the context description grammar include relationships between criteria associated with requests in the respective contexts.

35. (**Allowed**) The system of claim 34, wherein the grammar expression entries in the context description grammar further include sequence orders for the criteria associated with the requests.

36. (**Allowed**) The system of claim 34, wherein the identified domain agents push criteria onto the context stack in response to successfully processing the request.

37. (**Currently Amended**) A method for interpreting natural language utterances using multi-pass automatic speech recognition, comprising:

receiving a natural language utterance at a multi-pass speech recognition module~~; and~~

~~transcribing the utterance using the multi-pass speech recognition module, the multi-pass speech recognition module~~ configured to use at least one of a dictation grammar or a virtual dictation grammar to transcribe the utterance into text, wherein the dictation grammar includes an unconstrained large vocabulary of words, and wherein the virtual dictation grammar includes a constrained vocabulary of words and a plurality of decoy words for out-of-vocabulary words;

dynamically generating the constrained vocabulary of words based on one or more previously successful transcriptions; and

transcribing the utterance using the multi-pass speech recognition module.

38-40. (**Cancelled**)

41. (**Currently Amended**) A [[The]] method ~~of claim 39~~ for interpreting natural language utterances using multi-pass automatic speech recognition, comprising:

receiving a natural language utterance at a multi-pass speech recognition module configured to use at least one of a dictation grammar or a virtual dictation grammar to transcribe the utterance into text, wherein the dictation grammar includes an unconstrained large vocabulary of words, wherein the virtual dictation grammar includes a constrained vocabulary of words and a plurality of decoy words for out-of-vocabulary words, and wherein

the decoy words include utility words, nonsense words, isolated syllables, and isolated distinct sounds associated with a particular spoken language; and

transcribing the utterance using the multi-pass speech recognition module.

42. (**Previously Presented**) The method of claim 37, wherein the text of the transcribed utterance includes a complete transcription of the utterance.

43. (**Previously Presented**) The method of claim 37, wherein the text of the transcribed utterance includes a partial transcription of the utterance.

44. (**Cancelled**)

45. (**Allowed**) A method for interpreting natural language utterances using knowledge-enhanced speech recognition, wherein the knowledge-enhanced speech recognition can be used to determine an intent and correct false recognitions of the natural language utterances, comprising:

receiving a transcription of a natural language utterance;

identifying one or more contexts that completely or partially match one or more text combinations contained in the transcription, wherein identifying the matching contexts includes comparing the text combinations against the grammar expression entries in the context description grammar and against one or more expected contexts stored in a context stack;

scoring each of the identified matching contexts;

selecting the matching context having a highest score to determine a most likely context for the utterance; and

communicating a request to a domain agent that processes requests in the most likely context for the utterance, the request formulated using at least one grammar expression entry in the context description grammar.

46. (**Allowed**) A method for processing natural language utterances, comprising:

receiving a natural language utterance at a multi-pass speech recognition module;

transcribing the utterance using the multi-pass speech recognition module, the multi-pass speech recognition module configured to transcribe the utterance into text;

identifying one or more contexts that completely or partially match one or more text combinations contained in the text of the transcribed utterance, wherein identifying the matching contexts includes comparing the text combinations against the grammar expression entries in the context description grammar and against one or more expected contexts stored in a context stack;

scoring each of the identified matching contexts;

selecting the matching context having a highest score to determine a most likely context for the utterance; and

communicating a request to a domain agent that processes requests in the most likely context for the utterance, the request formulated using at least one grammar expression entry in the context description grammar.

47. (**Currently Amended**) A system for interpreting natural language utterances, comprising:

a voice user interface that receives a natural language utterance; and

a platform that includes a multi-pass speech recognition module ~~configured to creates a speech-based transcription of the natural language utterance~~, wherein the multi-pass speech recognition ~~engine includes~~ module is configured to:

use a dictation grammar that includes an unconstrained large vocabulary of words to create ~~for performing~~ a ~~first pass~~ speech-based transcription of the natural language utterance if the dictation grammar is available on the platform; ~~and~~

use a virtual dictation grammar that includes a constrained vocabulary of words and a plurality of decoy words for out-of-vocabulary words to create ~~for performing at least one second pass transcription of the utterance, wherein the multi-pass speech recognition engine creates~~ the speech-based transcription ~~based on respective~~

~~confidence levels for the first pass transcription and the at least one second pass transcription of~~ if the ~~utterance~~ dictation grammar is not available on the platform; and

dynamically generate the constrained vocabulary of words based on one or more previously successful transcriptions.

48. (**Allowed**) A system for interpreting natural language utterances, comprising:

a voice user interface that receives a natural language utterance;

a multi-pass speech recognition configured to transcribe the natural language utterance into text; and

a knowledge-enhanced speech recognition engine that determines a most likely context for the natural language utterance, the knowledge-enhanced speech recognition engine configured to:

receive the text of the transcribed natural language utterance;

identify one or more contexts that completely or partially match one or more text combinations contained in the text of the transcribed utterance, wherein identifying the matching contexts includes comparing the text combinations against the grammar expression entries in the context description grammar and against one or more expected contexts stored in a context stack;

score each of the identified matching contexts;

select the matching context having a highest score to determine the most likely context for the utterance; and

communicate a request to a domain agent that processes requests in the most likely context for the utterance, the request formulated using at least one grammar expression entry in the context description grammar.

49. (**New**) A system for interpreting natural language utterances, comprising:

a voice user interface that receives a natural language utterance; and

a platform that includes a multi-pass speech recognition module, wherein the multi-pass speech recognition module is configured to:

use a dictation grammar that includes an unconstrained large vocabulary of words to create a speech-based transcription of the natural language utterance if the dictation grammar is available on the platform; and

use a virtual dictation grammar that includes a constrained vocabulary of words and a plurality of decoy words for out-of-vocabulary words to create the speech-based transcription if the dictation grammar is not available on the platform, wherein the decoy words include utility words, nonsense words, isolated syllables, and isolated distinct sounds associated with a particular spoken language.

REMARKS

Upon entry of the foregoing Amendment, claims 30-37, 41-43 and 45-49 are pending in the application. Claims 37, 41, and 47 have been amended. Claims 38-40 have been cancelled. Claim 49 has been newly added. Applicants believe that this Amendment does not add new matter. In view of the foregoing Amendment and the following Remarks, allowance of all the pending claims is requested.

ALLOWABLE CLAIMS

Applicants thank Examiner Albertalli for indicating that claims 30-36, 45-46, and 48 have been allowed, and for further indicating that claims 40-41 as previously presented would be allowable if rewritten in independent form, including the subject matter recited in any intervening claims.

As such, Applicants have amended claim 37 to recite the subject matter of claim 40 as previously presented in an independent form, and have further amended claim 41 to recite the subject matter of claim 41 as previously presented in an independent form. Therefore, amended claims 37 and 41 each recite subject matter that the Examiner has identified as allowable. Notice to that effect is respectfully requested.

Applicants further note that claim 47 has been amended to recite similar subject matter as previously presented in claim 40, and that newly added claim 49 recites similar subject matter as previously presented in claim 41. Therefore, amended claim 47 and newly added claim 49 each also recite subject matter that the Examiner has identified as allowable. Notice to that effect is respectfully requested.

REJECTION UNDER 35 U.S.C. § 112, FIRST PARAGRAPH

The Examiner has rejected claim 47 under 35 U.S.C. § 112, first paragraph, as allegedly failing to comply with the written description requirement. In particular, the Examiner alleges that "the subject matter of claim 47 is not supported by the originally filed disclosure."

Although Applicants disagree with the propriety of the rejection, solely in an effort to expedite prosecution of this application, claim 47 has been amended to further clarify the

invention. In particular, claim 47 has been amended to clarify the manner in which the multi-pass speech recognition module uses a dictation grammar and/or a virtual dictation grammar to create a speech-based transcription of a natural language utterance, as described in greater detail in Applicants' Specification on page 27, paragraph [62].

Accordingly, for at least the reason that the originally filed disclosure describes the subject matter recited in claim 47 in sufficient detail to convey to one skilled in the art that Applicants had possession of the claimed invention, Applicants request that the Examiner withdraw this rejection of the claims.

In addition, as discussed above, Applicants note that claim 47 has been amended to recite similar subject matter as previously presented in claim 40, which the Examiner has identified as being allowable. Applicants therefore request that the Examiner identify claim 47 as allowed in the next Office Action.

REJECTIONS UNDER 35 U.S.C. §§ 102, 103

The Examiner has rejected claims 37 and 43 under 35 U.S.C. § 102(b) as allegedly being anticipated by U.S. Patent No. 6,195,634 to Dudemaine et al. ("Dudemaine"), and has further rejected claim 42 under 35 U.S.C. § 103 as allegedly being unpatentable over Dudemaine in view of "A Syllabic-Filler-Based Continuous Speech Recognizer for Unlimited Vocabulary" to El méliani et al. ("El méliani"). Applicants request withdrawal of this rejection for at least the reason that claims 37 and 42-43 each contain subject matter that the Examiner has identified as allowable.

More particularly, as discussed above, Applicants have amended independent claim 37 to recite in an independent form the subject matter of claim 40 as previously presented. For at least the reason that the Examiner has indicated that claim 40 as previously presented would be allowable if rewritten in independent form, Applicants submit that independent claim 37, as amended, is allowable. Furthermore, because claims 42-43 depend from and add features to independent claim 37, claims 42-43 are allowable for at least the same reasons.

CONCLUSION

Having addressed the outstanding rejection, it is respectfully submitted that a full and complete response has been made to the outstanding Office Action and, as such, the application is in condition for allowance. Notice to that effect is respectfully requested.

If the Examiner believes, for any reason, that personal communication will expedite prosecution of this application, the Examiner is invited to telephone the undersigned at the number provided.

Date: **November 11, 2008**

Respectfully submitted,

By: _____

Syed Jafar Ali
Registration No. 58,780

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Electronic Patent Application Fee Transmittal

Application Number:	11197504
Filing Date:	05-Aug-2005
Title of Invention:	Systems and methods for responding to natural language speech utterance
First Named Inventor/Applicant Name:	Philippe Di Cristo
Filer:	Syed Jafar Ali/Kathy Oliver
Attorney Docket Number:	090611-0316777

Filed as Small Entity

Utility under 35 USC 111(a) Filing Fees

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Basic Filing:				
Pages:				
Claims:				
Independent claims in excess of 3	2201	2	110	220
Miscellaneous-Filing:				
Petition:				
Patent-Appeals-and-Interference:				
Post-Allowance-and-Post-Issuance:				
Extension-of-Time:				

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Miscellaneous:				
			Total in USD ($)	**220**

Electronic Acknowledgement Receipt

EFS ID:	4267708
Application Number:	11197504
International Application Number:	
Confirmation Number:	7092
Title of Invention:	Systems and methods for responding to natural language speech utterance
First Named Inventor/Applicant Name:	Philippe Di Cristo
Customer Number:	00909
Filer:	Syed Jafar Ali/Kathy Oliver
Filer Authorized By:	Syed Jafar Ali
Attorney Docket Number:	090611-0316777
Receipt Date:	11-NOV-2008
Filing Date:	05-AUG-2005
Time Stamp:	13:27:19
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	Deposit Account
Payment was successfully received in RAM	$220
RAM confirmation Number	7858
Deposit Account	033975
Authorized User	
The Director of the USPTO is hereby authorized to charge indicated fees and credit any overpayment as follows: Charge any Additional Fees required under 37 C.F.R. Section 1.17 (Patent application and reexamination processing fees)	

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1		0316777Rsp.pdf	403293 13d5334ae96a1c3071f9dde9fdee90dd816c0d73	yes	11

Multipart Description/PDF files in .zip description		
Document Description	**Start**	**End**
Amendment/Req. Reconsideration-After Non-Final Reject	1	1
Claims	2	8
Applicant Arguments/Remarks Made in an Amendment	9	11

Warnings:

Information:

2	Fee Worksheet (PTO-06)	fee-info.pdf	29754 4233c708684fbea35904b3d191cea4921881a0a7	no	2

Warnings:

Information:

Total Files Size (in bytes):	433047

This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.

New Applications Under 35 U.S.C. 111

If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

National Stage of an International Application under 35 U.S.C. 371

If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

New International Application Filed with the USPTO as a Receiving Office

If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

PTO/SB/06 (07-06)
Approved for use through 1/31/2007. OMB 0651-0032
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

PATENT APPLICATION FEE DETERMINATION RECORD

Substitute for Form PTO-875

Application or Docket Number	Filing Date	☐ To be Mailed
11/197,504	08/05/2005	

APPLICATION AS FILED – PART I

FOR	(Column 1) NUMBER FILED	(Column 2) NUMBER EXTRA	SMALL ENTITY ☒ RATE ($)	SMALL ENTITY ☒ FEE ($)	OR	OTHER THAN SMALL ENTITY RATE ($)	OTHER THAN SMALL ENTITY FEE ($)
☐ BASIC FEE (37 CFR 1.16(a), (b), or (c))	N/A	N/A	N/A			N/A	
☐ SEARCH FEE (37 CFR 1.16(k), (i), or (m))	N/A	N/A	N/A			N/A	
☐ EXAMINATION FEE (37 CFR 1.16(o), (p), or (q))	N/A	N/A	N/A			N/A	
TOTAL CLAIMS (37 CFR 1.16(i))	minus 20 =	*	X $ =		OR	X $ =	
INDEPENDENT CLAIMS (37 CFR 1.16(h))	minus 3 =	*	X $ =			X $ =	
☐ APPLICATION SIZE FEE (37 CFR 1.16(s))	If the specification and drawings exceed 100 sheets of paper, the application size fee due is $250 ($125 for small entity) for each additional 50 sheets or fraction thereof. See 35 U.S.C. 41(a)(1)(G) and 37 CFR 1.16(s).						
☐ MULTIPLE DEPENDENT CLAIM PRESENT (37 CFR 1.16(j))							
* If the difference in column 1 is less than zero, enter "0" in column 2.			TOTAL			TOTAL	

APPLICATION AS AMENDED – PART II

AMENDMENT 11/11/2008

	(Column 1) CLAIMS REMAINING AFTER AMENDMENT		(Column 2) HIGHEST NUMBER PREVIOUSLY PAID FOR	(Column 3) PRESENT EXTRA	SMALL ENTITY RATE ($)	SMALL ENTITY ADDITIONAL FEE ($)	OR	OTHER THAN SMALL ENTITY RATE ($)	OTHER THAN SMALL ENTITY ADDITIONAL FEE ($)
Total (37 CFR 1.16(i))	* 10	Minus	** 20	= 0	X $26 =	0	OR	X $ =	
Independent (37 CFR 1.16(h))	* 1	Minus	***3	= 0	X $110 =	0	OR	X $ =	
☐ Application Size Fee (37 CFR 1.16(s))									
☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))							OR		
					TOTAL ADD'L FEE	0	OR	TOTAL ADD'L FEE	

AMENDMENT

	(Column 1) CLAIMS REMAINING AFTER AMENDMENT		(Column 2) HIGHEST NUMBER PREVIOUSLY PAID FOR	(Column 3) PRESENT EXTRA	RATE ($)	ADDITIONAL FEE ($)		RATE ($)	ADDITIONAL FEE ($)
Total (37 CFR 1.16(i))	*	Minus	**	=	X $ =		OR	X $ =	
Independent (37 CFR 1.16(h))	*	Minus	***	=	X $ =		OR	X $ =	
☐ Application Size Fee (37 CFR 1.16(s))									
☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))							OR		
					TOTAL ADD'L FEE		OR	TOTAL ADD'L FEE	

* If the entry in column 1 is less than the entry in column 2, write "0" in column 3.

** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 20, enter "20".

*** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 3, enter "3".

The "Highest Number Previously Paid For" (Total or Independent) is the highest number found in the appropriate box in column 1.

Legal Instrument Examiner:
/KIMBERLY PANNELL/

This collection of information is required by 37 CFR 1.16. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.

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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
11/197,504	08/05/2005	Philippe Di Cristo	090611-0316777	7092

909 7590 02/04/2009

PILLSBURY WINTHROP SHAW PITTMAN, LLP
P.O. BOX 10500
MCLEAN, VA 22102

EXAMINER	
ALBERTALLI, BRIAN LOUIS	
ART UNIT	PAPER NUMBER
2626	
MAIL DATE	DELIVERY MODE
02/04/2009	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	11/197,504	CRISTO ET AL.	
	Examiner	Art Unit	
	BRIAN L. ALBERTALLI	2626	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *11 November 2008*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *30-37,41-43 and 45-49* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☒ Claim(s) *30-36 and 47-49* is/are allowed.

6)☒ Claim(s) *37,41-43,45 and 46* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Response to Arguments

1. Applicant's arguments with respect to all of the rejections made in the previous Office Action have been fully considered and are persuasive. The rejections have been withdrawn.

However, upon further consideration, claims 37, 41-43, 45, and 46 must be rejected under 35 U.S.C. 101 because the claims are directed to non-statutory subject matter (see 101 Rejections, below).

Claim Rejections - 35 USC § 101

2. 35 U.S.C. 101 reads as follows:

> Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

3. Claims 37, 41-43, 45, and 46 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter.

Claims 37, 41-43, 45, and 46 do not fall within one of the four statutory categories of invention. While the claim(s) recite a series of steps or acts to be performed, a statutory "process" under 35 USC 101 must (1) be tied to another statutory category (such as a manufacture or a machine), or (2) transform underlying subject matter (such as an article or material) to a different state or thing. The instant claim(s) neither transform underlying subject matter nor positively recite structure associated with another statutory category, and therefore do not define a statutory process.

The claims in question are directed to methods for interpreting natural language utterances. Clearly, the methods do not physically transform underlying subject matter to a different state or thing. Furthermore, the claims are not tied to another statutory category. Specifically, the processing performed in the methods is performed by various "modules" (such as a multi-pass speech recognition module). However, the specification suggests that a "module" is simply software ("*the software may include one or more of the following modules...*", paragraph 12 of the specification).

It appears, therefore, that the processing steps performed in claims 37, 41-43, 45, and 46 are performed solely by software, without being tied to another statutory category (such as a statutory system running the software modules). Since the claims are not "tied to" another statutory category, they do not comprise a statutory process.

Allowable Subject Matter

4. Claims 30-36 and 47-49 are allowed.

The following is an examiner's statement of reasons for allowance:

Claims 30 and 48 require identifying matching contexts in a transcribed utterance by comparing the text combinations against grammar expression entries in the context description grammar and against one or more expected contexts stored in a context stack. Dudemaine et al. and the additional prior art used in this Office action do not disclose or suggest such a feature. Additionally, Coffman et al. (used in a previous Office Action for teaching similar features) include a context stack, however, Coffman et al. do not disclose or suggest comparing text combinations against both grammar

expression entries in the context description grammar and against one or more expected contexts stored in a context stack.

Regarding claim 47, Dudemaine et al. suggest updating a recognition vocabulary used (flexible vocabulary recognition). However, there is no suggestion that the constrained vocabulary is generated dynamically based on one or more previously successful transcriptions. Additionally, Mohri et al. and El meliani et al. do not disclose or suggest such a feature.

Regarding claim 49, Dudemaine et al. disclose the decoy words are made up of random sub-word elements. However, Dudemaine et al. do not disclose or suggest including each of utility words, nonsense words, isolated syllable, and isolated distinct sounds associated with a particular spoken feature. Additionally, Mohri et al. and El meliani et al. do not disclose or suggest such a feature.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled “Comments on Statement of Reasons for Allowance.”

5. Additionally, claims 37, 41-43, 45, and 46 would be allowable if amended to overcome the rejections under 35 U.S.C. 101, made above.

Conclusion

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to BRIAN L. ALBERTALLI whose telephone number is (571)272-7616. The examiner can normally be reached on Monday-Thursday, 8 AM to 6:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Hudspeth can be reached on (571) 272-7843. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/David R Hudspeth/
Supervisory Patent Examiner, Art Unit 2626

BLA 1/30/09

EAST Search History

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
L1	44	"704"/$.ccls. and (multipass$5 or (multi near2 pass$3)) and (large near2 vocabular $5)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2009/01/30 15:50
L2	72	"704"/$.ccls. and (context$5 with stack $5)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2009/01/30 15:50
L3	26	L2 and agent$5	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2009/01/30 15:50
L4	176	"704"/$.ccls. and (multipass$5 or (multi near2 pass$2))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2009/01/30 15:51
L5	9	US-6513006-$.DID. OR US-6631346-$.DID. OR US-6643620-$.DID. OR US-6795808-$.DID. OR US-6944594-$.DID. OR US-7398209-$.DID. OR US-7424431-$.DID. OR US-20010041980-$.DID. OR US-20020049805-$.DID.	US-PGPUB; USPAT; USOCR	OR	OFF	2009/01/30 15:55
L6	2	"20020198714"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2009/01/30 15:56

1/30/09 3:57:03 PM
C:\Documents and Settings\balbertalli\My Documents\EAST\Workspaces\11197504.wsp

Search Notes	Application/Control No.	Applicant(s)/Patent Under Reexamination
	11197504	CRISTO ET AL.
	Examiner	Art Unit
	BRIAN L ALBERTALLI	2626

SEARCHED			
Class	Subclass	Date	Examiner

SEARCH NOTES		
Search Notes	Date	Examiner
Updated EAST Search - see search history printout	9/25/08	BA
Updated EAST Search - see search history printout	1/30/09	BA

INTERFERENCE SEARCH			
Class	Subclass	Date	Examiner

Index of Claims	Application/Control No.	Applicant(s)/Patent Under Reexamination
	11197504	CRISTO ET AL.
	Examiner	Art Unit
	BRIAN L ALBERTALLI	2626

✓	Rejected	-	Cancelled	N	Non-Elected	A	Appeal
=	Allowed	÷	Restricted	I	Interference	O	Objected

☐ Claims renumbered in the same order as presented by applicant ☐ CPA ☐ T.D. ☐ R.1.47

CLAIM		DATE								
Final	Original	09/25/2008	01/30/2009							
	1	-	-							
	2	-	-							
	3	-	-							
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	34	=	=							
	35	=	=							
	36	=	=							

Index of Claims	Application/Control No.	Applicant(s)/Patent Under Reexamination
	11197504	CRISTO ET AL.
	Examiner	Art Unit
	BRIAN L ALBERTALLI	2626

✓	Rejected	-	Cancelled	N	Non-Elected	A	Appeal
=	Allowed	÷	Restricted	I	Interference	O	Objected

☐ Claims renumbered in the same order as presented by applicant ☐ CPA ☐ T.D. ☐ R.1.47

CLAIM		DATE								
Final	Original	09/25/2008	01/30/2009							
	37	✓	✓							
	38	✓	-							
	39	✓	-							
	40	O	-							
	41	O	✓							
	42	✓	✓							
	43	✓	✓							
	44	-	-							
	45	=	✓							
	46	=	✓							
	47	✓	=							
	48	=	=							
	49		=							

INFORMATION DISCLOSURE CITATION IN AN APPLICATION	Docket Number	Application Number
	090611-0316777	11/197,504
	Applicant(s)	
	Philippe DI CRISTO *et al.*	
	Filing Date	Group Art Unit
Form PTO-1449	August 5, 2005	2626

U.S. PATENT DOCUMENTS

*EXAMINER INITIAL	REF	DOCUMENT NO.	DATE	NAME	CLASS	SUBCLASS	FILING DATE IF APPROPRIATE
	A	6,513,006	01/28/2003	Howard *et al.*	704	257	
	B	6,631,346	10/07/2003	Karaorman *et al.*	704	9	
	C	6,643,620	11/04/2003	Contolini *et al.*	704	270	
	D	6,795,808	09/21/2004	Strubbe *et al.*	704	275	
	E	6,944,594	09/13/2005	Busayapongchai *et al.*	704	275	
	F	7,398,209	07/08/2008	Kennewick *et al.*	704	255	
	G	7,424,431	09/09/2008	Greene *et al.*	704	270	
	H	2001/0041980	11/15/2001	Howard *et al.*	704	270	
	I	2002/0049805	04/25/2002	Yamada *et al.*	709	202	
	J	2002/0198714	12/26/2002	Zhou	704	252	

FOREIGN PATENT DOCUMENTS

	REF	DOCUMENT NO.	DATE	COUNTRY	CLASS	SUBCLASS	Translations YES	Translations NO

OTHER DOCUMENTS *(Including Author, Title, Date, Pertinent Pages, Etc.)*

EXAMINER	DATE CONSIDERED
/Brian Albertalli/	01/30/2009

EXAMINER: Initial if citation considered, whether or not citation is in conformance with MPEP Section 609; Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to Applicant.

ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /B.A./

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICANTS :	Philippe DI CRISTO et al.	CONFIRMATION NO.:	7092
SERIAL NUMBER :	11/197,504	EXAMINER:	Brian Louis Albertalli
FILING DATE :	August 5, 2005	ART UNIT:	2626
FOR :	SYSTEMS AND METHODS FOR RESPONDING TO NATURAL LANGUAGE SPEECH UTTERANCE		

RESPONSE TO NON-FINAL OFFICE ACTION

Mail Stop Amendment
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Dear Sir:

In response to the Non-Final Office Action mailed **February 4, 2009**, please amend the above-identified application as follows:

Amendments to the Claims begin on page **2** of this paper.

Remarks/Arguments begin on page **9** of this paper.

It is not believed that extensions of time or fees for net addition of claims are required beyond those that may otherwise be provided for in documents accompanying this paper. However, if additional extensions of time are necessary to prevent abandonment of this application, then such extensions of time are hereby petitioned for under 37 C.F.R. § 1.136(a), and any fees required therefore (including fees for net addition of claims) are hereby authorized to be charged to our Deposit Account No. 033975 (**Ref. No. 090611-0316777**).

AMENDMENT

Amendments to the Claims: Please replace all prior versions and listings of claims with the following listing of claims.

LISTING OF CLAIMS:

1-29. (**Cancelled**)

30. (**Currently Amended**) A system for processing multi-modal natural language inputs, comprising:

a multi-modal voice user interface configured to receive ~~that receives~~ a multi-modal input, the multi-modal input including a natural language utterance and a non-speech input, wherein a transcription module coupled to the multi-modal voice user interface is configured to transcribe ~~transcribes~~ the non-speech input to create a non-speech-based transcription;

a multi-pass speech recognition module configured to transcribe the natural language utterance into text;

a merging module configured to merge the text of the transcribed utterance and the non-speech-based transcription to create a merged transcription;

a plurality of domain agents, wherein a context description grammar includes one or more grammar expression entries that one or more of the plurality of domain agents are configured to use to process requests in respective contexts;

a knowledge-enhanced speech recognition engine configured to determine a most likely context for the multi-modal input, the knowledge-enhanced speech recognition engine further configured to:

identify one or more contexts that completely or partially match one or more text combinations contained in the merged transcription, wherein identifying the matching contexts includes comparing the text combinations against the grammar expression entries in the context description grammar and against one or more expected contexts stored in a context stack;

score each of the identified matching contexts; and

select the matching context having a highest score as the most likely context for the multi-modal input; and

a response generating module configured to identify one or more of the plurality of domain agents that are configured to process requests in the most likely context for the multi-modal input, the response generating module configured to:

communicate a request to the identified domain agents, the request formulated using at least one grammar expression entry in the context description grammar; and

generate a response to the multi-modal input using content gathered as a result of the identified domain agents processing the request.

31. (**Allowed**) The system of claim 30, wherein the domain agents identified by the response generating module include a plurality of the domain agents, and wherein the response generated by the response generating module includes an aggregation of content gathered as a result of the plurality of identified domain agents processing the request.

32. (**Currently Amended**) The system of claim 30, wherein the multi-modal voice user interface is further configured to subsequently receive ~~receives~~ one or more follow-up multi-modal inputs, the follow-up multi-modal inputs including at least one of a follow-up natural language utterance or a follow-up non-speech input.

33. (**Currently Amended**) The system of claim 32, wherein the identified domain agents are further configured to update the context stack in response to successfully processing the request, and wherein the knowledge-enhanced speech recognition engine is further configured to determine ~~determines~~ a most likely context for the follow-up multi-modal input using the updated context stack.

34. (**Allowed**) The system of claim 30, wherein the grammar expression entries in the context description grammar include relationships between criteria associated with requests in the respective contexts.

35. (**Allowed**) The system of claim 34, wherein the grammar expression entries in the context description grammar further include sequence orders for the criteria associated with the requests.

36. (**Currently Amended**) The system of claim 34, wherein the identified domain agents are further configured to push criteria onto the context stack in response to successfully processing the request.

37. (**Currently Amended**) A method for interpreting natural language utterances using multi-pass automatic speech recognition, comprising:

receiving a natural language utterance at a computer comprising a multi-pass speech recognition module configured to use at least one of a dictation grammar or a virtual dictation grammar to transcribe the utterance into text, wherein the dictation grammar includes an unconstrained large vocabulary of words, and wherein the virtual dictation grammar includes a constrained vocabulary of words and a plurality of decoy words for out-of-vocabulary words;

dynamically generating the constrained vocabulary of words based on one or more previously successful transcriptions; and

transcribing the utterance using the multi-pass speech recognition module.

38-40. (**Cancelled**)

41. (**Currently Amended**) A method for interpreting natural language utterances using multi-pass automatic speech recognition, comprising:

receiving a natural language utterance at a computer comprising a multi-pass speech recognition module configured to use at least one of a dictation grammar or a virtual dictation

grammar to transcribe the utterance into text, wherein the dictation grammar includes an unconstrained large vocabulary of words, wherein the virtual dictation grammar includes a constrained vocabulary of words and a plurality of decoy words for out-of-vocabulary words, and wherein the decoy words include utility words, nonsense words, isolated syllables, and isolated distinct sounds associated with a particular spoken language; and

transcribing the utterance using the multi-pass speech recognition module.

42. (**Previously Presented**) The method of claim 37, wherein the text of the transcribed utterance includes a complete transcription of the utterance.

43. (**Previously Presented**) The method of claim 37, wherein the text of the transcribed utterance includes a partial transcription of the utterance.

44. (**Cancelled**)

45. (**Currently Amended**) A method for interpreting natural language utterances using knowledge-enhanced speech recognition engine, wherein the knowledge-enhanced speech recognition engine is configured ~~can be used~~ to determine an intent and correct false recognitions of the natural language utterances, comprising:

receiving a transcription of a natural language utterance at a computer comprising the knowledge-enhanced speech recognition engine;

identifying one or more contexts that completely or partially match one or more text combinations contained in the transcription, wherein identifying the matching contexts includes comparing the text combinations against the grammar expression entries in the context description grammar and against one or more expected contexts stored in a context stack;

scoring each of the identified matching contexts;

selecting the matching context having a highest score to determine a most likely context for the utterance; and

communicating a request to a domain agent ~~that processes~~ configured to process requests in the most likely context for the utterance, the request formulated using at least one grammar expression entry in the context description grammar.

46. (**Currently Amended**) A method for processing natural language utterances, comprising:

receiving a natural language utterance at a computer comprising a multi-pass speech recognition module;

transcribing the utterance using the multi-pass speech recognition module, the multi-pass speech recognition module configured to transcribe the utterance into text;

identifying one or more contexts that completely or partially match one or more text combinations contained in the text of the transcribed utterance, wherein identifying the matching contexts includes comparing the text combinations against the grammar expression entries in the context description grammar and against one or more expected contexts stored in a context stack;

scoring each of the identified matching contexts;

selecting the matching context having a highest score to determine a most likely context for the utterance; and

communicating a request to a domain agent ~~that processes~~ configured to process requests in the most likely context for the utterance, the request formulated using at least one grammar expression entry in the context description grammar.

47. (**Currently Amended**) A system for interpreting natural language utterances, comprising:

a voice user interface configured to receive ~~that receives~~ a natural language utterance; and

a platform that includes a multi-pass speech recognition module, wherein the multi-pass speech recognition module is configured to:

use a dictation grammar that includes an unconstrained large vocabulary of words to create a speech-based transcription of the natural language utterance if the dictation grammar is available on the platform;

use a virtual dictation grammar that includes a constrained vocabulary of words and a plurality of decoy words for out-of-vocabulary words to create the speech-based transcription if the dictation grammar is not available on the platform; and

dynamically generate the constrained vocabulary of words based on one or more previously successful transcriptions.

48. (**Currently Amended**) A system for interpreting natural language utterances, comprising:

a voice user interface configured to receive ~~that receives~~ a natural language utterance;

a multi-pass speech recognition module configured to transcribe the natural language utterance into text; and

a knowledge-enhanced speech recognition engine ~~that determines~~ configured to determine a most likely context for the natural language utterance, the knowledge-enhanced speech recognition engine further configured to:

receive the text of the transcribed natural language utterance;

identify one or more contexts that completely or partially match one or more text combinations contained in the text of the transcribed utterance, wherein identifying the matching contexts includes comparing the text combinations against the grammar expression entries in the context description grammar and against one or more expected contexts stored in a context stack;

score each of the identified matching contexts;

select the matching context having a highest score to determine the most likely context for the utterance; and

communicate a request to a domain agent ~~that processes~~ configured to process requests in the most likely context for the utterance, the request formulated using at least one grammar expression entry in the context description grammar.

49. (**Currently Amended**) A system for interpreting natural language utterances, comprising:

a voice user interface ~~that receives~~ configured to receive a natural language utterance; and

a platform that includes a multi-pass speech recognition module, wherein the multi-pass speech recognition module is configured to:

use a dictation grammar that includes an unconstrained large vocabulary of words to create a speech-based transcription of the natural language utterance if the dictation grammar is available on the platform; and

use a virtual dictation grammar that includes a constrained vocabulary of words and a plurality of decoy words for out-of-vocabulary words to create the speech-based transcription if the dictation grammar is not available on the platform, wherein the decoy words include utility words, nonsense words, isolated syllables, and isolated distinct sounds associated with a particular spoken language.

REMARKS

Upon entry of the foregoing Amendment, claims 30-37, 41-43 and 45-49 are pending in the application. Claims 30, 32-33, 36-37, 41, and 45-49 have been amended. No claims have been cancelled or newly added. Applicants believe that this Amendment does not add new matter. In view of the foregoing Amendment and the following Remarks, allowance of all the pending claims is requested.

EXAMINER INTERVIEW

Applicants thank Examiner Albertalli for extending Applicants' representative the courtesy of an Examiner Interview on February 25, 2009. During the Examiner interview, the Examiner and Applicants' representative agreed upon language to place all of the pending claims in condition for allowance, as discussed in further detail below.

ALLOWED CLAIMS

Applicants acknowledge with appreciation the Examiner's allowance of claims 30-36 and 47-49. Applicants further note that minor amendments have been made to the language of allowed claims 30, 32-33, 36, and 47-49, as indicated above. As such, for at least the reason that currently pending claims 30-36 and 47-49 continue to recite subject matter that the Examiner has identified as allowable, notice to that effect is respectfully requested.

REJECTIONS UNDER 35 U.S.C. § 101

The Examiner has rejected claims 37, 41-43, and 45-46 under 35 U.S.C. § 101 as allegedly being directed to non-statutory subject matter. In particular, the Examiner alleges that claims 37, 41-43, and 45-46 "neither transform underlying subject matter nor positively recite structure associated with another statutory category, and therefore do not define a statutory process." Office Action, pages 2-3.

Although Applicants disagree with the propriety of this rejection, as the recited methods transform underlying subject matter (e.g., transcribing natural language utterances into text or other information that can be further interpreted and/or processed), solely in an

effort to expedite prosecution of this application, independent claims 37, 41, and 45-46 have been amended to further recite structure associated with another statutory category.

More particularly, independent claims 37, 41, and 46 have each been amended to further recite "receiving a natural language utterance ***at a computer*** comprising a multi-pass speech recognition module," while independent claim 45 has been amended to further recite "receiving a natural language utterance ***at a computer*** comprising [a] knowledge-enhanced speech recognition engine." Thus, for at least the reason that the Examiner indicated in the Examiner Interview that reciting "a computer" would overcome the rejection based on 35 U.S.C. § 101, independent claims 37, 41, and 45-46 are directed to statutory subject matter.

As such, for at least the reason that claims 37, 41-43, and 45-46 both transform underlying subject matter and recite structure associated with another statutory category, Applicants request withdrawal of this rejection. In addition, for at least the reason that the Examiner has indicated that "claims 37, 41-43, 45, and 46 would be allowable if amended to overcome the rejections under 35 U.S.C. 101," notice that effect is respectfully requested.

CONCLUSION

Having addressed the outstanding rejection, it is respectfully submitted that a full and complete response has been made to the outstanding Office Action and, as such, the application is in condition for allowance. Notice to that effect is respectfully requested.

If the Examiner believes, for any reason, that personal communication will expedite prosecution of this application, the Examiner is invited to telephone the undersigned at the number provided.

Date: **February 27, 2009**

Respectfully submitted,

By: _____

Syed Jafar Ali
Registration No. 58,780

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Electronic Acknowledgement Receipt

EFS ID:	4875463
Application Number:	11197504
International Application Number:	
Confirmation Number:	7092
Title of Invention:	Systems and methods for responding to natural language speech utterance
First Named Inventor/Applicant Name:	Philippe Di Cristo
Customer Number:	00909
Filer:	Syed Jafar Ali/Kathy Oliver
Filer Authorized By:	Syed Jafar Ali
Attorney Docket Number:	090611-0316777
Receipt Date:	27-FEB-2009
Filing Date:	05-AUG-2005
Time Stamp:	15:38:10
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	no

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1		0316777Rsp.pdf	394126 067b781fc3ec6151b9c4944e5e27abc3be531f32	yes	11

	Multipart Description/PDF files in .zip description		
	Document Description	**Start**	**End**
	Amendment/Req. Reconsideration-After Non-Final Reject	1	1
	Claims	2	8
	Applicant Arguments/Remarks Made in an Amendment	9	11
Warnings:			
Information:			
	Total Files Size (in bytes):	394126	

This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.

New Applications Under 35 U.S.C. 111
If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

National Stage of an International Application under 35 U.S.C. 371
If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

New International Application Filed with the USPTO as a Receiving Office
If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

PTO/SB/06 (07-06)
Approved for use through 1/31/2007. OMB 0651-0032
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PATENT APPLICATION FEE DETERMINATION RECORD

Substitute for Form PTO-875

Application or Docket Number	Filing Date	☐ To be Mailed
11/197,504	08/05/2005	

APPLICATION AS FILED – PART I

FOR	(Column 1) NUMBER FILED	(Column 2) NUMBER EXTRA	SMALL ENTITY ☒ RATE ($)	SMALL ENTITY ☒ FEE ($)	OR	OTHER THAN SMALL ENTITY RATE ($)	OTHER THAN SMALL ENTITY FEE ($)
☐ BASIC FEE (37 CFR 1.16(a), (b), or (c))	N/A	N/A	N/A			N/A	
☐ SEARCH FEE (37 CFR 1.16(k), (i), or (m))	N/A	N/A	N/A			N/A	
☐ EXAMINATION FEE (37 CFR 1.16(o), (p), or (q))	N/A	N/A	N/A			N/A	
TOTAL CLAIMS (37 CFR 1.16(i))	minus 20 =	*	X $ =		OR	X $ =	
INDEPENDENT CLAIMS (37 CFR 1.16(h))	minus 3 =	*	X $ =			X $ =	
☐ APPLICATION SIZE FEE (37 CFR 1.16(s))	If the specification and drawings exceed 100 sheets of paper, the application size fee due is $250 ($125 for small entity) for each additional 50 sheets or fraction thereof. See 35 U.S.C. 41(a)(1)(G) and 37 CFR 1.16(s).						
☐ MULTIPLE DEPENDENT CLAIM PRESENT (37 CFR 1.16(j))							
* If the difference in column 1 is less than zero, enter "0" in column 2.			TOTAL			TOTAL	

APPLICATION AS AMENDED – PART II

AMENDMENT	02/27/2009	(Column 1) CLAIMS REMAINING AFTER AMENDMENT		(Column 2) HIGHEST NUMBER PREVIOUSLY PAID FOR	(Column 3) PRESENT EXTRA	SMALL ENTITY RATE ($)	SMALL ENTITY ADDITIONAL FEE ($)	OR	OTHER THAN SMALL ENTITY RATE ($)	OTHER THAN SMALL ENTITY ADDITIONAL FEE ($)
	Total (37 CFR 1.16(i))	* 16	Minus	** 29	= 0	X $26 =	0	OR	X $ =	
	Independent (37 CFR 1.16(h))	* 8	Minus	***8	= 0	X $110 =	0	OR	X $ =	
	☐ Application Size Fee (37 CFR 1.16(s))									
	☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))							OR		
						TOTAL ADD'L FEE	0	OR	TOTAL ADD'L FEE	

AMENDMENT		(Column 1) CLAIMS REMAINING AFTER AMENDMENT		(Column 2) HIGHEST NUMBER PREVIOUSLY PAID FOR	(Column 3) PRESENT EXTRA	RATE ($)	ADDITIONAL FEE ($)	OR	RATE ($)	ADDITIONAL FEE ($)
	Total (37 CFR 1.16(i))	*	Minus	**	=	X $ =		OR	X $ =	
	Independent (37 CFR 1.16(h))	*	Minus	***	=	X $ =		OR	X $ =	
	☐ Application Size Fee (37 CFR 1.16(s))									
	☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))							OR		
						TOTAL ADD'L FEE		OR	TOTAL ADD'L FEE	

* If the entry in column 1 is less than the entry in column 2, write "0" in column 3.

** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 20, enter "20".

*** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 3, enter "3".

The "Highest Number Previously Paid For" (Total or Independent) is the highest number found in the appropriate box in column 1.

Legal Instrument Examiner:
/MARQUETTA MCGEE/

This collection of information is required by 37 CFR 1.16. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.

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909 e 03/11/2009

PILLSBURY WINTHROP SHAW PITTMAN, LLP
P.O. BOX 10500
MCLEAN, VA 22102

Paper No.

Application No.:	**11/197,504**	**Date Mailed:**	**03/11/2009**
First Named Inventor:	Cristo, Philippe, Di	Examiner:	ALBERTALLI, BRIAN LOUIS
Attorney Docket No.:	090611-0316777	Art Unit:	2626
Confirmation No.:	7092	Filing Date:	08/05/2005

Please find attached an Office communication concerning this application or proceeding.

Commissioner for Patents

PTO-90c (Rev.08-06)

Notice of Non-Compliant Amendment (37 CFR 1.121)	Application No. 11/197,504	Applicant(s) CRISTO ET AL.	
		Art Unit 2600	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

The amendment document filed on *27 February, 2009* is considered non-compliant because it has failed to meet the requirements of 37 CFR 1.121 or 1.4. In order for the amendment document to be compliant, correction of the following item(s) is required.

THE FOLLOWING MARKED (X) ITEM(S) CAUSE THE AMENDMENT DOCUMENT TO BE NON-COMPLIANT:

- ☐ 1. Amendments to the specification:
  - ☐ A. Amended paragraph(s) do not include markings.
  - ☐ B. New paragraph(s) should not be underlined.
  - ☐ C. Other _____.
- ☐ 2. Abstract:
  - ☐ A. Not presented on a separate sheet. 37 CFR 1.72.
  - ☐ B. Other _____.
- ☐ 3. Amendments to the drawings:
  - ☐ A. The drawings are not properly identified in the top margin as "Replacement Sheet," "New Sheet," or "Annotated Sheet" as required by 37 CFR 1.121(d).
  - ☐ B. The practice of submitting proposed drawing correction has been eliminated. Replacement drawings showing amended figures, without markings, in compliance with 37 CFR 1.84 are required.
  - ☐ C. Other _____.
- ☒ 4. Amendments to the claims:
  - ☐ A. A complete listing of all of the claims is not present.
  - ☐ B. The listing of claims does not include the text of all pending claims (including withdrawn claims)
  - ☒ C. Each claim has not been provided with the proper status identifier, and as such, the individual status of each claim cannot be identified. Note: the status of every claim must be indicated after its claim number by using one of the following status identifiers: (Original), (Currently amended), (Canceled), (Previously presented), (New), (Not entered), (Withdrawn) and (Withdrawn-currently amended).
  - ☐ D. The claims of this amendment paper have not been presented in ascending numerical order.
  - ☐ E. Other: _____.
- ☐ 5. Other (e.g., the amendment is unsigned or not signed in accordance with 37 CFR 1.4): For further explanation of the amendment format required by 37 CFR 1.121, see MPEP § 714.

TIME PERIODS FOR FILING A REPLY TO THIS NOTICE:

1. Applicant is given **no new time period** if the non-compliant amendment is an after-final amendment or an amendment filed after allowance, or a drawing submission (only) If applicant wishes to resubmit the non-compliant after-final amendment with corrections, the **entire corrected amendment** must be resubmitted.

2. Applicant is given **one month**, or thirty (30) days, whichever is longer, from the mail date of this notice to supply the correction, if the non-compliant amendment is one of the following: a preliminary amendment, a non-final amendment (including a submission for a request for continued examination (RCE) under 37 CFR 1.114), a supplemental amendment filed within a suspension period under 37 CFR 1.103(a) or (c), and an amendment filed in response to a Quayle action. If any of above boxes 1 to 4 are checked, the correction required is only the corrected section of the non-compliant amendment in compliance with 37 CFR 1.121.

   Extensions of time are available under 37 CFR 1.136(a) only if the non-compliant amendment is a non-final amendment or an amendment filed in response to a *Quayle* action.
   Failure to timely respond to this notice will result in:
   Abandonment of the application if the non-compliant amendment is a non-final amendment or an amendment filed in response to a *Quayle* action; or
   Non-entry of the amendment if the non-compliant amendment is a preliminary amendment or supplemental amendment.

Legal Instruments Examiner (LIE), if applicable /MARQUETTA MCGEE/ Telephone No: (571)272-2956

Continuation of 4C. The word "Allowed" is not a proper status identifier.

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICANTS :	Philippe DI CRISTO et al.	CONFIRMATION NO.:	7092
SERIAL NUMBER :	11/197,504	EXAMINER:	Brian Louis Albertalli
FILING DATE :	August 5, 2005	ART UNIT:	2626
FOR :	SYSTEMS AND METHODS FOR RESPONDING TO NATURAL LANGUAGE SPEECH UTTERANCE		

SUPPLEMENTAL RESPONSE TO NON-FINAL OFFICE ACTION

Mail Stop Amendment
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Dear Sir:

In response to the Notice of Non-Compliant Amendment mailed **March 11, 2009**, please amend the above-identified application as follows:

Amendments to the Claims begin on page 2 of this paper.

Remarks/Arguments begin on page 9 of this paper.

It is not believed that extensions of time or fees for net addition of claims are required beyond those that may otherwise be provided for in documents accompanying this paper. However, if additional extensions of time are necessary to prevent abandonment of this application, then such extensions of time are hereby petitioned for under 37 C.F.R. § 1.136(a), and any fees required therefore (including fees for net addition of claims) are hereby authorized to be charged to our Deposit Account No. 033975 (**Ref. No. 090611-0316777**).

AMENDMENT

Amendments to the Claims: Please replace all prior versions and listings of claims with the following listing of claims.

LISTING OF CLAIMS:

1-29. (**Cancelled**)

30. (**Currently Amended**) A system for processing multi-modal natural language inputs, comprising:

a multi-modal voice user interface configured to receive ~~that receives~~ a multi-modal input, the multi-modal input including a natural language utterance and a non-speech input, wherein a transcription module coupled to the multi-modal voice user interface is configured to transcribe ~~transcribes~~ the non-speech input to create a non-speech-based transcription;

a multi-pass speech recognition module configured to transcribe the natural language utterance into text;

a merging module configured to merge the text of the transcribed utterance and the non-speech-based transcription to create a merged transcription;

a plurality of domain agents, wherein a context description grammar includes one or more grammar expression entries that one or more of the plurality of domain agents are configured to use to process requests in respective contexts;

a knowledge-enhanced speech recognition engine configured to determine a most likely context for the multi-modal input, the knowledge-enhanced speech recognition engine further configured to:

identify one or more contexts that completely or partially match one or more text combinations contained in the merged transcription, wherein identifying the matching contexts includes comparing the text combinations against the grammar expression entries in the context description grammar and against one or more expected contexts stored in a context stack;

score each of the identified matching contexts; and

select the matching context having a highest score as the most likely context for the multi-modal input; and

a response generating module configured to identify one or more of the plurality of domain agents that are configured to process requests in the most likely context for the multi-modal input, the response generating module configured to:

communicate a request to the identified domain agents, the request formulated using at least one grammar expression entry in the context description grammar; and

generate a response to the multi-modal input using content gathered as a result of the identified domain agents processing the request.

31. (**Previously Presented**) The system of claim 30, wherein the domain agents identified by the response generating module include a plurality of the domain agents, and wherein the response generated by the response generating module includes an aggregation of content gathered as a result of the plurality of identified domain agents processing the request.

32. (**Currently Amended**) The system of claim 30, wherein the multi-modal voice user interface is further configured to subsequently receive ~~receives~~ one or more follow-up multi-modal inputs, the follow-up multi-modal inputs including at least one of a follow-up natural language utterance or a follow-up non-speech input.

33. (**Currently Amended**) The system of claim 32, wherein the identified domain agents are further configured to update the context stack in response to successfully processing the request, and wherein the knowledge-enhanced speech recognition engine is further configured to determine ~~determines~~ a most likely context for the follow-up multi-modal input using the updated context stack.

34. (**Previously Presented**) The system of claim 30, wherein the grammar expression entries in the context description grammar include relationships between criteria associated with requests in the respective contexts.

35. (**Previously Presented**) The system of claim 34, wherein the grammar expression entries in the context description grammar further include sequence orders for the criteria associated with the requests.

36. (**Currently Amended**) The system of claim 34, wherein the identified domain agents are further configured to push criteria onto the context stack in response to successfully processing the request.

37. (**Currently Amended**) A method for interpreting natural language utterances using multi-pass automatic speech recognition, comprising:

receiving a natural language utterance at a computer comprising a multi-pass speech recognition module configured to use at least one of a dictation grammar or a virtual dictation grammar to transcribe the utterance into text, wherein the dictation grammar includes an unconstrained large vocabulary of words, and wherein the virtual dictation grammar includes a constrained vocabulary of words and a plurality of decoy words for out-of-vocabulary words;

dynamically generating the constrained vocabulary of words based on one or more previously successful transcriptions; and

transcribing the utterance using the multi-pass speech recognition module.

38-40. (**Cancelled**)

41. (**Currently Amended**) A method for interpreting natural language utterances using multi-pass automatic speech recognition, comprising:

receiving a natural language utterance at a computer comprising a multi-pass speech recognition module configured to use at least one of a dictation grammar or a virtual dictation

grammar to transcribe the utterance into text, wherein the dictation grammar includes an unconstrained large vocabulary of words, wherein the virtual dictation grammar includes a constrained vocabulary of words and a plurality of decoy words for out-of-vocabulary words, and wherein the decoy words include utility words, nonsense words, isolated syllables, and isolated distinct sounds associated with a particular spoken language; and

transcribing the utterance using the multi-pass speech recognition module.

42. (**Previously Presented**) The method of claim 37, wherein the text of the transcribed utterance includes a complete transcription of the utterance.

43. (**Previously Presented**) The method of claim 37, wherein the text of the transcribed utterance includes a partial transcription of the utterance.

44. (**Cancelled**)

45. (**Currently Amended**) A method for interpreting natural language utterances using knowledge-enhanced speech recognition engine, wherein the knowledge-enhanced speech recognition engine is configured ~~can be used~~ to determine an intent and correct false recognitions of the natural language utterances, comprising:

receiving a transcription of a natural language utterance at a computer comprising the knowledge-enhanced speech recognition engine;

identifying one or more contexts that completely or partially match one or more text combinations contained in the transcription, wherein identifying the matching contexts includes comparing the text combinations against the grammar expression entries in the context description grammar and against one or more expected contexts stored in a context stack;

scoring each of the identified matching contexts;

selecting the matching context having a highest score to determine a most likely context for the utterance; and

communicating a request to a domain agent ~~that processes~~ configured to process requests in the most likely context for the utterance, the request formulated using at least one grammar expression entry in the context description grammar.

46. (**Currently Amended**) A method for processing natural language utterances, comprising:

receiving a natural language utterance at a computer comprising a multi-pass speech recognition module;

transcribing the utterance using the multi-pass speech recognition module, the multi-pass speech recognition module configured to transcribe the utterance into text;

identifying one or more contexts that completely or partially match one or more text combinations contained in the text of the transcribed utterance, wherein identifying the matching contexts includes comparing the text combinations against the grammar expression entries in the context description grammar and against one or more expected contexts stored in a context stack;

scoring each of the identified matching contexts;

selecting the matching context having a highest score to determine a most likely context for the utterance; and

communicating a request to a domain agent ~~that processes~~ configured to process requests in the most likely context for the utterance, the request formulated using at least one grammar expression entry in the context description grammar.

47. (**Currently Amended**) A system for interpreting natural language utterances, comprising:

a voice user interface configured to receive ~~that receives~~ a natural language utterance; and

a platform that includes a multi-pass speech recognition module, wherein the multi-pass speech recognition module is configured to:

use a dictation grammar that includes an unconstrained large vocabulary of words to create a speech-based transcription of the natural language utterance if the dictation grammar is available on the platform;

use a virtual dictation grammar that includes a constrained vocabulary of words and a plurality of decoy words for out-of-vocabulary words to create the speech-based transcription if the dictation grammar is not available on the platform; and

dynamically generate the constrained vocabulary of words based on one or more previously successful transcriptions.

48. (**Currently Amended**) A system for interpreting natural language utterances, comprising:

a voice user interface configured to receive ~~that receives~~ a natural language utterance;

a multi-pass speech recognition module configured to transcribe the natural language utterance into text; and

a knowledge-enhanced speech recognition engine ~~that determines~~ configured to determine a most likely context for the natural language utterance, the knowledge-enhanced speech recognition engine further configured to:

receive the text of the transcribed natural language utterance;

identify one or more contexts that completely or partially match one or more text combinations contained in the text of the transcribed utterance, wherein identifying the matching contexts includes comparing the text combinations against the grammar expression entries in the context description grammar and against one or more expected contexts stored in a context stack;

score each of the identified matching contexts;

select the matching context having a highest score to determine the most likely context for the utterance; and

communicate a request to a domain agent ~~that processes~~ configured to process requests in the most likely context for the utterance, the request formulated using at least one grammar expression entry in the context description grammar.

49. (**Currently Amended**) A system for interpreting natural language utterances, comprising:

a voice user interface ~~that receives~~ configured to receive a natural language utterance; and

a platform that includes a multi-pass speech recognition module, wherein the multi-pass speech recognition module is configured to:

use a dictation grammar that includes an unconstrained large vocabulary of words to create a speech-based transcription of the natural language utterance if the dictation grammar is available on the platform; and

use a virtual dictation grammar that includes a constrained vocabulary of words and a plurality of decoy words for out-of-vocabulary words to create the speech-based transcription if the dictation grammar is not available on the platform, wherein the decoy words include utility words, nonsense words, isolated syllables, and isolated distinct sounds associated with a particular spoken language.

REMARKS

Upon entry of the foregoing Amendment, claims 30-37, 41-43 and 45-49 are pending in the application. Claims 30, 32-33, 36-37, 41, and 45-49 have been amended. No claims have been cancelled or newly added. Applicants believe that this Amendment does not add new matter. In view of the foregoing Amendment and the following Remarks, allowance of all the pending claims is requested.

EXAMINER INTERVIEW

Applicants thank Examiner Albertalli for extending Applicants' representative the courtesy of an Examiner Interview on February 25, 2009. During the Examiner interview, the Examiner and Applicants' representative agreed upon language to place all of the pending claims in condition for allowance, as discussed in further detail below.

ALLOWED CLAIMS

Applicants acknowledge with appreciation the Examiner's allowance of claims 30-36 and 47-49. Applicants further note that minor amendments have been made to the language of allowed claims 30, 32-33, 36, and 47-49, as indicated above. As such, for at least the reason that currently pending claims 30-36 and 47-49 continue to recite subject matter that the Examiner has identified as allowable, notice to that effect is respectfully requested.

REJECTIONS UNDER 35 U.S.C. § 101

The Examiner has rejected claims 37, 41-43, and 45-46 under 35 U.S.C. § 101 as allegedly being directed to non-statutory subject matter. In particular, the Examiner alleges that claims 37, 41-43, and 45-46 "neither transform underlying subject matter nor positively recite structure associated with another statutory category, and therefore do not define a statutory process." Office Action, pages 2-3.

Although Applicants disagree with the propriety of this rejection, as the recited methods transform underlying subject matter (e.g., transcribing natural language utterances into text or other information that can be further interpreted and/or processed), solely in an

effort to expedite prosecution of this application, independent claims 37, 41, and 45-46 have been amended to further recite structure associated with another statutory category.

More particularly, independent claims 37, 41, and 46 have each been amended to further recite "receiving a natural language utterance ***at a computer*** comprising a multi-pass speech recognition module," while independent claim 45 has been amended to further recite "receiving a natural language utterance ***at a computer*** comprising [a] knowledge-enhanced speech recognition engine." Thus, for at least the reason that the Examiner indicated in the Examiner Interview that reciting "a computer" would overcome the rejection based on 35 U.S.C. § 101, independent claims 37, 41, and 45-46 are directed to statutory subject matter.

As such, for at least the reason that claims 37, 41-43, and 45-46 both transform underlying subject matter and recite structure associated with another statutory category, Applicants request withdrawal of this rejection. In addition, for at least the reason that the Examiner has indicated that "claims 37, 41-43, 45, and 46 would be allowable if amended to overcome the rejections under 35 U.S.C. 101," notice that effect is respectfully requested.

CONCLUSION

Having addressed the outstanding rejection, it is respectfully submitted that a full and complete response has been made to the outstanding Office Action and, as such, the application is in condition for allowance. Notice to that effect is respectfully requested.

If the Examiner believes, for any reason, that personal communication will expedite prosecution of this application, the Examiner is invited to telephone the undersigned at the number provided.

Date: **March 16, 2009**

Respectfully submitted,

By: _____

Syed Jafar Ali
Registration No. 58,780

PILLSBURY WINTHROP SHAW PITTMAN LLP
P.O. Box 10500
McLean, Virginia 22102
Main: 703-770-7900
Direct: 703-770-7540
Fax: 703-770-7901

Electronic Acknowledgement Receipt

EFS ID:	4972389
Application Number:	11197504
International Application Number:	
Confirmation Number:	7092
Title of Invention:	Systems and methods for responding to natural language speech utterance
First Named Inventor/Applicant Name:	Philippe Di Cristo
Customer Number:	00909
Filer:	Syed Jafar Ali/Kathy Oliver
Filer Authorized By:	Syed Jafar Ali
Attorney Docket Number:	090611-0316777
Receipt Date:	16-MAR-2009
Filing Date:	05-AUG-2005
Time Stamp:	14:42:01
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	no

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1		0316777SupRsp.pdf	398287 3e266e4c1c5f3ad9c7096e8c72e3439354c3e4be	yes	11

	Multipart Description/PDF files in .zip description		
	Document Description	**Start**	**End**
	Supplemental Response or Supplemental Amendment	1	1
	Claims	2	8
	Applicant Arguments/Remarks Made in an Amendment	9	11
Warnings:			
Information:			
	Total Files Size (in bytes):	398287	

This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.

New Applications Under 35 U.S.C. 111
If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

National Stage of an International Application under 35 U.S.C. 371
If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

New International Application Filed with the USPTO as a Receiving Office
If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
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www.uspto.gov

NOTICE OF ALLOWANCE AND FEE(S) DUE

909 7590 04/06/2009

PILLSBURY WINTHROP SHAW PITTMAN, LLP
P.O. BOX 10500
MCLEAN, VA 22102

EXAMINER	
ALBERTALLI, BRIAN LOUIS	
ART UNIT	PAPER NUMBER
2626	

DATE MAILED: 04/06/2009

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
11/197,504	08/05/2005	Philippe Di Cristo	090611-0316777	7092

TITLE OF INVENTION: SYSTEMS AND METHODS FOR RESPONDING TO NATURAL LANGUAGE SPEECH UTTERANCE

APPLN. TYPE	SMALL ENTITY	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	YES	$755	$300	$0	$1055	07/06/2009

THE APPLICATION IDENTIFIED ABOVE HAS BEEN EXAMINED AND IS ALLOWED FOR ISSUANCE AS A PATENT. PROSECUTION ON THE MERITS IS CLOSED. THIS NOTICE OF ALLOWANCE IS NOT A GRANT OF PATENT RIGHTS. THIS APPLICATION IS SUBJECT TO WITHDRAWAL FROM ISSUE AT THE INITIATIVE OF THE OFFICE OR UPON PETITION BY THE APPLICANT. SEE 37 CFR 1.313 AND MPEP 1308.

THE ISSUE FEE AND PUBLICATION FEE (IF REQUIRED) MUST BE PAID WITHIN THREE MONTHS FROM THE MAILING DATE OF THIS NOTICE OR THIS APPLICATION SHALL BE REGARDED AS ABANDONED. THIS STATUTORY PERIOD CANNOT BE EXTENDED. SEE 35 U.S.C. 151. THE ISSUE FEE DUE INDICATED ABOVE DOES NOT REFLECT A CREDIT FOR ANY PREVIOUSLY PAID ISSUE FEE IN THIS APPLICATION. IF AN ISSUE FEE HAS PREVIOUSLY BEEN PAID IN THIS APPLICATION (AS SHOWN ABOVE), THE RETURN OF PART B OF THIS FORM WILL BE CONSIDERED A REQUEST TO REAPPLY THE PREVIOUSLY PAID ISSUE FEE TOWARD THE ISSUE FEE NOW DUE.

HOW TO REPLY TO THIS NOTICE:

I. Review the SMALL ENTITY status shown above.

If the SMALL ENTITY is shown as YES, verify your current SMALL ENTITY status:

A. If the status is the same, pay the TOTAL FEE(S) DUE shown above.

B. If the status above is to be removed, check box 5b on Part B - Fee(s) Transmittal and pay the PUBLICATION FEE (if required) and twice the amount of the ISSUE FEE shown above, or

If the SMALL ENTITY is shown as NO:

A. Pay TOTAL FEE(S) DUE shown above, or

B. If applicant claimed SMALL ENTITY status before, or is now claiming SMALL ENTITY status, check box 5a on Part B - Fee(s) Transmittal and pay the PUBLICATION FEE (if required) and 1/2 the ISSUE FEE shown above.

II. PART B - FEE(S) TRANSMITTAL, or its equivalent, must be completed and returned to the United States Patent and Trademark Office (USPTO) with your ISSUE FEE and PUBLICATION FEE (if required). If you are charging the fee(s) to your deposit account, section "4b" of Part B - Fee(s) Transmittal should be completed and an extra copy of the form should be submitted. If an equivalent of Part B is filed, a request to reapply a previously paid issue fee must be clearly made, and delays in processing may occur due to the difficulty in recognizing the paper as an equivalent of Part B.

III. All communications regarding this application must give the application number. Please direct all communications prior to issuance to Mail Stop ISSUE FEE unless advised to the contrary.

IMPORTANT REMINDER: Utility patents issuing on applications filed on or after Dec. 12, 1980 may require payment of maintenance fees. It is patentee's responsibility to ensure timely payment of maintenance fees when due.

PART B - FEE(S) TRANSMITTAL

Complete and send this form, together with applicable fee(s), to: Mail **Mail Stop ISSUE FEE**
Commissioner for Patents
P.O. Box 1450
Alexandria, Virginia 22313-1450
or Fax (571)-273-2885

INSTRUCTIONS: This form should be used for transmitting the ISSUE FEE and PUBLICATION FEE (if required). Blocks 1 through 5 should be completed where appropriate. All further correspondence including the Patent, advance orders and notification of maintenance fees will be mailed to the current correspondence address as indicated unless corrected below or directed otherwise in Block 1, by (a) specifying a new correspondence address; and/or (b) indicating a separate "FEE ADDRESS" for maintenance fee notifications.

CURRENT CORRESPONDENCE ADDRESS (Note: Use Block 1 for any change of address)

909 7590 04/06/2009

PILLSBURY WINTHROP SHAW PITTMAN, LLP
P.O. BOX 10500
MCLEAN, VA 22102

Note: A certificate of mailing can only be used for domestic mailings of the Fee(s) Transmittal. This certificate cannot be used for any other accompanying papers. Each additional paper, such as an assignment or formal drawing, must have its own certificate of mailing or transmission.

Certificate of Mailing or Transmission

I hereby certify that this Fee(s) Transmittal is being deposited with the United States Postal Service with sufficient postage for first class mail in an envelope addressed to the Mail Stop ISSUE FEE address above, or being facsimile transmitted to the USPTO (571) 273-2885, on the date indicated below.

(Depositor's name)
(Signature)
(Date)

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
11/197,504	08/05/2005	Philippe Di Cristo	090611-0316777	7092

TITLE OF INVENTION: SYSTEMS AND METHODS FOR RESPONDING TO NATURAL LANGUAGE SPEECH UTTERANCE

APPLN. TYPE	SMALL ENTITY	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	YES	$755	$300	$0	$1055	07/06/2009

EXAMINER	ART UNIT	CLASS-SUBCLASS
ALBERTALLI, BRIAN LOUIS	2626	704-009000

1. Change of correspondence address or indication of "Fee Address" (37 CFR 1.363).

❑ Change of correspondence address (or Change of Correspondence Address form PTO/SB/122) attached.

❑ "Fee Address" indication (or "Fee Address" Indication form PTO/SB/47; Rev 03-02 or more recent) attached. **Use of a Customer Number is required.**

2. For printing on the patent front page, list

(1) the names of up to 3 registered patent attorneys or agents OR, alternatively, 1_____

(2) the name of a single firm (having as a member a registered attorney or agent) and the names of up to 2 registered patent attorneys or agents. If no name is listed, no name will be printed. 2_____ 3_____

3. ASSIGNEE NAME AND RESIDENCE DATA TO BE PRINTED ON THE PATENT (print or type)

PLEASE NOTE: Unless an assignee is identified below, no assignee data will appear on the patent. If an assignee is identified below, the document has been filed for recordation as set forth in 37 CFR 3.11. Completion of this form is NOT a substitute for filing an assignment.

(A) NAME OF ASSIGNEE (B) RESIDENCE: (CITY and STATE OR COUNTRY)

Please check the appropriate assignee category or categories (will not be printed on the patent) : ❑ Individual ❑ Corporation or other private group entity ❑ Government

4a. The following fee(s) are submitted:

❑ Issue Fee

❑ Publication Fee (No small entity discount permitted)

❑ Advance Order - # of Copies _____

4b. Payment of Fee(s): **(Please first reapply any previously paid issue fee shown above)**

❑ A check is enclosed.

❑ Payment by credit card. Form PTO-2038 is attached.

❑ The Director is hereby authorized to charge the required fee(s), any deficiency, or credit any overpayment, to Deposit Account Number _____ (enclose an extra copy of this form).

5. **Change in Entity Status** (from status indicated above)

❑ a. Applicant claims SMALL ENTITY status. See 37 CFR 1.27.

❑ b. Applicant is no longer claiming SMALL ENTITY status. See 37 CFR 1.27(g)(2).

NOTE: The Issue Fee and Publication Fee (if required) will not be accepted from anyone other than the applicant; a registered attorney or agent; or the assignee or other party in interest as shown by the records of the United States Patent and Trademark Office.

Authorized Signature _____ Date _____

Typed or printed name _____ Registration No. _____

This collection of information is required by 37 CFR 1.311. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, Virginia 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, Virginia 22313-1450.

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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
11/197,504	08/05/2005	Philippe Di Cristo	090611-0316777	7092

909 7590 04/06/2009

PILLSBURY WINTHROP SHAW PITTMAN, LLP
P.O. BOX 10500
MCLEAN, VA 22102

EXAMINER	
ALBERTALLI, BRIAN LOUIS	
ART UNIT	PAPER NUMBER
2626	

DATE MAILED: 04/06/2009

Determination of Patent Term Adjustment under 35 U.S.C. 154 (b)
(application filed on or after May 29, 2000)

The Patent Term Adjustment to date is 213 day(s). If the issue fee is paid on the date that is three months after the mailing date of this notice and the patent issues on the Tuesday before the date that is 28 weeks (six and a half months) after the mailing date of this notice, the Patent Term Adjustment will be 213 day(s).

If a Continued Prosecution Application (CPA) was filed in the above-identified application, the filing date that determines Patent Term Adjustment is the filing date of the most recent CPA.

Applicant will be able to obtain more detailed information by accessing the Patent Application Information Retrieval (PAIR) WEB site (http://pair.uspto.gov).

Any questions regarding the Patent Term Extension or Adjustment determination should be directed to the Office of Patent Legal Administration at (571)-272-7702. Questions relating to issue and publication fee payments should be directed to the Customer Service Center of the Office of Patent Publication at 1-(888)-786-0101 or (571)-272-4200.

Notice of Allowability	Application No.	Applicant(s)	
	11/197,504	CRISTO ET AL.	
	Examiner	Art Unit	
	BRIAN L. ALBERTALLI	2626	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to *16 March 2009*.

2. ☒ The allowed claim(s) is/are *30-37,41-43 and 45-49*.

3. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
   a) ☐ All b) ☐ Some* c) ☐ None of the:
      1. ☐ Certified copies of the priority documents have been received.
      2. ☐ Certified copies of the priority documents have been received in Application No. _____ .
      3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

   * Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.
THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.

5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
   (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
      1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
   (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.

   Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).

6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☐ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)
3. ☐ Information Disclosure Statements (PTO/SB/08), Paper No./Mail Date _____
4. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material
5. ☐ Notice of Informal Patent Application
6. ☐ Interview Summary (PTO-413), Paper No./Mail Date _____ .
7. ☐ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☐ Other _____.

DETAILED ACTION

Allowable Subject Matter

Claims 30-37, 41-43, and 45-49 allowed.

The following is an examiner's statement of reasons for allowance:

Claims 37, 41-43, 45, and 46, as amended, now define patentable subject matter. Specifically, independent claims 37, 41, 45, and 46 each recite receiving a natural language at a computer comprising a multi-pass speech recognition module. A "computer" is defined by the specification as a specific machine or apparatus (see page 5, paragraph 11). Therefore, claims 37, 41-43, 45, and 46 are tied to another statutory class, and therefore comprise statutory subject matter.

Regarding prior art rejections, the claims are allowed for the reasons set forth below:

Claims 30, 45, 46, and 48 require identifying matching contexts in a transcribed utterance by comparing the text combinations against grammar expression entries in the context description grammar and against one or more expected contexts stored in a context stack. Dudemaine et al. and the additional prior art used in this Office action do not disclose or suggest such a feature. Additionally, Coffman et al. (used in a previous Office Action for teaching similar features) include a context stack, however, Coffman et al. do not disclose or suggest comparing text combinations against both grammar expression entries in the context description grammar and against one or more expected contexts stored in a context stack.

Regarding claims 37 and 47, Dudemaine et al. suggest updating a recognition vocabulary used (flexible vocabulary recognition). However, there is no suggestion that the constrained vocabulary is generated dynamically based on one or more previously successful transcriptions. Additionally, Mohri et al. and El meliani et al. do not disclose or suggest such a feature.

Regarding claims 41 and 49, Dudemaine et al. disclose the decoy words are made up of random sub-word elements. However, Dudemaine et al. do not disclose or suggest including each of utility words, nonsense words, isolated syllable, and isolated distinct sounds associated with a particular spoken feature. Additionally, Mohri et al. and El meliani et al. do not disclose or suggest such a feature.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled “Comments on Statement of Reasons for Allowance.”

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to BRIAN L. ALBERTALLI whose telephone number is (571)272-7616. The examiner can normally be reached on Monday-Thursday, 8 AM to 6:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Hudspeth can be reached on (571) 272-7843. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/David R Hudspeth/
Supervisory Patent Examiner, Art Unit 2626

BLA 3/25/09

Index of Claims	Application/Control No.	Applicant(s)/Patent Under Reexamination
	11197504	CRISTO ET AL.
	Examiner	Art Unit
	BRIAN L ALBERTALLI	2626

✓	Rejected	-	Cancelled	N	Non-Elected	A	Appeal
=	Allowed	÷	Restricted	I	Interference	O	Objected

☐ Claims renumbered in the same order as presented by applicant ☐ CPA ☐ T.D. ☐ R.1.47

CLAIM		DATE								
Final	Original	09/25/2008	01/30/2009	03/25/2009						
	1	-	-	-						
	2	-	-	-						
	3	-	-	-						
	4	-	-	-						
	5	-	-	-						
	6	-	-	-						
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	12	-	-	-						
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	25	-	-	-						
	26	-	-	-						
	27	-	-	-						
	28	-	-	-						
	29	-	-	-						
1	30	=	=	=						
2	31	=	=	=						
3	32	=	=	=						
4	33	=	=	=						
5	34	=	=	=						
6	35	=	=	=						
7	36	=	=	=						

Index of Claims	Application/Control No.	Applicant(s)/Patent Under Reexamination
	11197504	CRISTO ET AL.
	Examiner	Art Unit
	BRIAN L ALBERTALLI	2626

✓	Rejected	-	Cancelled	N	Non-Elected	A	Appeal
=	Allowed	÷	Restricted	I	Interference	O	Objected

☐ Claims renumbered in the same order as presented by applicant ☐ CPA ☐ T.D. ☐ R.1.47

CLAIM		DATE								
Final	Original	09/25/2008	01/30/2009	03/25/2009						
8	37	✓	✓	=						
	38	✓	-	-						
	39	✓	-	-						
	40	O	-	-						
9	41	O	✓	=						
10	42	✓	✓	=						
11	43	✓	✓	=						
	44	-	-	-						
12	45	=	✓	=						
13	46	=	✓	=						
14	47	✓	=	=						
15	48	=	=	=						
16	49		=	=						

Issue Classification

Application/Control No.	Applicant(s)/Patent Under Reexamination
11197504	CRISTO ET AL.
Examiner	**Art Unit**
BRIAN L ALBERTALLI	2626

ORIGINAL	
CLASS	SUBCLASS
704	257

CROSS REFERENCE(S)

CLASS	SUBCLASS (ONE SUBCLASS PER BLOCK)				
704	9	251	270		

INTERNATIONAL CLASSIFICATION

CLAIMED	NON-CLAIMED
G 1 0 L 15 / 18 (2006.0)	
G 0 6 F 17 / 27 (2006.0)	
G 1 0 L 15 / 04 (2006.0)	
G 1 0 L 21 / 00 (2006.01.01)	

☐ Claims renumbered in the same order as presented by applicant ☐ CPA ☐ T.D. ☐ R.1.47

Final	Original	Final	Original	Final	Original	Final	Original	Final	Original	Final	Original	Final	Original	Final	Original
	1		17	4	33	16	49								
	2		18	5	34										
	3		19	6	35										
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	12		28		44										
	13		29	12	45										
	14	1	30	13	46										
	15	2	31	14	47										
	16	3	32	15	48										

/BRIAN L ALBERTALLI/ Examiner.Art Unit 2626 (Assistant Examiner)	3/25/09 (Date)	**Total Claims Allowed:** 16
/David R Hudspeth/ Supervisory Patent Examiner, Art Unit 2626 (Primary Examiner)	(Date)	O.G. Print Claim(s) 1 O.G. Print Figure 1

Search Notes	Application/Control No.	Applicant(s)/Patent Under Reexamination
	11197504	CRISTO ET AL.
	Examiner	Art Unit
	BRIAN L ALBERTALLI	2626

SEARCHED			
Class	Subclass	Date	Examiner

SEARCH NOTES		
Search Notes	Date	Examiner
Updated EAST Search - see search history printout	9/25/08	BA
Updated EAST Search - see search history printout	1/30/09	BA
Updated EAST Search - see search history printout	3/25/09	BA

INTERFERENCE SEARCH			
Class	Subclass	Date	Examiner
	Interference Search - see search history printout	3/25/09	BA

EAST Search History

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
L1	7	(((speech or voice) near2 recogni$10) and (multipass $5 or (multi near2 pass $2))).clm.	US-PGPUB	OR	OFF	2009/03/25 17:48
L2	4	(((speech or voice) near2 recogni$10) and (context $10 with stack $5)).clm.	US-PGPUB	OR	OFF	2009/03/25 17:49
L3	16	(((speech or voice) near2 recogni$10) and ((out near2 vocabular$5) or oov)).clm.	US-PGPUB	OR	OFF	2009/03/25 17:50
L4	76	"704"/$.ccls. and (context $5 with stack $5)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2009/03/25 17:50
L5	180	"704"/$.ccls. and (multipass $5 or (multi near2 pass $2))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2009/03/25 17:50
L6	5	l4 and l5	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2009/03/25 17:51

3/25/09 6:07:14 PM
C:\Documents and Settings\balbertalli\My Documents\EAST\Workspaces

\11197504.wsp

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICANTS :	Philippe DI CRISTO *et al.*	CONFIRMATION NO.:	7092
SERIAL NUMBER :	11/197,504	EXAMINER:	Brian Louis Albertalli
FILING DATE :	August 5, 2005	ART UNIT:	2626
FOR :	SYSTEMS AND METHODS FOR RESPONDING TO NATURAL LANGUAGE SPEECH UTTERANCE		

REQUEST FOR CORRECTED FILING RECEIPT

Office of Initial Patent Examination's
Filing Receipt Corrections
Commissioner for Patents
P. O. Box 1450
Alexandria, VA 22313-1450

Sir:

Attached is a copy of the Filing Receipt received from the U.S. Patent and Trademark Office in the above-referenced application for which issuance of a corrected filing receipt is respectfully requested. There are errors with respect to the following data which are inaccurate:

Error in	Correct data
First Applicant's given name	Philippe
First Applicant's family name	Di Cristo
Addition of fourth applicant	Lynn Elise Armstrong, Woodinville, WA

It was recently discovered that the Patent Office records reflect the first inventor's name incorrectly. The first inventor's name should be: first name of Philippe and last name of Di Cristo. This can be seen in the Supplemental Declaration filed May 24, 2007, copy attached as Exhibit A.

In addition, the fourth inventor should be added, as requested in the Request for Correct Inventorship Under 37 C.F.R. §1.48(a) filed May 24, 2007, copy attached as Exhibit B.

A Supplemental Application Data Sheet is enclosed for the Examiner's convenience.

Although Applicants believe no fee is due in connection with this filing, the Commissioner is authorized to charge any additional fees that may be due to Deposit Account No. 03-3975, Ref. No. 090611-0316777.

Respectfully submitted,

PILLSBURY WINTHROP SHAW PITTMAN LLP

By _____
Syed Jafar Ali
Registration No.: 58,780

Customer No.
00909

P. O. Box 10500
McLean, Virginia 22102
Telephone: (703) 770-7900
Telefax: (703) 770-7901

Dated: June 22, 2009

UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPL NO.	FILING OR 371 (c) DATE	ART UNIT	FIL FEE REC'D	ATTY.DOCKET NO	DRAWINGS	TOT CLMS	IND CLMS
11/197,504	08/05/2005	2654	725	090611-0316777	8	29	3

CONFIRMATION NO. 7092

00909
PILLSBURY WINTHROP SHAW PITTMAN, LLP
P.O. BOX 10500
MCLEAN, VA 22102

FILING RECEIPT

OC000000016882078

Date Mailed: 08/26/2005

Receipt is acknowledged of this regular Patent Application. It will be considered in its order and you will be notified as to the results of the examination. Be sure to provide the U.S. APPLICATION NUMBER, FILING DATE, NAME OF APPLICANT, and TITLE OF INVENTION when inquiring about this application. Fees transmitted by check or draft are subject to collection. Please verify the accuracy of the data presented on this receipt. **If an error is noted on this Filing Receipt, please mail to the Commissioner for Patents P.O. Box 1450 Alexandria Va 22313-1450. Please provide a copy of this Filing Receipt with the changes noted thereon. If you received a "Notice to File Missing Parts" for this application, please submit any corrections to this Filing Receipt with your reply to the Notice. When the USPTO processes the reply to the Notice, the USPTO will generate another Filing Receipt incorporating the requested corrections (if appropriate).**

Applicant(s)

Philippe Di Cristo, Bellevue, WA;
Min Ke, Bothell, WA;
Robert A. Kennewick, Seattle, WA;

← Lynn Elise Armstrong, Woodinville, WA

Assignment For Published Patent Application

VoiceBox Technologies, Inc., Kirkland, WA

Power of Attorney: None

Domestic Priority data as claimed by applicant

Foreign Applications

If Required, Foreign Filing License Granted: 08/26/2005

The country code and number of your priority application, to be used for filing abroad under the Paris Convention, is US11/197,504

Projected Publication Date: 02/08/2007

Non-Publication Request: No

Early Publication Request: No

** SMALL ENTITY **

Title

Systems and methods for responding to natural language speech utterance

Preliminary Class

704

PROTECTING YOUR INVENTION OUTSIDE THE UNITED STATES

Since the rights granted by a U.S. patent extend only throughout the territory of the United States and have no effect in a foreign country, an inventor who wishes patent protection in another country must apply for a patent in a specific country or in regional patent offices. Applicants may wish to consider the filing of an international application under the Patent Cooperation Treaty (PCT). An international (PCT) application generally has the same effect as a regular national patent application in each PCT-member country. The PCT process **simplifies** the filing of patent applications on the same invention in member countries, but **does not result** in a grant of "an international patent" and does not eliminate the need of applicants to file additional documents and fees in countries where patent protection is desired.

Almost every country has its own patent law, and a person desiring a patent in a particular country must make an application for patent in that country in accordance with its particular laws. Since the laws of many countries differ in various respects from the patent law of the United States, applicants are advised to seek guidance from specific foreign countries to ensure that patent rights are not lost prematurely.

Applicants also are advised that in the case of inventions made in the United States, the Director of the USPTO must issue a license before applicants can apply for a patent in a foreign country. The filing of a U.S. patent application serves as a request for a foreign filing license. The application's filing receipt contains further information and guidance as to the status of applicant's license for foreign filing.

Applicants may wish to consult the USPTO booklet, "General Information Concerning Patents" (specifically, the section entitled "Treaties and Foreign Patents") for more information on timeframes and deadlines for filing foreign patent applications. The guide is available either by contacting the USPTO Contact Center at 800-786-9199, or it can be viewed on the USPTO website at http://www.uspto.gov/web/offices/pac/doc/general/index.html.

For information on preventing theft of your intellectual property (patents, trademarks and copyrights), you may wish to consult the U.S. Government website, http://www.stopfakes.gov. Part of a Department of Commerce initiative, this website includes self-help "toolkits" giving innovators guidance on how to protect intellectual property in specific countries such as China, Korea and Mexico. For questions regarding patent enforcement issues, applicants may call the U.S. Government hotline at 1-866-999-HALT (1-866-999-4158).

LICENSE FOR FOREIGN FILING UNDER
Title 35, United States Code, Section 184
Title 37, Code of Federal Regulations, 5.11 & 5.15

GRANTED

The applicant has been granted a license under 35 U.S.C. 184, if the phrase "IF REQUIRED, FOREIGN FILING LICENSE GRANTED" followed by a date appears on this form. Such licenses are issued in all applications where the conditions for issuance of a license have been met, regardless of whether or not a license may be required as set forth in 37 CFR 5.15. The scope and limitations of this license are set forth in 37 CFR 5.15(a) unless an earlier license has been issued under 37 CFR 5.15(b). The license is subject to revocation upon written notification. The date indicated is the effective date of the license, unless an earlier license of similar scope has been granted under 37 CFR 5.13 or 5.14.

This license is to be retained by the licensee and may be used at any time on or after the effective date thereof unless it is revoked. This license is automatically transferred to any related applications(s) filed under 37 CFR 1.53(d). This license is not retroactive.

The grant of a license does not in any way lessen the responsibility of a licensee for the security of the subject matter as imposed by any Government contract or the provisions of existing laws relating to espionage and the national security or the export of technical data. Licensees should apprise themselves of current regulations, especially with respect to certain countries, of other agencies, particularly the Office of Defense Trade Controls, Department of State (with respect to Arms, Munitions and Implements of War (22 CFR 121-128)); the Bureau of Industry and Security, Department of Commerce (15 CFR parts 730-774); the Office of Foreign Assets Control, Department of Treasury (31 CFR Parts 500+) and the Department of Energy.

NOT GRANTED

No license under 35 U.S.C. 184 has been granted at this time, if the phrase "IF REQUIRED, FOREIGN FILING LICENSE GRANTED" DOES NOT appear on this form. Applicant may still petition for a license under 37 CFR 5.12, if a license is desired before the expiration of 6 months from the filing date of the application. If 6 months has lapsed from the filing date of this application and the licensee has not received any indication of a secrecy order under 35 U.S.C. 181, the licensee may foreign file the application pursuant to 37 CFR 5.15(b).

EXHIBIT A

FOR UTILITY
DECLARATION

SUPPLEMENTAL DECLARATION
UNDER RULE 67 (37 C.F.R. 1.67)

As a below named inventor, I hereby declare that my residence, post office address and citizenship are as stated below next to my name, and I believe I am an original, first and joint inventor of the subject matter which is claimed and for which a patent is sought on the invention entitled SYSTEMS AND METHODS FOR RESPONDING TO NATURAL LANGUAGE SPEECH UTTERANCE, the specification of which was filed on August 5, 2005 as U.S. Application No. 11/197,504.

I hereby state that I have reviewed and understand the contents of the above-identified specification, including the claims, I acknowledge the duty to disclose all information known to me to be material to patentability as defined in 37 C.F.R. 1.56. Except as noted below, I hereby claim foreign priority benefits under 35 U.S.C. 119/365 of any foreign application(s) for patent or inventor's certificate listed below and have also identified below any foreign application for patent or inventor's certificate filed by me or my assignee disclosing the subject matter claimed in this application and having a filing date (1) before that of the application on which priority is claimed, or (2) if no priority claimed, before the filing date of this application:

PRIOR FOREIGN APPLICATION(S)

Number	Country	Filed	Date first Laid-open or Published	Date Patented or Granted	Priority Claimed

Except as noted below, I hereby claim domestic priority benefit under 35 U.S.C. 119(e) or 120 and/or 365(c) of the indicated United States applications listed below and PCT international applications listed above or below and, if this is a continuation-in-part (CIP) application, insofar as the subject matter disclosed and claimed in this application is in addition to that disclosed in such prior applications, I acknowledge the duty to disclose all information known to me to be material to patentability as defined in 37 C.F.R. 1.56 which became available between the filing date of each such prior application and the national or PCT International filing date of this application:

PRIOR U.S. PROVISIONAL, NONPROVISIONAL AND/OR PCT APPLICATION(S)

Application Number	Filed	Status	Priority Claimed

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

INVENTOR'S SIGNATURE: _____ Date: 6/16/07

Name	PHILIPPE		DI CRISTO
	First	Middle Initial	Family Name
Residence	Bellevue	WA	France
	City	State/Foreign Country	Country of Citizenship
Mailing Address	177 107th Avenue, N.E., #1007 Bellevue, WA 98004		
(include Zip Code)	98004		

INVENTOR'S SIGNATURE: _____ Date: 5/7/2007

Name	MIN		KE
	First	Middle Initial	Family Name
Residence	Bothell	WA	United States of America
	City	State/Foreign Country	Country of Citizenship
Mailing Address	3221 201st Place, S.E., Bothell, WA 98012		
(include Zip Code)	98012		

INVENTOR'S SIGNATURE: Robert Kennewick Date: 4-16-2007

Name	ROBERT	A.	KENNEWICK
	First	Middle Initial	Family Name
Residence	Seattle	WA	United States of America
	City	State/Foreign Country	Country of Citizenship
Mailing Address	2204 S. Eddy Street, Seattle, WA 98108		
(include Zip Code)	98108		

INVENTOR'S SIGNATURE: Lynn Armstrong Date: 4-16-2007

Name	LYNN	ELISE	ARMSTRONG
	First	Middle Initial	Family Name
Residence	Woodinville	WA	United States of America
	City	State/Foreign Country	Country of Citizenship
Mailing Address	19807 183rd Place, N.E., Woodinville, WA 98077		
(include Zip Code)	98077		

Attorney Reference: 090611-0316777

EXHIBIT B

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICANTS :	Philippe DI CRISTO et al.	CONFIRMATION NO.:	7092
SERIAL NUMBER :	11/197,504	EXAMINER:	Richemond Dorvil
FILING DATE :	August 5, 2005	ART UNIT:	2626
FOR :	SYSTEMS AND METHODS FOR RESPONDING TO NATURAL LANGUAGE SPEECH UTTERANCE		

REQUEST TO CORRECT INVENTORSHIP UNDER 37 C.F.R. § 1.48(A)

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Dear Sir:

This is a request under 37 C.F.R. § 1.48(a) to correct the inventorship of this application by adding Lynn Elise Armstrong as an inventor in this application. Attached is a statement from the added inventor that the error in Inventorship occurred without deceptive intent on her part.

Also attached is a new declaration executed by all the inventors of the above-identified patent application. This application has been assigned by at least one of the original named inventors, and consequently, the written consent of the assignee is attached.

Please charge the processing fee required under 37 C.F.R. § 1.17(i) in the amount of $130.00, along with any additional fees that may be due, or credit any overpayment of same, to Deposit Account No. 033975 (Ref. No. 090611-0316777).

CONCLUSION

Please confirm the inventorship corrections as requested. If, for any reason, personal communication will expedite prosecution of this application, please telephone the undersigned at the number provided below.

Date: May 24, 2007

Respectfully submitted,

By: _____

Syed Jafar Ali
Registration No. 58,780

PILLSBURY WINTHROP SHAW PITTMAN LLP
P.O. Box 10500
McLean, Virginia 22102
Main: 703-770-7900
Direct: 703-770-7540
Fax: 703-770-7901

Attachments:

(1) Statement by Added Inventor Pursuant to 37 C.F.R. § 1.48(a)(2)
(2) Supplemental Declaration
(3) Assignee's Consent to Change Inventorship Under 37 C.F.R. §§ 1.48(a)(5), 3.73(b)

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

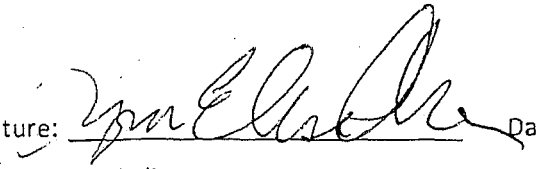
APPLICANTS :	Philippe DI CRISTO et al.	CONFIRMATION NO.:	7092
SERIAL NUMBER :	11/197,504	EXAMINER:	Richemond Dorvil
FILING DATE :	August 5, 2005	ART UNIT:	2626
FOR :	SYSTEMS AND METHODS FOR RESPONDING TO NATURAL LANGUAGE SPEECH UTTERANCE		

STATEMENT BY ADDED INVENTOR PURSUANT TO 37 C.F.R. § 1.48(A)(2)

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Dear Sir:

I hereby state that I am an inventor of the claims of the above-captioned patent application. The error in inventorship occurred without deceptive intention on my part.

Signature:  Date: 4-16-2007

Name: Lynn Elise Armstrong

FOR UTILITY
DECLARATION

SUPPLEMENTAL DECLARATION
UNDER RULE 67 (37 C.F.R. 1.67)

As a below named inventor, I hereby declare that my residence, post office address and citizenship are as stated below next to my name, and I believe I am an original, first and joint inventor of the subject matter which is claimed and for which a patent is sought on the invention entitled SYSTEMS AND METHODS FOR RESPONDING TO NATURAL LANGUAGE SPEECH UTTERANCE, the specification of which was filed on August 5, 2005 as U.S. Application No. 11/197,504.

I hereby state that I have reviewed and understand the contents of the above-identified specification, including the claims, I acknowledge the duty to disclose all information known to me to be material to patentability as defined in 37 C.F.R. 1.56. Except as noted below, I hereby claim foreign priority benefits under 35 U.S.C. 119/365 of any foreign application(s) for patent or inventor's certificate listed below and have also identified below any foreign application for patent or inventor's certificate filed by me or my assignee disclosing the subject matter claimed in this application and having a filing date (1) before that of the application on which priority is claimed, or (2) if no priority claimed, before the filing date of this application:

PRIOR FOREIGN APPLICATION(S)

Number	Country	Filed	Date first Laid-open or Published	Date Patented or Granted	Priority Claimed

Except as noted below, I hereby claim domestic priority benefit under 35 U.S.C. 119(e) or 120 and/or 365(c) of the indicated United States applications listed below and PCT international applications listed above or below and, if this is a continuation-in-part (CIP) application, insofar as the subject matter disclosed and claimed in this application is in addition to that disclosed in such prior applications, I acknowledge the duty to disclose all information known to me to be material to patentability as defined in 37 C.F.R. 1.56 which became available between the filing date of each such prior application and the national or PCT international filing date of this application:

PRIOR U.S. PROVISIONAL, NONPROVISIONAL AND/OR PCT APPLICATION(S)

Application Number	Filed	Status	Priority Claimed

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

INVENTOR'S SIGNATURE: _____ Date: 6/16/07

Name	PHILIPPE		DI CRISTO
	First	Middle Initial	Family Name
Residence	Bellevue	WA	France
	City	State/Foreign Country	Country of Citizenship
Mailing Address	177 107th Avenue, N.E., #1007 Bellevue, WA 98004		
(include Zip Code)	98004		

INVENTOR'S SIGNATURE: _____ Date: 5/7/2007

Name	MIN		KE
	First	Middle Initial	Family Name
Residence	Bothell	WA	United States of America
	City	State/Foreign Country	Country of Citizenship
Mailing Address	3221 201st Place, S.E., Bothell, WA 98012		
(include Zip Code)	98012		

INVENTOR'S SIGNATURE: Date: 4-16-2007

Name	ROBERT	A.	KENNEWICK
	First	Middle Initial	Family Name
Residence	Seattle	WA	United States of America
	City	State/Foreign Country	Country of Citizenship
Mailing Address	2204 S. Eddy Street, Seattle, WA 98108		
(include Zip Code)	98108		

INVENTOR'S SIGNATURE: Date: 4-16-2007

Name	LYNN	ELISE	ARMSTRONG
	First	Middle Initial	Family Name
Residence	Woodinville	WA	United States of America
	City	State/Foreign Country	Country of Citizenship
Mailing Address	19807 183rd Place, N.E., Woodinville, WA 98077		
(include Zip Code)	98077		

Attorney Reference: 090611-0316777

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICANTS :	Philippe DI CRISTO et al.	CONFIRMATION NO.:	7092
SERIAL NUMBER :	11/197,504	EXAMINER:	Richemond Dorvil
FILING DATE :	August 5, 2005	ART UNIT:	2626
FOR :	SYSTEMS AND METHODS FOR RESPONDING TO NATURAL LANGUAGE SPEECH UTTERANCE		

ASSIGNEE'S CONSENT TO CHANGE INVENTORSHIP UNDER 37 C.F.R. §§ 1.48(A)(5), 3.73(B)

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Dear Sir:

I, Mike Kennewick, a citizen of the United States of America, hereby certify the following:

1. VoiceBox Technologies, Inc., a Washington corporation having a place of business at 11980 NE 24th Street, Suite 100, Bellevue, Washington 98005, is the owner of the entire right, title, and interest of the above-identified patent application by way of assignment from the inventors to VoiceBox Technologies, Inc., as recorded in the U.S. Patent and Trademark Office on February 1, 2006 at Reel 017554, Frame 0171;

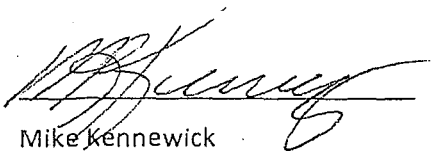
2. I am empowered and authorized to sign this document on behalf of VoiceBox Technologies, Inc.;

3. VoiceBox Technologies, Inc. consents to the change in inventorship of the above-identified patent application by the addition of Lynn Elise Armstrong, a citizen of the United States of America, residing at 19807 183rd Place NE, Woodinville, Washington 98077, to the list of named inventors of the above-identified patent application;

4. VoiceBox Technologies, Inc. is aware that the application, original declaration, and original assignment omitted Lynn Elise Armstrong from the inventorship, and that this

error occurred without any deceptive intent on the part of the assignee or any of the named or omitted inventors; and

5. The correct inventive entity includes Philippe DI CRISTO, Min KE, Robert A. KENNEWICK, and Lynn Elise ARMSTRONG.

By:  Date: April 19, 2007

Name: Mike Kennewick

Title: Co-Founder, Chairman, and CEO of VoiceBox Technologies, Inc.

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICANTS :	Philippe DI CRISTO *et al.*	CONFIRMATION NO.:	7092
SERIAL NUMBER :	11/197,504	EXAMINER:	Brian Louis Albertalli
FILING DATE :	August 5, 2005	ART UNIT:	2626
FOR :	SYSTEMS AND METHODS FOR RESPONDING TO NATURAL LANGUAGE SPEECH UTTERANCE		

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

SUPPLEMENTAL APPLICATION DATA SHEET
37 C.F.R. § 1.76

BIBLIOGRAPHIC DATA

1. Applicant information

First applicant given name: Philippe
First applicant family name: Di Cristo
Citizenship: France
Residence: 177 107th Avenue, N.E., #1007, Bellevue, Washington 98004

Second applicant given name: Min
Second applicant family name: Ke
Citizenship: United States
Residence: 3221 201st Place, S.E., Bothell, Washington 98012

Third applicant given name: Robert A.
Third applicant family name: Kennewick
Citizenship: United States
Residence: 2204 S. Eddy Street, Seattle, Washington 98108

Fourth applicant given name: Lynn Elise
Fourth applicant family name: Armstrong
Citizenship: United States
Residence: 19807 183rd Place, N.E., Woodinville, Washington 98077

2. **Correspondence information**

Correspondence for this application should be addressed as follows:

Customer No.: 00909

3. **Application information**

Title of Invention: SYSTEMS AND METHODS FOR RESPONDING TO NATURAL LANGUAGE SPEECH UTTERANCE

Docket number assigned to this application: 090611-0316777
Total number of drawing sheets: 8
Type of application: Utility
Application is to be published. Suggested drawing figure for publication:

Secrecy order under § 5.2:

This application does not disclose subject matter of an application which is under a secrecy order pursuant to § 5.2.

4. **Representative information**

The following have a power of attorney or authorization of agent in this application:

Customer No.: 00909

5. **Assignee information**

The assignee of this application is:

VoiceBox Technologies, Inc.
11980 NE 24th Street
Suite 100
Bellevue, Washington 98005
Extent of interest of assignee in application: Entirety

Date: June 22, 2009

Syed Jafar Ali
Registration No. 58,780

PILLSBURY WINTHROP SHAW PITTMAN LLP
P.O. Box 10500
McLean, VA 22102
(703) 905.2107
Customer No. 00909

Electronic Acknowledgement Receipt

EFS ID:	5561222
Application Number:	11197504
International Application Number:	
Confirmation Number:	7092
Title of Invention:	SYSTEMS AND METHODS FOR RESPONDING TO NATURAL LANGUAGE SPEECH UTTERANCE
First Named Inventor/Applicant Name:	Philippe Di Cristo
Customer Number:	00909
Filer:	Syed Jafar Ali/Susan Trader
Filer Authorized By:	Syed Jafar Ali
Attorney Docket Number:	090611-0316777
Receipt Date:	22-JUN-2009
Filing Date:	05-AUG-2005
Time Stamp:	15:22:03
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	no

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1		0316777_Req_for_Corr_OFR.pdf	558518 580bd951c269ad37b2cd8f50155a21de3090ce5f	yes	18

	Multipart Description/PDF files in .zip description		
	Document Description	**Start**	**End**
	Request for Corrected Filing Receipt	1	16
	Application Data Sheet	17	18
Warnings:			
Information:			
	Total Files Size (in bytes):	558518	

This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.

New Applications Under 35 U.S.C. 111
If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

National Stage of an International Application under 35 U.S.C. 371
If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

New International Application Filed with the USPTO as a Receiving Office
If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

PTO/SB/30 (04-05)
Approved for use through 07/31/2006. OMB 0651-0031
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

Request for Continued Examination (RCE) Transmittal

Address to:
Mail Stop RCE
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Application Number	11/197,504
Filing Date	August 5, 2005
First Named Inventor	PHILIPPE DI CRISTO
Art Unit	2626
Examiner Name	Brian Louis Albertalli
Attorney Docket Number	090611-0316777

This is a Request for Continued Examination (RCE) under 37 CFR 1.114 of the above-identified application.
Request for Continued Examination (RCE) practice under 37 CFR 1.114 does not apply to any utility or plant application filed prior to June 8, 1995, or to any design application. See Instruction Sheet for RCEs (not to be submitted to the USPTO) on page 2.

1. Submission required under 37 CFR 1.114 Note: If the RCE is proper, any previously filed unentered amendments and amendments enclosed with the RCE will be entered in the order in which they were filed unless applicant instructs otherwise. If applicant does not wish to have any previously filed unentered amendment(s) entered, applicant must request non-entry of such amendment(s).

   a. ☐ Previously submitted. If a final Office action is outstanding, any amendments filed after the final Office action may be considered as a submission even if this box is not checked.

      i. ☐ Consider the arguments in the Appeal Brief or Reply Brief previously filed on _____

      ii. ☐ Other _____

   b. ☒ Enclosed

      i. ☐ Amendment/Reply

      ii. ☐ Affidavit(s)/ Declaration(s)

      iii. ☒ Information Disclosure Statement (IDS)

      iv. ☐ Other _____

2. Miscellaneous

   a. ☐ Suspension of action on the above-identified application is requested under 37 CFR 1.103(c) for a period of _____ months. (Period of suspension shall not exceed 3 months; Fee under 37 CFR 1.17(i) required)

   b. ☐ Other _____

3. Fees The RCE fee under 37 CFR 1.17(e) is required by 37 CFR 1.114 when the RCE is filed.

   a. ☒ The Director is hereby authorized to charge the following fees, any underpayment of fees, or credit any overpayments, to Deposit Account No. 033975. I have enclosed a duplicate copy of this sheet.

      i. ☒ RCE fee required under 37 CFR 1.17(e)

      ii. ☐ Extension of time fee (37 CFR 1.136 and 1.17)

      iii. ☐ Other _____

   b. ☐ Check in the amount of $ _____ enclosed

   c. ☐ Payment by credit card (Form PTO-2038 enclosed)

WARNING: Information on this form may become public. Credit card information should not be included on this form. Provide credit card information and authorization on PTO-2038.

SIGNATURE OF APPLICANT, ATTORNEY, OR AGENT REQUIRED

Signature		Date	June 23, 2009
Name (Print/Type)	S. Jafar Ali	Registration No.	58780

CERTIFICATE OF MAILING OR TRANSMISSION

I hereby certify that this correspondence is being deposited with the United States Postal Service with sufficient postage as first class mail in an envelope addressed to: Mail Stop RCE, Commissioner for Patents, P. O. Box 1450, Alexandria, VA 22313-1450 or facsimile transmitted to the U.S. Patent and Trademark Office on the date shown below.

Signature			
Name (Print/Type)		Date	

This collection of information is required by 37 CFR 1.114. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Mail Stop RCE, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICANTS :	Philippe DI CRISTO *et al.*	CONFIRMATION NO.:	7092
SERIAL NUMBER :	11/197,504	EXAMINER:	Brian Louis Albertalli
FILING DATE :	August 5, 2005	ART UNIT:	2626
FOR :	SYSTEMS AND METHODS FOR RESPONDING TO NATURAL LANGUAGE SPEECH UTTERANCE		

SUPPLEMENTAL INFORMATION DISCLOSURE STATEMENT

Commissioner for Patents
P. O. Box 1450
Alexandria, VA 22313-1450

Sir:

Pursuant to the duty of disclosure under 37 C.F.R. §§ 1.56, 1.97 and 1.98, Applicants hereby make of record in the above-identified application the documents listed on the attached Form PTO-1449.

Applicants reserve the right to establish the patentability of the claimed invention over any of the information provided herewith, and/or to prove that this information may not be prior art, and/or to prove that this information may not be enabling for the teachings purportedly offered.

This Supplemental Information Disclosure Statement is being filed within three months of the filing date of a national application other than a continued prosecution application under 37 C.F.R. §1.53(d), or within three months of the date of entry of the national stage as set forth in 37 C.F.R. §1.491 in an international application, or before the mailing date of a first Office

Action on the merits, or before the mailing date of a first Office Action after the filing of a request for continued examination under 37 C.F.R. §1.114. No certification or fee is required. 37 C.F.R. §1.97(b).

Documents B, C, F-H, N-Q, and U were cited in search reports by a foreign patent office in counterpart foreign applications. Submission of an English language version of each search report that indicates the degree of relevance found by the foreign office is provided.

It is respectfully requested that the Examiner initial and return a copy of the enclosed PTO-1449.

Respectfully submitted,

PILLSBURY WINTHROP SHAW PITTMAN LLP

By _____
Syed Jafar Ali
Registration No.: 58,780

Customer No.
00909

P. O. Box 10500
McLean, Virginia 22102
Telephone: (703) 770-7900
Telefax: (703) 770-7901

Dated: June 24, 2009

PATENT COOPERATION TREATY

PCT

INTERNATIONAL SEARCH REPORT

(PCT Article 18 and Rules 43 and 44)

Applicant's or agent's file reference 90611-365986	FOR FURTHER ACTION	see Form PCT/ISA/220 as well as, where applicable, item 5 below.
International application No. PCT/US 07/81481	International filing date *(day/month/year)* 16 October 2007 (16.10.2007)	(Earliest) Priority Date *(day/month/year)* 16 October 2006 (16.10.2006)
Applicant VOICEBOX TECHNOLOGIES, INC.		

This international search report has been prepared by this International Searching Authority and is transmitted to the applicant according to Article 18. A copy is being transmitted to the International Bureau.

This international search report consists of a total of 2 sheets.

☐ It is also accompanied by a copy of each prior art document cited in this report.

1. Basis of the report

   a. With regard to the language, the international search was carried out on the basis of:

      ☒ the international application in the language in which it was filed.

      ☐ a translation of the international application into _____ which is the language of a translation furnished for the purposes of international search (Rules 12.3(a) and 23.1(b)).

   b. ☐ This international search report has been established taking into account the rectification of an obvious mistake authorized by or notified to this Authority under Rule 91 (Rule 43.6*bis*(a)).

   c. ☐ With regard to any nucleotide and/or amino acid sequence disclosed in the international application, see Box No. I.

2. ☐ Certain claims were found unsearchable (see Box No. II).

3. ☐ Unity of invention is lacking (see Box No. III).

4. With regard to the title,

   ☒ the text is approved as submitted by the applicant.

   ☐ the text has been established by this Authority to read as follows:

5. With regard to the abstract,

   ☒ the text is approved as submitted by the applicant.

   ☐ the text has been established, according to Rule 38.2(b), by this Authority as it appears in Box No. IV. The applicant may, within one month from the date of mailing of this international search report, submit comments to this Authority.

6. With regard to the drawings,

   a. the figure of the drawings to be published with the abstract is Figure No. 1

      ☒ as suggested by the applicant.

      ☐ as selected by this Authority, because the applicant failed to suggest a figure.

      ☐ as selected by this Authority, because this figure better characterizes the invention.

   b. ☐ none of the figures is to be published with the abstract.

Form PCT/ISA/210 (first sheet) (April 2007)

INTERNATIONAL SEARCH REPORT

International application No.
PCT/US 07/81481

A. CLASSIFICATION OF SUBJECT MATTER
IPC(8) - G06F 17/28 (2008.04)
USPC - 704/4
According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
USPC: 704/4

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched
704/1-4;709/204,205,207

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)
Google; Google Scholar; Google Patents; PubWest(PGPB,USPT,USOC,EPAB,JPAB);
Search Terms Used: voice, user, interface, cooperative conversational, human, machine, voice recognition, free form, natural, intuitive, utterance, shared knowledge, update, response, intended meaning, context, time, infer

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	US 2004/0199375 A1 (EHSANI et al.) 07 October 2004 (07.10.2004), (para [0002], [0168]-[0169],[0210]-[0248])	1-42
Y	US 2005/0021334 A1 (IWAHASHI) 27 January 2005 (27.01.2005), (para [0042]-[0077])	1-42
A	US 5,377,350 A (SKINNER) 27 December 1994 (27.12.1994)	1-42

☐ Further documents are listed in the continuation of Box C. ☐

* Special categories of cited documents:
"A" document defining the general state of the art which is not considered to be of particular relevance
"E" earlier application or patent but published on or after the international filing date
"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
"O" document referring to an oral disclosure, use, exhibition or other means
"P" document published prior to the international filing date but later than the priority date claimed
"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art
"&" document member of the same patent family

Date of the actual completion of the international search	Date of mailing of the international search report
24 September 2008 (24.09.2008)	01 OCT 2008
Name and mailing address of the ISA/US Mail Stop PCT, Attn: ISA/US, Commissioner for Patents P.O. Box 1450, Alexandria, Virginia 22313-1450 Facsimile No. 571-273-3201	Authorized officer: Lee W. Young PCT Helpdesk: 571-272-4300 PCT OSP: 571-272-7774

Form PCT/ISA/210 (second sheet) (April 2007)

PATENT COOPERATION TREATY

PCT

INTERNATIONAL SEARCH REPORT

(PCT Article 18 and Rules 43 and 44)

Applicant's or agent's file reference 90611-371246	FOR FURTHER ACTION	see Form PCT/ISA/220 as well as, where applicable, item 5 below.
International application No. PCT/US 08/69508	International filing date *(day/month/year)* 09 July 2008 (09.07.2008)	(Earliest) Priority Date *(day/month/year)* 11 December 2007 (11.12.2007)
Applicant VOICEBOX TECHNOLOGIES, INC.		

This international search report has been prepared by this International Searching Authority and is transmitted to the applicant according to Article 18. A copy is being transmitted to the International Bureau.

This international search report consists of a total of 2 sheets.

☐ It is also accompanied by a copy of each prior art document cited in this report.

1. Basis of the report
   a. With regard to the language, the international search was carried out on the basis of:
      ☒ the international application in the language in which it was filed.
      ☐ a translation of the international application into _____ which is the language of a translation furnished for the purposes of international search (Rules 12.3(a) and 23.1(b)).
   b. ☐ This international search report has been established taking into account the rectification of an obvious mistake authorized by or notified to this Authority under Rule 91 (Rule 43.6*bis*(a)).
   c. ☐ With regard to any nucleotide and/or amino acid sequence disclosed in the international application, see Box No. I.

2. ☐ Certain claims were found unsearchable (see Box No. II).

3. ☐ Unity of invention is lacking (see Box No. III).

4. With regard to the title,
   ☐ the text is approved as submitted by the applicant.
   ☒ the text has been established by this Authority to read as follows:

PROVIDING A NATURAL LANGUAGE VOICE USER INTERFACE IN AN INTEGRATED VOICE NAVIGATION SERVICES ENVIRONMENT

5. With regard to the abstract,
   ☒ the text is approved as submitted by the applicant.
   ☐ the text has been established, according to Rule 38.2(b), by this Authority as it appears in Box No. IV. The applicant may, within one month from the date of mailing of this international search report, submit comments to this Authority.

6. With regard to the drawings,
   a. the figure of the drawings to be published with the abstract is Figure No. 1
      ☒ as suggested by the applicant.
      ☐ as selected by this Authority, because the applicant failed to suggest a figure.
      ☐ as selected by this Authority, because this figure better characterizes the invention.
   b. ☐ none of the figures is to be published with the abstract.

Form PCT/ISA/210 (first sheet) (April 2007)

INTERNATIONAL SEARCH REPORT

International application No.
PCT/US 08/69508

A. CLASSIFICATION OF SUBJECT MATTER
IPC(8) - G06F 17/27 (2008.04)
USPC - 704/9
According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
USPC - 704/9

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched
USPC - 704/1, 2, 8, 9, 200, 206, 221, E15.045

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)
PubWEST (PGPB, USPT, EPAB, JPAB); Google Scholar
Search Terms Used: map, gps, speech, voice, talk, navigation, natural, conversational, grammar, interpret, software, computer, input, interface, user interface, refine, zoom, route, directions

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X -- Y	US 2007/0050191 A1 (WEIDER et al.) 01 March 2007 (01.03.2007), entire document, especially paras. [0061]-[0073], [0100], [0121], [0123], [0126], [0133], [0140], [0142], [0147], [0153], [0167], [0189]-[0194], [0210]-[0211], [0215]	1-42, 45-58 ---------- 43-44
Y	US 5,902,347 A (BACKMAN et al.) 11 May 1999 (11.05.1999), entire document, especially col 1 ln 32-34, col 4 ln 33-44	43-44
A	US 5,274,560 A (LARUE) 28 December 1993 (28.12.1993), entire document	1-58
A	US 6,598,018 B1 (JUNQUA) 22 July 2003 (22.07.2003), entire document	1-58

☐ Further documents are listed in the continuation of Box C. ☐

* Special categories of cited documents:
"A" document defining the general state of the art which is not considered to be of particular relevance
"E" earlier application or patent but published on or after the international filing date
"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
"O" document referring to an oral disclosure, use, exhibition or other means
"P" document published prior to the international filing date but later than the priority date claimed
"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art
"&" document member of the same patent family

Date of the actual completion of the international search	Date of mailing of the international search report
25 September 2008 (25.09.2008)	02 OCT 2008
Name and mailing address of the ISA/US Mail Stop PCT, Attn: ISA/US, Commissioner for Patents P.O. Box 1450, Alexandria, Virginia 22313-1450 Facsimile No. 571-273-3201	Authorized officer: Lee W. Young PCT Helpdesk: 571-272-4300 PCT OSP: 571-272-7774

Form PCT/ISA/210 (second sheet) (April 2007)

PATENT COOPERATION TREATY

PCT

INTERNATIONAL SEARCH REPORT

(PCT Article 18 and Rules 43 and 44)

Applicant's or agent's file reference 90611-370865	FOR FURTHER ACTION	see Form PCT/ISA/220 as well as, where applicable, item 5 below.
International application No. PCT/US 08/69524	International filing date *(day/month/year)* 09 July 2008 (09.07.2008)	(Earliest) Priority Date *(day/month/year)* 27 May 2008 (27.05.2008)
Applicant VOICEBOX TECHNOLOGIES, INC.		

This international search report has been prepared by this International Searching Authority and is transmitted to the applicant according to Article 18. A copy is being transmitted to the International Bureau.

This international search report consists of a total of 9 sheets.

☐ It is also accompanied by a copy of each prior art document cited in this report.

1. **Basis of the report**

   a. With regard to the language, the international search was carried out on the basis of:

   ☒ the international application in the language in which it was filed.

   ☐ a translation of the international application into _____ which is the language of a translation furnished for the purposes of international search (Rules 12.3(a) and 23.1(b)).

   b. ☐ This international search report has been established taking into account the rectification of an obvious mistake authorized by or notified to this Authority under Rule 91 (Rule 43.6*bis*(a)).

   c. ☐ With regard to any nucleotide and/or amino acid sequence disclosed in the international application, see Box No. I.

2. ☐ Certain claims were found unsearchable (see Box No. II).

3. ☐ Unity of invention is lacking (see Box No. III).

4. With regard to the title,

   ☒ the text is approved as submitted by the applicant.

   ☐ the text has been established by this Authority to read as follows:

5. With regard to the abstract,

   ☒ the text is approved as submitted by the applicant.

   ☐ the text has been established, according to Rule 38.2(b), by this Authority as it appears in Box No. IV. The applicant may, within one month from the date of mailing of this international search report, submit comments to this Authority.

6. With regard to the drawings,

   a. the figure of the drawings to be published with the abstract is Figure No. 1

   ☒ as suggested by the applicant.

   ☐ as selected by this Authority, because the applicant failed to suggest a figure.

   ☐ as selected by this Authority, because this figure better characterizes the invention.

   b. ☐ none of the figures is to be published with the abstract.

Form PCT/ISA/210 (first sheet) (April 2007)

INTERNATIONAL SEARCH REPORT

International application No.
PCT/US 08/69524

A. CLASSIFICATION OF SUBJECT MATTER
IPC(8) - G06F 13/12 (2008.04)
USPC - 710/65
According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
USPC: 710/65

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched
USPC: 710/11, 14, 37, 50, 73; 370/353, 458, 448; 379/907-908; 704/200, 246, 251-252 (see text terms below)

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)
PubWEST (PGPB, USPT, USOC, EPAB, JPAB); DialogPRO; Google (Incl. Patents, Scholar) - natural language, multi-modal, central, input, device, client, server, process, distributed, local, distributed system, local, context, speech

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 7,376,845 B2 (BERNARD) 20 May 2008 (20.05.2008), Abstract, FIGS.1-3; and Col 1, ln 19-30; Col 1, ln 35 to Col 2, ln 2; Col 2, ln 21 to Col 4, ln 16; Col 4, ln 21-56, 60; Col 5, ln 10; Col 6, ln 1-5, 7, 22-23; Col 6, ln 37 to Col 7, ln 4; Col 7, ln 13-26; Col 7, ln 52 to Col 10, ln 37	1-27
A	US 2004/0025115 A1 (SIENEL et al.) 5 February 2004 (05.02.2004)	1-27
A	US 2007/0050191 A1 (WEIDER et al.) 1 March 2007 (01.03.2007)	1-27
A	US 2004/0166832 A1 (PORTMAN et al.) 26 August 2004 (26.08.2004)	1-27
A	US 6,615,172 B1 (BENNETT et al.) 2 September 2003 (02.09.2003)	1-27

☐ Further documents are listed in the continuation of Box C. ☐

* Special categories of cited documents:
"A" document defining the general state of the art which is not considered to be of particular relevance
"E" earlier application or patent but published on or after the international filing date
"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
"O" document referring to an oral disclosure, use, exhibition or other means
"P" document published prior to the international filing date but later than the priority date claimed
"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art
"&" document member of the same patent family

Date of the actual completion of the international search	Date of mailing of the international search report
04 October 2008 (04.10.2008)	09 OCT 2008
Name and mailing address of the ISA/US Mail Stop PCT, Attn: ISA/US, Commissioner for Patents P.O. Box 1450, Alexandria, Virginia 22313-1450 Facsimile No. 571-273-3201	Authorized officer: Lee W. Young PCT Helpdesk: 571-272-4300 PCT OSP: 571-272-7774

Form PCT/ISA/210 (second sheet) (April 2007)

INFORMATION DISCLOSURE CITATION IN AN APPLICATION	Docket Number	Application Number
	090611-0316777	11/197,504
	Applicant(s)	
	Philippe DI CRISTO *et al.*	
	Filing Date	Group Art Unit
Form PTO-1449	August 5, 2005	2626

U.S. PATENT DOCUMENTS

*EXAMINER INITIAL	REF.	DOCUMENT NO.	DATE	NAME	CLASS	SUBCLASS	FILING DATE IF APPROPRIATE
	A	4,430,669	02/07/1984	Cheung	358	122	
	B	5,274,560	12/28/1993	LaRue	364	444	
	C	5,377,350	12/27/1994	Skinner	395	600	
	D	5,500,920	03/19/1996	Kupiec	395	2.79	
	E	5,774,859	06/30/1998	Houser *et al.*	704	275	
	F	5,902,347	05/11/1999	Backman *et al.*	701	200	
	G	6,598,018	07/22/2003	Junqua	704	251	
	H	7,376,645	05/20/2008	Bernard	707	3	
	I	2002/0065568	05/30/2002	Silfvast *et al.*	700	94	
	J	2002/0082911	06/27/2002	Dunn *et al.*	705	14	
	K	2002/0120609	08/29/2002	Lang *et al.*	707	1	
	L	2002/0124050	09/05/2002	Middeljans	709	203	
	M	2003/0014261	01/16/2003	Kageyama	704	275	
	N	2004/0025115	02/05/2004	Sienel *et al.*	715	513	
	O	2004/0166832	08/26/2004	Portman *et al.*	455	412.1	
	P	2004/0199375	10/07/2004	Ehsani *et al.*	704	4	
	Q	2005/0021334	01/27/2005	Iwahashi	704	240	
	R	2005/0114116	05/26/2005	Fiedler	704	201	
	S	2007/0033005	02/08/2007	Cristo *et al.*	704	9	
	T	2007/0038436	02/15/2007	Cristo *et al.*	704	9	
	U	2007/0050191	03/01/2007	Weider *et al.*	704	275	
	V	2008/0091406	04/17/2008	Baldwin *et al.*	704	4	

FOREIGN PATENT DOCUMENTS

	REF	DOCUMENT NO.	DATE	COUNTRY	CLASS	SUBCLASS	Translations YES	Translations NO

OTHER DOCUMENTS *(Including Author, Title, Date, Pertinent Pages, Etc.)*

EXAMINER	DATE CONSIDERED

EXAMINER: Initial if citation considered, whether or not citation is in conformance with MPEP Section 609; Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to Applicant.

Electronic Patent Application Fee Transmittal

Application Number:	11197504
Filing Date:	05-Aug-2005
Title of Invention:	SYSTEMS AND METHODS FOR RESPONDING TO NATURAL LANGUAGE SPEECH UTTERANCE
First Named Inventor/Applicant Name:	Philippe Di Cristo
Filer:	Syed Jafar Ali/Miriam E. Nelsen
Attorney Docket Number:	090611-0316777

Filed as Small Entity

Utility under 35 USC 111(a) Filing Fees

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Basic Filing:				
Pages:				
Claims:				
Miscellaneous-Filing:				
Petition:				
Patent-Appeals-and-Interference:				
Post-Allowance-and-Post-Issuance:				
Extension-of-Time:				

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Miscellaneous:				
Request for continued examination	2801	1	405	405
		Total in USD ($)		**405**

Electronic Acknowledgement Receipt

EFS ID:	5570775
Application Number:	11197504
International Application Number:	
Confirmation Number:	7092
Title of Invention:	SYSTEMS AND METHODS FOR RESPONDING TO NATURAL LANGUAGE SPEECH UTTERANCE
First Named Inventor/Applicant Name:	Philippe Di Cristo
Customer Number:	00909
Filer:	Syed Jafar Ali/Miriam E. Nelsen
Filer Authorized By:	Syed Jafar Ali
Attorney Docket Number:	090611-0316777
Receipt Date:	23-JUN-2009
Filing Date:	05-AUG-2005
Time Stamp:	15:50:10
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	Deposit Account
Payment was successfully received in RAM	$405
RAM confirmation Number	2152
Deposit Account	033975
Authorized User	

The Director of the USPTO is hereby authorized to charge indicated fees and credit any overpayment as follows:

Charge any Additional Fees required under 37 C.F.R. Section 1.21 (Miscellaneous fees and charges)

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1		090611-0316777_RCE_SIDS.pdf	333599 2b5504e99e34c1dda6abc7941147b1e620d755ae	yes	10

Multipart Description/PDF files in .zip description		
Document Description	**Start**	**End**
Request for Continued Examination (RCE)	1	1
Transmittal Letter	2	9
Information Disclosure Statement (IDS) Filed (SB/08)	10	10

Warnings:

Information:

2	Fee Worksheet (PTO-875)	fee-info.pdf	30501 ba6d1a7ab91708e69b05321d53555b1a212717f9	no	2

Warnings:

Information:

Total Files Size (in bytes):	364100

This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.

New Applications Under 35 U.S.C. 111

If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

National Stage of an International Application under 35 U.S.C. 371

If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

New International Application Filed with the USPTO as a Receiving Office

If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
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APPLICATION NUMBER	FILING or 371(c) DATE	GRP ART UNIT	FIL FEE REC'D	ATTY.DOCKET.NO	TOT CLAIMS	IND CLAIMS
11/197,504	08/05/2005	2626	1260	090611-0316777	29	3

CONFIRMATION NO. 7092

CORRECTED FILING RECEIPT

909
PILLSBURY WINTHROP SHAW PITTMAN, LLP
P.O. BOX 10500
MCLEAN, VA 22102



Date Mailed: 06/25/2009

Receipt is acknowledged of this non-provisional patent application. The application will be taken up for examination in due course. Applicant will be notified as to the results of the examination. Any correspondence concerning the application must include the following identification information: the U.S. APPLICATION NUMBER, FILING DATE, NAME OF APPLICANT, and TITLE OF INVENTION. Fees transmitted by check or draft are subject to collection. Please verify the accuracy of the data presented on this receipt. **If an error is noted on this Filing Receipt, please submit a written request for a Filing Receipt Correction. Please provide a copy of this Filing Receipt with the changes noted thereon. If you received a "Notice to File Missing Parts" for this application, please submit any corrections to this Filing Receipt with your reply to the Notice. When the USPTO processes the reply to the Notice, the USPTO will generate another Filing Receipt incorporating the requested corrections**

Applicant(s)

Philippe Di Cristo, Bellevue, WA;
Min Ke, Bothell, WA;
Robert A. Kennewick, Seattle, WA;
Lynn Elise Armstrong, Woodinville, WA;

Assignment For Published Patent Application

VoiceBox Technologies, Inc., Kirkland, WA

Power of Attorney: None

Domestic Priority data as claimed by applicant

Foreign Applications

If Required, Foreign Filing License Granted: 08/26/2005

The country code and number of your priority application, to be used for filing abroad under the Paris Convention, is **US 11/197,504**

Projected Publication Date: Not Applicable

Non-Publication Request: No

Early Publication Request: No
**** SMALL ENTITY ****

Title

SYSTEMS AND METHODS FOR RESPONDING TO NATURAL LANGUAGE SPEECH UTTERANCE

Preliminary Class

704

PROTECTING YOUR INVENTION OUTSIDE THE UNITED STATES

Since the rights granted by a U.S. patent extend only throughout the territory of the United States and have no effect in a foreign country, an inventor who wishes patent protection in another country must apply for a patent in a specific country or in regional patent offices. Applicants may wish to consider the filing of an international application under the Patent Cooperation Treaty (PCT). An international (PCT) application generally has the same effect as a regular national patent application in each PCT-member country. The PCT process **simplifies** the filing of patent applications on the same invention in member countries, but **does not result** in a grant of "an international patent" and does not eliminate the need of applicants to file additional documents and fees in countries where patent protection is desired.

Almost every country has its own patent law, and a person desiring a patent in a particular country must make an application for patent in that country in accordance with its particular laws. Since the laws of many countries differ in various respects from the patent law of the United States, applicants are advised to seek guidance from specific foreign countries to ensure that patent rights are not lost prematurely.

Applicants also are advised that in the case of inventions made in the United States, the Director of the USPTO must issue a license before applicants can apply for a patent in a foreign country. The filing of a U.S. patent application serves as a request for a foreign filing license. The application's filing receipt contains further information and guidance as to the status of applicant's license for foreign filing.

Applicants may wish to consult the USPTO booklet, "General Information Concerning Patents" (specifically, the section entitled "Treaties and Foreign Patents") for more information on timeframes and deadlines for filing foreign patent applications. The guide is available either by contacting the USPTO Contact Center at 800-786-9199, or it can be viewed on the USPTO website at http://www.uspto.gov/web/offices/pac/doc/general/index.html.

For information on preventing theft of your intellectual property (patents, trademarks and copyrights), you may wish to consult the U.S. Government website, http://www.stopfakes.gov. Part of a Department of Commerce initiative, this website includes self-help "toolkits" giving innovators guidance on how to protect intellectual property in specific countries such as China, Korea and Mexico. For questions regarding patent enforcement issues, applicants may call the U.S. Government hotline at 1-866-999-HALT (1-866-999-4158).

LICENSE FOR FOREIGN FILING UNDER

Title 35, United States Code, Section 184

Title 37, Code of Federal Regulations, 5.11 & 5.15

GRANTED

The applicant has been granted a license under 35 U.S.C. 184, if the phrase "IF REQUIRED, FOREIGN FILING LICENSE GRANTED" followed by a date appears on this form. Such licenses are issued in all applications where

the conditions for issuance of a license have been met, regardless of whether or not a license may be required as set forth in 37 CFR 5.15. The scope and limitations of this license are set forth in 37 CFR 5.15(a) unless an earlier license has been issued under 37 CFR 5.15(b). The license is subject to revocation upon written notification. The date indicated is the effective date of the license, unless an earlier license of similar scope has been granted under 37 CFR 5.13 or 5.14.

This license is to be retained by the licensee and may be used at any time on or after the effective date thereof unless it is revoked. This license is automatically transferred to any related applications(s) filed under 37 CFR 1.53(d). This license is not retroactive.

The grant of a license does not in any way lessen the responsibility of a licensee for the security of the subject matter as imposed by any Government contract or the provisions of existing laws relating to espionage and the national security or the export of technical data. Licensees should apprise themselves of current regulations especially with respect to certain countries, of other agencies, particularly the Office of Defense Trade Controls, Department of State (with respect to Arms, Munitions and Implements of War (22 CFR 121-128)); the Bureau of Industry and Security, Department of Commerce (15 CFR parts 730-774); the Office of Foreign AssetsControl, Department of Treasury (31 CFR Parts 500+) and the Department of Energy.

NOT GRANTED

No license under 35 U.S.C. 184 has been granted at this time, if the phrase "IF REQUIRED, FOREIGN FILING LICENSE GRANTED" DOES NOT appear on this form. Applicant may still petition for a license under 37 CFR 5.12, if a license is desired before the expiration of 6 months from the filing date of the application. If 6 months has lapsed from the filing date of this application and the licensee has not received any indication of a secrecy order under 35 U.S.C. 181, the licensee may foreign file the application pursuant to 37 CFR 5.15(b).

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UNITED STATES DEPARTMENT OF COMMERCE
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Bib Data Sheet

CONFIRMATION NO. 7092

SERIAL NUMBER	FILING OR 371(c) DATE	CLASS	GROUP ART UNIT	ATTORNEY DOCKET NO.
11/197,504	08/05/2005 RULE	704	2626	090611-0316777

APPLICANTS

Philippe Di Cristo, Bellevue, WA;
Min Ke, Bothell, WA;
Robert A. Kennewick, Seattle, WA;
Lynn Elise Armstrong, Woodinville, WA;

** CONTINUING DATA **********

** FOREIGN APPLICATIONS **********

IF REQUIRED, FOREIGN FILING LICENSE GRANTED ** SMALL ENTITY **
** 08/26/2005

		STATE OR COUNTRY	SHEETS DRAWING	TOTAL CLAIMS	INDEPENDENT CLAIMS
Foreign Priority claimed	☐ yes ☐ no	WA	8	29	3
35 USC 119 (a-d) conditions met	☐ yes ☐ no ☐ Met after Allowance				
Verified and Acknowledged	Examiner's Signature Initials				

ADDRESS
909

TITLE

SYSTEMS AND METHODS FOR RESPONDING TO NATURAL LANGUAGE SPEECH UTTERANCE

FILING FEE RECEIVED		
1260	FEES: Authority has been given in Paper No. _____ to charge/credit DEPOSIT ACCOUNT No. _____ for following:	☐ All Fees ☐ 1.16 Fees (Filing) ☐ 1.17 Fees (Processing Ext. of time) ☐ 1.18 Fees (Issue) ☐ Other _____ ☐ Credit

UNITED STATES PATENT AND TRADEMARK OFFICE

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NOTICE OF ALLOWANCE AND FEE(S) DUE

909 7590 08/26/2009

PILLSBURY WINTHROP SHAW PITTMAN, LLP
P.O. BOX 10500
MCLEAN, VA 22102

EXAMINER	
ALBERTALLI, BRIAN LOUIS	
ART UNIT	PAPER NUMBER
2626	

DATE MAILED: 08/26/2009

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
11/197,504	08/05/2005	Philippe Di Cristo	090611-0316777	7092

TITLE OF INVENTION: SYSTEMS AND METHODS FOR RESPONDING TO NATURAL LANGUAGE SPEECH UTTERANCE

APPLN. TYPE	SMALL ENTITY	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	YES	$755	$300	$0	$1055	11/27/2009

THE APPLICATION IDENTIFIED ABOVE HAS BEEN EXAMINED AND IS ALLOWED FOR ISSUANCE AS A PATENT. PROSECUTION ON THE MERITS IS CLOSED. THIS NOTICE OF ALLOWANCE IS NOT A GRANT OF PATENT RIGHTS. THIS APPLICATION IS SUBJECT TO WITHDRAWAL FROM ISSUE AT THE INITIATIVE OF THE OFFICE OR UPON PETITION BY THE APPLICANT. SEE 37 CFR 1.313 AND MPEP 1308.

THE ISSUE FEE AND PUBLICATION FEE (IF REQUIRED) MUST BE PAID WITHIN THREE MONTHS FROM THE MAILING DATE OF THIS NOTICE OR THIS APPLICATION SHALL BE REGARDED AS ABANDONED. THIS STATUTORY PERIOD CANNOT BE EXTENDED. SEE 35 U.S.C. 151. THE ISSUE FEE DUE INDICATED ABOVE DOES NOT REFLECT A CREDIT FOR ANY PREVIOUSLY PAID ISSUE FEE IN THIS APPLICATION. IF AN ISSUE FEE HAS PREVIOUSLY BEEN PAID IN THIS APPLICATION (AS SHOWN ABOVE), THE RETURN OF PART B OF THIS FORM WILL BE CONSIDERED A REQUEST TO REAPPLY THE PREVIOUSLY PAID ISSUE FEE TOWARD THE ISSUE FEE NOW DUE.

HOW TO REPLY TO THIS NOTICE:

I. Review the SMALL ENTITY status shown above.

If the SMALL ENTITY is shown as YES, verify your current SMALL ENTITY status:

A. If the status is the same, pay the TOTAL FEE(S) DUE shown above.

B. If the status above is to be removed, check box 5b on Part B - Fee(s) Transmittal and pay the PUBLICATION FEE (if required) and twice the amount of the ISSUE FEE shown above, or

If the SMALL ENTITY is shown as NO:

A. Pay TOTAL FEE(S) DUE shown above, or

B. If applicant claimed SMALL ENTITY status before, or is now claiming SMALL ENTITY status, check box 5a on Part B - Fee(s) Transmittal and pay the PUBLICATION FEE (if required) and 1/2 the ISSUE FEE shown above.

II. PART B - FEE(S) TRANSMITTAL, or its equivalent, must be completed and returned to the United States Patent and Trademark Office (USPTO) with your ISSUE FEE and PUBLICATION FEE (if required). If you are charging the fee(s) to your deposit account, section "4b" of Part B - Fee(s) Transmittal should be completed and an extra copy of the form should be submitted. If an equivalent of Part B is filed, a request to reapply a previously paid issue fee must be clearly made, and delays in processing may occur due to the difficulty in recognizing the paper as an equivalent of Part B.

III. All communications regarding this application must give the application number. Please direct all communications prior to issuance to Mail Stop ISSUE FEE unless advised to the contrary.

IMPORTANT REMINDER: Utility patents issuing on applications filed on or after Dec. 12, 1980 may require payment of maintenance fees. It is patentee's responsibility to ensure timely payment of maintenance fees when due.

PART B - FEE(S) TRANSMITTAL

Complete and send this form, together with applicable fee(s), to: Mail **Mail Stop ISSUE FEE**
Commissioner for Patents
P.O. Box 1450
Alexandria, Virginia 22313-1450
or Fax (571)-273-2885

INSTRUCTIONS: This form should be used for transmitting the ISSUE FEE and PUBLICATION FEE (if required). Blocks 1 through 5 should be completed where appropriate. All further correspondence including the Patent, advance orders and notification of maintenance fees will be mailed to the current correspondence address as indicated unless corrected below or directed otherwise in Block 1, by (a) specifying a new correspondence address; and/or (b) indicating a separate "FEE ADDRESS" for maintenance fee notifications.

CURRENT CORRESPONDENCE ADDRESS (Note: Use Block 1 for any change of address)

909 7590 08/26/2009

PILLSBURY WINTHROP SHAW PITTMAN, LLP
P.O. BOX 10500
MCLEAN, VA 22102

Note: A certificate of mailing can only be used for domestic mailings of the Fee(s) Transmittal. This certificate cannot be used for any other accompanying papers. Each additional paper, such as an assignment or formal drawing, must have its own certificate of mailing or transmission.

Certificate of Mailing or Transmission

I hereby certify that this Fee(s) Transmittal is being deposited with the United States Postal Service with sufficient postage for first class mail in an envelope addressed to the Mail Stop ISSUE FEE address above, or being facsimile transmitted to the USPTO (571) 273-2885, on the date indicated below.

(Depositor's name)
(Signature)
(Date)

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
11/197,504	08/05/2005	Philippe Di Cristo	090611-0316777	7092

TITLE OF INVENTION: SYSTEMS AND METHODS FOR RESPONDING TO NATURAL LANGUAGE SPEECH UTTERANCE

APPLN. TYPE	SMALL ENTITY	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	YES	$755	$300	$0	$1055	11/27/2009

EXAMINER	ART UNIT	CLASS-SUBCLASS
ALBERTALLI, BRIAN LOUIS	2626	704-009000

1. Change of correspondence address or indication of "Fee Address" (37 CFR 1.363).

❑ Change of correspondence address (or Change of Correspondence Address form PTO/SB/122) attached.

❑ "Fee Address" indication (or "Fee Address" Indication form PTO/SB/47; Rev 03-02 or more recent) attached. **Use of a Customer Number is required.**

2. For printing on the patent front page, list

(1) the names of up to 3 registered patent attorneys or agents OR, alternatively, 1_____

(2) the name of a single firm (having as a member a registered attorney or agent) and the names of up to 2 registered patent attorneys or agents. If no name is listed, no name will be printed. 2_____ 3_____

3. ASSIGNEE NAME AND RESIDENCE DATA TO BE PRINTED ON THE PATENT (print or type)

PLEASE NOTE: Unless an assignee is identified below, no assignee data will appear on the patent. If an assignee is identified below, the document has been filed for recordation as set forth in 37 CFR 3.11. Completion of this form is NOT a substitute for filing an assignment.

(A) NAME OF ASSIGNEE (B) RESIDENCE: (CITY and STATE OR COUNTRY)

Please check the appropriate assignee category or categories (will not be printed on the patent) : ❑ Individual ❑ Corporation or other private group entity ❑ Government

4a. The following fee(s) are submitted:

❑ Issue Fee

❑ Publication Fee (No small entity discount permitted)

❑ Advance Order - # of Copies _____

4b. Payment of Fee(s): **(Please first reapply any previously paid issue fee shown above)**

❑ A check is enclosed.

❑ Payment by credit card. Form PTO-2038 is attached.

❑ The Director is hereby authorized to charge the required fee(s), any deficiency, or credit any overpayment, to Deposit Account Number _____ (enclose an extra copy of this form).

5. **Change in Entity Status** (from status indicated above)

❑ a. Applicant claims SMALL ENTITY status. See 37 CFR 1.27.

❑ b. Applicant is no longer claiming SMALL ENTITY status. See 37 CFR 1.27(g)(2).

NOTE: The Issue Fee and Publication Fee (if required) will not be accepted from anyone other than the applicant; a registered attorney or agent; or the assignee or other party in interest as shown by the records of the United States Patent and Trademark Office.

Authorized Signature _____ Date _____

Typed or printed name _____ Registration No. _____

This collection of information is required by 37 CFR 1.311. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, Virginia 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, Virginia 22313-1450.

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

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United States Patent and Trademark Office
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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
11/197,504	08/05/2005	Philippe Di Cristo	090611-0316777	7092

909 7590 08/26/2009

PILLSBURY WINTHROP SHAW PITTMAN, LLP
P.O. BOX 10500
MCLEAN, VA 22102

EXAMINER	
ALBERTALLI, BRIAN LOUIS	
ART UNIT	PAPER NUMBER
2626	

DATE MAILED: 08/26/2009

Determination of Patent Term Adjustment under 35 U.S.C. 154 (b)
(application filed on or after May 29, 2000)

The Patent Term Adjustment to date is 213 day(s). If the issue fee is paid on the date that is three months after the mailing date of this notice and the patent issues on the Tuesday before the date that is 28 weeks (six and a half months) after the mailing date of this notice, the Patent Term Adjustment will be 213 day(s).

If a Continued Prosecution Application (CPA) was filed in the above-identified application, the filing date that determines Patent Term Adjustment is the filing date of the most recent CPA.

Applicant will be able to obtain more detailed information by accessing the Patent Application Information Retrieval (PAIR) WEB site (http://pair.uspto.gov).

Any questions regarding the Patent Term Extension or Adjustment determination should be directed to the Office of Patent Legal Administration at (571)-272-7702. Questions relating to issue and publication fee payments should be directed to the Customer Service Center of the Office of Patent Publication at 1-(888)-786-0101 or (571)-272-4200.

Notice of Allowability	Application No.	Applicant(s)	
	11/197,504	CRISTO ET AL.	
	Examiner	Art Unit	
	BRIAN L. ALBERTALLI	2626	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to *23 June 2009*.

2. ☒ The allowed claim(s) is/are *30-37,41-43 and 45-49*.

3. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
   a) ☐ All b) ☐ Some* c) ☐ None of the:
      1. ☐ Certified copies of the priority documents have been received.
      2. ☐ Certified copies of the priority documents have been received in Application No. _____ .
      3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

   * Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.
THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.

5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
   (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
      1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
   (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.

   Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).

6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☐ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)
3. ☒ Information Disclosure Statements (PTO/SB/08), Paper No./Mail Date _____
4. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material
5. ☐ Notice of Informal Patent Application
6. ☐ Interview Summary (PTO-413), Paper No./Mail Date _____ .
7. ☐ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☐ Other _____.

DETAILED ACTION

Allowable Subject Matter

Claims 30-37, 41-43, and 45-49 are allowed.

The following is an examiner's statement of reasons for allowance:

The IDS submitted 23 June 2009 has been considered and raised no issues with respect to the patentability of claims 30-37, 41-43, and 45-49. Therefore, claims 30-37, 41-43, and 45-49 are allowed for the reasons given in the previous Office Action.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to BRIAN L. ALBERTALLI whose telephone number is (571)272-7616. The examiner can normally be reached on Monday-Thursday, 8 AM to 6:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Hudspeth can be reached on (571) 272-7843. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/David R Hudspeth/
Supervisory Patent Examiner, Art Unit 2626

BLA 8/19/09

Search Notes	Application/Control No.	Applicant(s)/Patent Under Reexamination
	11197504	CRISTO ET AL.
	Examiner	Art Unit
	BRIAN L ALBERTALLI	2626

SEARCHED			
Class	Subclass	Date	Examiner

SEARCH NOTES		
Search Notes	Date	Examiner
Updated EAST Search - see search history printout	9/25/08	BA
Updated EAST Search - see search history printout	1/30/09	BA
Updated EAST Search - see search history printout	3/25/09	BA
Updated EAST Search - see search history printout	8/19/09	BA

INTERFERENCE SEARCH			
Class	Subclass	Date	Examiner
	Interference Search - see search history printout	3/25/09	BA

EAST Search History

EAST Search History (Prior Art)

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
L1	22	US-4430669-$.DID. OR US-5274560-$.DID. OR US-5377350-$.DID. OR US-5500920-$.DID. OR US-5774859-$.DID. OR US-5902347-$.DID. OR US-6598018-$.DID. OR US-7376645-$.DID. OR US-20020065568-$.DID. OR US-20020082911-$.DID. OR US-20020120609-$.DID. OR US-20020124050-$.DID. OR US-20030014261-$.DID. OR US-20040025115-$.DID. OR US-20040166832-$.DID. OR US-20040199375-$.DID. OR US-20050021334-$.DID. OR US-20050114116-$.DID. OR US-20070033005-$.DID. OR US-20070038436-$.DID. OR US-20070050191-$.DID. OR US-20080091406-$.DID.	US-PGPUB; USPAT; USOCR	OR	OFF	2009/08/19 15:27

EAST Search History (Interference)

< This search history is empty>

8/ 19/ 09 4:00:34 PM
C:\ Documents and Settings\ balbertalli\ My Documents\ EAST\ Workspaces \ 11197504.wsp

INFORMATION DISCLOSURE CITATION IN AN APPLICATION	Docket Number	Application Number
	090611-0316777	11/197,504
	Applicant(s)	
	Philippe DI CRISTO *et al.*	
	Filing Date	Group Art Unit
Form PTO-1449	August 5, 2005	2626

U.S. PATENT DOCUMENTS

*EXAMINER INITIAL	REF.	DOCUMENT NO.	DATE	NAME	CLASS	SUBCLASS	FILING DATE IF APPROPRIATE
/B.A./	A	4,430,669	02/07/1984	Cheung	358	122	
/B.A./	B	5,274,560	12/28/1993	LaRue	364	444	
/B.A./	C	5,377,350	12/27/1994	Skinner	395	600	
/B.A./	D	5,500,920	03/19/1996	Kupiec	395	2.79	
/B.A./	E	5,774,859	06/30/1998	Houser *et al.*	704	275	
/B.A./	F	5,902,347	05/11/1999	Backman *et al.*	701	200	
/B.A./	G	6,598,018	07/22/2003	Junqua	704	251	
/B.A./	H	7,376,645	05/20/2008	Bernard	707	3	
/B.A./	I	2002/0065568	05/30/2002	Silfvast *et al.*	700	94	
/B.A./	J	2002/0082911	06/27/2002	Dunn *et al.*	705	14	
/B.A./	K	2002/0120609	08/29/2002	Lang *et al.*	707	1	
/B.A./	L	2002/0124050	09/05/2002	Middeljans	709	203	
/B.A./	M	2003/0014261	01/16/2003	Kageyama	704	275	
/B.A./	N	2004/0025115	02/05/2004	Sienel *et al.*	715	513	
/B.A./	O	2004/0166832	08/26/2004	Portman *et al.*	455	412.1	
/B.A./	P	2004/0199375	10/07/2004	Ehsani *et al.*	704	4	
/B.A./	Q	2005/0021334	01/27/2005	Iwahashi	704	240	
/B.A./	R	2005/0114116	05/26/2005	Fiedler	704	201	
/B.A./	S	2007/0033005	02/08/2007	Cristo *et al.*	704	9	
/B.A./	T	2007/0038436	02/15/2007	Cristo *et al.*	704	9	
/B.A./	U	2007/0050191	03/01/2007	Weider *et al.*	704	275	
/B.A./	V	2008/0091406	04/17/2008	Baldwin *et al.*	704	4	

FOREIGN PATENT DOCUMENTS

	REF	DOCUMENT NO.	DATE	COUNTRY	CLASS	SUBCLASS	Translations YES	Translations NO

OTHER DOCUMENTS *(Including Author, Title, Date, Pertinent Pages, Etc.)*

EXAMINER	DATE CONSIDERED
/Brian Albertalli/	08/19/2009

EXAMINER: Initial if citation considered, whether or not citation is in conformance with MPEP Section 609; Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to Applicant.

Issue Classification

Application/Control No.	Applicant(s)/Patent Under Reexamination
11197504	CRISTO ET AL.
Examiner	**Art Unit**
BRIAN L ALBERTALLI	2626

ORIGINAL		INTERNATIONAL CLASSIFICATION	
CLASS	SUBCLASS	CLAIMED	NON-CLAIMED
704	257	G 1 0 L 15 / 18 (2006.0)	
		G 0 6 F 17 / 27 (2006.0)	
		G 1 0 L 15 / 04 (2006.0)	
		G 1 0 L 21 / 00 (2006.0)	

CROSS REFERENCE(S)

CLASS	SUBCLASS (ONE SUBCLASS PER BLOCK)				
704	9	251	270		

☐ Claims renumbered in the same order as presented by applicant ☐ CPA ☐ T.D. ☐ R.1.47

Final	Original	Final	Original	Final	Original	Final	Original	Final	Original	Final	Original	Final	Original	Final	Original
	1		17	4	33	16	49								
	2		18	5	34										
	3		19	6	35										
	4		20	7	36										
	5		21	8	37										
	6		22		38										
	7		23		39										
	8		24		40										
	9		25	9	41										
	10		26	10	42										
	11		27	11	43										
	12		28		44										
	13		29	12	45										
	14	1	30	13	46										
	15	2	31	14	47										
	16	3	32	15	48										

/BRIAN L ALBERTALLI/ Examiner.Art Unit 2626 (Assistant Examiner)	8/19/09 (Date)	**Total Claims Allowed:** 16
/David R Hudspeth/ Supervisory Patent Examiner, Art Unit 2626 (Primary Examiner)	(Date)	O.G. Print Claim(s) 1 O.G. Print Figure 1

Index of Claims	Application/Control No.	Applicant(s)/Patent Under Reexamination
	11197504	CRISTO ET AL.
	Examiner	Art Unit
	BRIAN L ALBERTALLI	2626

✓	Rejected	-	Cancelled	N	Non-Elected	A	Appeal
=	Allowed	÷	Restricted	I	Interference	O	Objected

☐ Claims renumbered in the same order as presented by applicant ☐ CPA ☐ T.D. ☐ R.1.47

CLAIM		DATE								
Final	Original	09/25/2008	01/30/2009	03/25/2009	08/19/2009					
	1	-	-	-	-					
	2	-	-	-	-					
	3	-	-	-	-					
	4	-	-	-	-					
	5	-	-	-	-					
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	29	-	-	-	-					
1	30	=	=	=	=					
2	31	=	=	=	=					
3	32	=	=	=	=					
4	33	=	=	=	=					
5	34	=	=	=	=					
6	35	=	=	=	=					
7	36	=	=	=	=					

Index of Claims	Application/Control No.	Applicant(s)/Patent Under Reexamination
	11197504	CRISTO ET AL.
	Examiner	Art Unit
	BRIAN L ALBERTALLI	2626

✓	Rejected	-	Cancelled	N	Non-Elected	A	Appeal
=	Allowed	÷	Restricted	I	Interference	O	Objected

☐ Claims renumbered in the same order as presented by applicant ☐ CPA ☐ T.D. ☐ R.1.47

CLAIM		DATE								
Final	Original	09/25/2008	01/30/2009	03/25/2009	08/19/2009					
8	37	✓	✓	=	=					
	38	✓	-	-	-					
	39	✓	-	-	-					
	40	O	-	-	-					
9	41	O	✓	=	=					
10	42	✓	✓	=	=					
11	43	✓	✓	=	=					
	44	-	-	-	-					
12	45	=	✓	=	=					
13	46	=	✓	=	=					
14	47	✓	=	=	=					
15	48	=	=	=	=					
16	49		=	=	=					

INFORMATION DISCLOSURE CITATION IN AN APPLICATION	Docket Number	Application Number
	090611-0316777	11/197,504
	Applicant(s)	
	Philippe DI CRISTO *et al.*	
	Filing Date	Group Art Unit
Form PTO-1449	August 5, 2005	2626

U.S. PATENT DOCUMENTS

*EXAMINER INITIAL	REF	DOCUMENT NO.	DATE	NAME	CLASS	SUBCLASS	FILING DATE IF APPROPRIATE
	A	5,892,813	04/06/1999	Morin *et al.*	379	88.01	
	B	6,721,001	04/13/2004	Berstis	348	231.3	
	C	6,742,021	05/25/2004	Halverson *et al.*	709	218	
	D	6,990,513	01/24/2006	Belfiore *et al.*	709	203	
	E	7,146,319	12/05/2006	Hunt	704	254	
	F	7,493,559	02/17/2009	Wolff *et al.*	715	727	
	G	2005/0033574	02/10/2005	Kim *et al.*	704	251	

FOREIGN PATENT DOCUMENTS

	REF	DOCUMENT NO.	DATE	COUNTRY	CLASS	SUBCLASS	Translations YES	Translations NO

OTHER DOCUMENTS *(Including Author, Title, Date, Pertinent Pages, Etc.)*

EXAMINER	DATE CONSIDERED

EXAMINER: Initial if citation considered, whether or not citation is in conformance with MPEP Section 609; Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to Applicant.

Electronic Patent Application Fee Transmittal

Application Number:	11197504
Filing Date:	05-Aug-2005
Title of Invention:	SYSTEMS AND METHODS FOR RESPONDING TO NATURAL LANGUAGE SPEECH UTTERANCE
First Named Inventor/Applicant Name:	Philippe Di Cristo
Filer:	Syed Jafar Ali/Susan Trader
Attorney Docket Number:	090611-0316777

Filed as Large Entity

Utility under 35 USC 111(a) Filing Fees

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Basic Filing:				
Pages:				
Claims:				
Miscellaneous-Filing:				
Petition:				
Patent-Appeals-and-Interference:				
Post-Allowance-and-Post-Issuance:				
Extension-of-Time:				

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Miscellaneous:				
Submission- Information Disclosure Stmt	1806	1	180	180
		Total in USD ($)		**180**

Electronic Acknowledgement Receipt

EFS ID:	6118408
Application Number:	11197504
International Application Number:	
Confirmation Number:	7092
Title of Invention:	SYSTEMS AND METHODS FOR RESPONDING TO NATURAL LANGUAGE SPEECH UTTERANCE
First Named Inventor/Applicant Name:	Philippe Di Cristo
Customer Number:	00909
Filer:	Syed Jafar Ali/Susan Trader
Filer Authorized By:	Syed Jafar Ali
Attorney Docket Number:	090611-0316777
Receipt Date:	22-SEP-2009
Filing Date:	05-AUG-2005
Time Stamp:	13:10:10
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	Deposit Account
Payment was successfully received in RAM	$180
RAM confirmation Number	9663
Deposit Account	033975
Authorized User	

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)

1		0316777_SIDS.pdf	124913 62b347641715a239376995c3a5400573273 0543c	yes	4

Multipart Description/PDF files in .zip description		
Document Description	**Start**	**End**
Transmittal Letter	1	3
Information Disclosure Statement (IDS) Filed (SB/08)	4	4

Warnings:

Information:

2	Fee Worksheet (PTO-875)	fee-info.pdf	30467 a7065036c640021ccc31b60c8920cef9e3db 522a	no	2

Warnings:

Information:

Total Files Size (in bytes):	155380

This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.

New Applications Under 35 U.S.C. 111

If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

National Stage of an International Application under 35 U.S.C. 371

If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

New International Application Filed with the USPTO as a Receiving Office

If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICANTS :	Philippe DI CRISTO *et al.*	CONFIRMATION NO.:	7092
SERIAL NUMBER :	11/197,504	EXAMINER:	Brian Louis Albertalli
FILING DATE :	August 5, 2005	ART UNIT:	2626
FOR :	SYSTEMS AND METHODS FOR RESPONDING TO NATURAL LANGUAGE SPEECH UTTERANCE		

SUPPLEMENTAL INFORMATION DISCLOSURE STATEMENT

Commissioner for Patents
P. O. Box 1450
Alexandria, VA 22313-1450

Sir:

Pursuant to the duty of disclosure under 37 C.F.R. §§ 1.56, 1.97 and 1.98, Applicants hereby make of record in the above-identified application the documents listed on the attached Form PTO-1449.

Applicants reserve the right to establish the patentability of the claimed invention over any of the information provided herewith, and/or to prove that this information may not be prior art, and/or to prove that this information may not be enabling for the teachings purportedly offered.

This Supplemental Information Disclosure Statement is being filed more than three months after the filing date of a national application other than a continued prosecution application under 37 C.F.R. §1.53(d), or more than three months after the date of entry of the national stage as set forth in 37 C.F.R. §1.491 in an international application, and after the

mailing date of any of a Final Action under 37 C.F.R. §1.113, a Notice of Allowance under 37 C.F.R. §1.311, or an action that otherwise closes prosecution in the application, but on or before payment of the Issue Fee. 37 C.F.R. §1.97(d).

Document E was cited by the U.S. Patent Office in co-pending Application Serial No. 11/513,269, filed August 31, 2006, in a Notice of Allowability dated June 22, 2009. Documents B, D, and F were cited by the U.S. Patent Office in co-pending Application Serial No. 11/212,693, filed August 29, 2005, in an Office Action dated July 7, 2009. Document G was cited by the U.S. Patent Office in co-pending Application Serial No. 11/200,164, filed August 10, 2005, in an Office Action dated July 10, 2009. Documents A and C were cited by the U.S. Patent Office in co-pending Application Serial No. 10/618,633, filed July 15, 2003, in an Office Action dated September 15, 2009. I hereby certify that no item of information contained in this Supplemental Information Disclosure Statement was cited in a communication from a foreign patent office in a counterpart foreign application, and, to my knowledge after making reasonable inquiry, no item of information contained in this Supplemental Information Disclosure Statement was known to any individual designated in 37 C.F.R. §1.56(c) more than three months prior to the filing of this Supplemental Information Disclosure Statement. 37 C.F.R. §1.97(e)(2).

Please charge the $180.00 fee [37 C.F.R. §1.17(p)] to Deposit Account No. 03-3975. In addition, please charge any fee deficiencies, or credit any overpayment, to Deposit Account No. 03-3975 as needed to ensure consideration of the Supplemental Information Disclosure Statement.

It is respectfully requested that the Examiner initial and return a copy of the enclosed PTO-1449.

Respectfully submitted,

PILLSBURY WINTHROP SHAW PITTMAN LLP

By _____
Syed Jafar Ali
Registration No.: 58,780

Customer No.
00909

P. O. Box 10500
McLean, Virginia 22102
Telephone: (703) 770-7900
Telefax: (703) 770-7901

Dated: September 22, 2009

UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
11/197,504	08/05/2005	Philippe Di Cristo	090611-0316777	7092

909 7590 10/14/2009

PILLSBURY WINTHROP SHAW PITTMAN, LLP
P.O. BOX 10500
MCLEAN, VA 22102

EXAMINER	
ALBERTALLI, BRIAN LOUIS	

ART UNIT	PAPER NUMBER
2626	

MAIL DATE	DELIVERY MODE
10/14/2009	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of Allowability	Application No.	Applicant(s)	
	11/197,504	CRISTO ET AL.	
	Examiner	Art Unit	
	BRIAN L. ALBERTALLI	2626	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to *IDS submitted 22 September 2009*.

2. ☒ The allowed claim(s) is/are *30-37,41-43 and 45-49*.

3. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
   a) ☐ All b) ☐ Some* c) ☐ None of the:
      1. ☐ Certified copies of the priority documents have been received.
      2. ☐ Certified copies of the priority documents have been received in Application No. _____ .
      3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

   * Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.
THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.

5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
   (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
      1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
   (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.

   Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).

6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☐ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)
3. ☒ Information Disclosure Statements (PTO/SB/08), Paper No./Mail Date _____
4. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material
5. ☐ Notice of Informal Patent Application
6. ☐ Interview Summary (PTO-413), Paper No./Mail Date _____ .
7. ☐ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☐ Other _____.

DETAILED ACTION

Allowable Subject Matter

Claims 30-37, 41-43, and 45-49 are allowed.

The following is an examiner's statement of reasons for allowance:

The references included in the Information Disclosure Statement submitted 22 September 2009 do not disclose or suggest the allowed claims. Claims 30-37, 41-43, and 45-49 are allowed are allowed for the same reasons as given in the Notice of Allowability mailed 26 August 2009.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to BRIAN L. ALBERTALLI whose telephone number is (571)272-7616. The examiner can normally be reached on Monday-Thursday, 8 AM to 6:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Hudspeth can be reached on (571) 272-7843. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/David R Hudspeth/
Supervisory Patent Examiner, Art Unit 2626

BLA 10/5/09

INFORMATION DISCLOSURE CITATION IN AN APPLICATION	Docket Number	Application Number
	090611-0316777	11/197,504
	Applicant(s)	
	Philippe DI CRISTO *et al.*	
	Filing Date	Group Art Unit
Form PTO-1449	August 5, 2005	2626

U.S. PATENT DOCUMENTS

*EXAMINER INITIAL	REF	DOCUMENT NO.	DATE	NAME	CLASS	SUBCLASS	FILING DATE IF APPROPRIATE
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	B	6,721,001	04/13/2004	Berstis	348	231.3	
	C	6,742,021	05/25/2004	Halverson *et al.*	709	218	
	D	6,990,513	01/24/2006	Belfiore *et al.*	709	203	
	E	7,146,319	12/05/2006	Hunt	704	254	
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	G	2005/0033574	02/10/2005	Kim *et al.*	704	251	

FOREIGN PATENT DOCUMENTS

	REF	DOCUMENT NO.	DATE	COUNTRY	CLASS	SUBCLASS	Translations YES	Translations NO

OTHER DOCUMENTS *(Including Author, Title, Date, Pertinent Pages, Etc.)*

EXAMINER	DATE CONSIDERED
/Brian Albertalli/	10/05/2009

EXAMINER: Initial if citation considered, whether or not citation is in conformance with MPEP Section 609; Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to Applicant.

401428648v1

ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /B.A./

PART B - FEE(S) TRANSMITTAL

Complete and send this form, together with applicable fee(s), to: Mail Mail Stop ISSUE FEE
Commissioner for Patents
P.O. Box 1450
Alexandria, Virginia 22313-1450
or Fax (571) 273-2885

INSTRUCTIONS: This form should be used for transmitting the ISSUE FEE and PUBLICATION FEE (if required). Blocks 1 through 5 should be completed where appropriate. All further correspondence including the Patent, advance orders and notification of maintenance fees will be mailed to the current correspondence address as indicated unless corrected below or directed otherwise in Block 1, by (a) specifying a new correspondence address; and/or (b) indicating a separate "FEE ADDRESS" for maintenance fee notifications.

CURRENT CORRESPONDENCE ADDRESS (Note: Use Block 1 for any change of address)

909 7590 08.26.2009

PILLSBURY WINTHROP SHAW PITTMAN LLP
P.O. BOX 10500
MCLEAN, VIRGINIA 22102

Note: A certificate of mailing can only be used for domestic mailings of the Fee(s) Transmittal. This certificate cannot be used for any other accompanying papers. Each additional paper, such as an assignment or formal drawing, must have its own certificate of mailing or transmission.

Certificate of Mailing or Transmission
I hereby certify that this Fee(s) Transmittal is being deposited with the United States Postal Service with sufficient postage for first class mail in an envelope addressed to the Mail Stop ISSUE FEE address above, or being facsimile transmitted to the USPTO (571) 273-2885, on the date indicated below.

(Depositor's name)
(Signature)
(Date)

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
11/197,504	August 5, 2005	Philippe Di Cristo	090611-0316777	7092

TITLE OF INVENTION:

SYSTEMS AND METHODS FOR RESPONDING TO NATURAL LANGUAGE SPEECH UTTERANCE

APPLN. TYPE	SMALL ENTITY	ISSUE FEE	PUBLICATION FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	YES	$755.00	$300.00	$1055.00	November 27, 2009

EXAMINER	ART UNIT	CLASS-SUBCLASS
Brian Louis Albertalli	2626	704-009000

1. Change of correspondence address or indication of "Fee Address" (37 CFR 1.363).
☐ Change of correspondence address (or Change of Correspondence Address form PTO/SB/122) attached.
☐ "Fee Address" indication (or "Fee Address" Indication form PTO/SB/47; Rev 03-02 or more recent) attached. **Use of a Customer Number is required.**

2. For printing on the patent front page, list
(1) the names of up to 3 registered patent attorneys or agents OR, alternatively,
(2) the name of a single firm (having as a member a registered attorney or agent) and the names of up to 2 registered patent attorneys or agents. If no name is listed, no name will be printed.
1 Pillsbury Winthrop Shaw Pittman LLP
2
3

3. ASSIGNEE NAME AND RESIDENCE DATA TO BE PRINTED ON THE PATENT (print or type)

PLEASE NOTE: Unless an assignee is identified below, no assignee data will appear on the patent. If an assignee is identified below, the document has been filed for recordation as set forth in 37 CFR 3.11. Completion of this form is NOT a substitute for filing an assignment.

(A) NAME OF ASSIGNEE: VoiceBox Technologies, Inc.
(B) RESIDENCE: (CITY and STATE OR COUNTRY): Bellevue, Washington

Please check the appropriate assignee category or categories (will not be printed on the patent) : ☐ Individual ☑ Corporation or other private group entity ☐ Government

4a. The following fee(s) are enclosed:
☑ Issue Fee
☑ Publication Fee (No small entity discount permitted)
☐ Advance Order - # of Copies _

4b. Payment of Fee(s):
☐ A check in the amount of the fee(s) is enclosed.
☐ Payment by credit card. Form PTO-2038 is attached.
☑ The Director is hereby authorized by charge the required fee(s), or credit any overpayment, to Deposit Account Number 033975

5. **Change in Entity Status** (from status indicated above)
☐ a. Applicant claims SMALL ENTITY status. See 37 CFR 1.27.
☐ b. Applicant is no longer claiming SMALL ENTITY status. See 37 CFR 1.27(g)(2).

The Director of the USPTO is requested to apply the Issue Fee and Publication Fee (if any) or to re-apply any previously paid issue fee to the application identified above.
NOTE: The Issue Fee and Publication Fee (if required) will not be accepted from anyone other than the applicant; a registered attorney or agent; or the assignee or other party in interest as shown by the records of the United States Patent and Trademark Office.

Authorized Signature  Date November 13, 2009

Typed or printed name S. Jafar Ali Registration No. 58,780

This collection of information is required by 37 CFR 1.311. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, Virginia 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, Virginia 22313-1450.

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

Electronic Patent Application Fee Transmittal

Application Number:	11197504
Filing Date:	05-Aug-2005
Title of Invention:	SYSTEMS AND METHODS FOR RESPONDING TO NATURAL LANGUAGE SPEECH UTTERANCE
First Named Inventor/Applicant Name:	Philippe Di Cristo
Filer:	Syed Jafar Ali/Miriam E. Nelsen
Attorney Docket Number:	090611-0316777

Filed as Small Entity

Utility under 35 USC 111(a) Filing Fees

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Basic Filing:				
Pages:				
Claims:				
Miscellaneous-Filing:				
Petition:				
Patent-Appeals-and-Interference:				
Post-Allowance-and-Post-Issuance:				
Utility Appl issue fee	2501	1	755	755
Publ. Fee- early, voluntary, or normal	1504	1	300	300

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Extension-of-Time:				
Miscellaneous:				
			Total in USD ($)	**1055**

Electronic Acknowledgement Receipt

EFS ID:	6453023
Application Number:	11197504
International Application Number:	
Confirmation Number:	7092
Title of Invention:	SYSTEMS AND METHODS FOR RESPONDING TO NATURAL LANGUAGE SPEECH UTTERANCE
First Named Inventor/Applicant Name:	Philippe Di Cristo
Customer Number:	00909
Filer:	Syed Jafar Ali/Miriam E. Nelsen
Filer Authorized By:	Syed Jafar Ali
Attorney Docket Number:	090611-0316777
Receipt Date:	13-NOV-2009
Filing Date:	05-AUG-2005
Time Stamp:	17:10:12
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	Deposit Account
Payment was successfully received in RAM	$1055
RAM confirmation Number	3554
Deposit Account	033975
Authorized User	

The Director of the USPTO is hereby authorized to charge indicated fees and credit any overpayment as follows:

Charge any Additional Fees required under 37 C.F.R. Section 1.21 (Miscellaneous fees and charges)

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Issue Fee Payment (PTO-85B)	090611-0316777_Issue_Pub_Fee_Trans.pdf	109642 105e678730cd022a3b5f867492a1911ac4bff4bc	no	1
Warnings:					
Information:					
2	Fee Worksheet (PTO-875)	fee-info.pdf	31716 9f41dbaa127c1a53f5a2ea860e08ae1aab54cd09	no	2
Warnings:					
Information:					
		Total Files Size (in bytes):	141358		

This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.

New Applications Under 35 U.S.C. 111
If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

National Stage of an International Application under 35 U.S.C. 371
If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

New International Application Filed with the USPTO as a Receiving Office
If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	ISSUE DATE	PATENT NO.	ATTORNEY DOCKET NO.	CONFIRMATION NO.
11/197,504	12/29/2009	7640160	090611-0316777	7092

909 7590 12/09/2009

PILLSBURY WINTHROP SHAW PITTMAN, LLP
P.O. BOX 10500
MCLEAN, VA 22102

ISSUE NOTIFICATION

The projected patent number and issue date are specified above.

Determination of Patent Term Adjustment under 35 U.S.C. 154 (b)
(application filed on or after May 29, 2000)

The Patent Term Adjustment is 190 day(s). Any patent to issue from the above-identified application will include an indication of the adjustment on the front page.

If a Continued Prosecution Application (CPA) was filed in the above-identified application, the filing date that determines Patent Term Adjustment is the filing date of the most recent CPA.

Applicant will be able to obtain more detailed information by accessing the Patent Application Information Retrieval (PAIR) WEB site (http://pair.uspto.gov).

Any questions regarding the Patent Term Extension or Adjustment determination should be directed to the Office of Patent Legal Administration at (571)-272-7702. Questions relating to issue and publication fee payments should be directed to the Application Assistance Unit (AAU) of the Office of Data Management (ODM) at (571)-272-4200.

APPLICANT(s) (Please see PAIR WEB site http://pair.uspto.gov for additional applicants):

Philippe Di Cristo, Bellevue, WA;
Min Ke, Bothell, WA;
Robert A. Kennewick, Seattle, WA;
Lynn Elise Armstrong, Woodinville, WA;

PATENT
IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Current Date: June 28th, 2017

Application No.: 11/197504
Filed: 05.08.2005

Patent No.: 7640160
Issued: 29.12.2009

CHANGE OF ENTITY STATUS PURSUANT TO 37 C. F. R. § 1.27 (g)(2)

Commissioner for Patents
Mail Stop M Correspondence
P.O. Box 1450
Alexandria, VA 22313-1450

By Fax: 001-571-273-6500

Sir:

This communication hereby notifies the United States Patent and Trademark Office that **small entity status is no longer applicable** for the above-identified patent.

Respectfully submitted,

Signature
Printed Name: Scott A. Ouellette
TITLE: Senior Director - IP

PAGE 2/2 * RCVD AT 6/29/2017 4:17:29 AM [Eastern Daylight Time] * SVR:W-PTOFAX-002/2 * DNIS:2736500 * CSID:+49 89 943850411 * DURATION (mm-ss):00-34

PATENT ASSIGNMENT COVER SHEET

Electronic Version v1.1
Stylesheet Version v1.2

EPAS ID: PAT6700444

SUBMISSION TYPE:	NEW ASSIGNMENT
NATURE OF CONVEYANCE:	ASSIGNMENT

CONVEYING PARTY DATA

Name	Execution Date
NUANCE COMMUNICATIONS, INC.	01/01/2021

RECEIVING PARTY DATA

Name:	VOICE INVENTIONS, LLC
Street Address:	2 EXECUTIVE DRIVE
Internal Address:	STE. 270
City:	FORT LEE
State/Country:	NEW JERSEY
Postal Code:	07024

PROPERTY NUMBERS Total: 29

Property Type	Number
Patent Number:	7398209
Patent Number:	7502738
Patent Number:	7809570
Patent Number:	8015006
Patent Number:	8112275
Patent Number:	8140327
Patent Number:	8155962
Patent Number:	8731929
Patent Number:	9734825
Patent Number:	7693720
Patent Number:	9031845
Patent Number:	7640160
Patent Number:	7917367
Patent Number:	8326634
Patent Number:	8849670
Patent Number:	9263039
Patent Number:	7620549
Patent Number:	8332224
Patent Number:	8620659

Property Type	Number
Patent Number:	9626959
Patent Number:	7949529
Patent Number:	8195468
Patent Number:	8447607
Patent Number:	8849652
Patent Number:	9495957
Patent Number:	7634409
Patent Number:	7983917
Patent Number:	8069046
Patent Number:	8150694

CORRESPONDENCE DATA

Fax Number:

Correspondence will be sent to the e-mail address first; if that is unsuccessful, it will be sent using a fax number, if provided; if that is unsuccessful, it will be sent via US Mail.

Email: eddie.weiss@voiceinventions.com
Correspondent Name: EDWARD WEISS
Address Line 1: 2 EXECUTIVE DRIVE
Address Line 2: STE. 270
Address Line 4: FORT LEE, NEW JERSEY 07024

NAME OF SUBMITTER:	EDWARD WEISS
SIGNATURE:	/Edward Weiss/
DATE SIGNED:	05/10/2021
	This document serves as an Oath/Declaration (37 CFR 1.63).

Total Attachments: 4
source=2020-12-24 - Assignment Nuance to Voice Inventions#page1.tif
source=2020-12-24 - Assignment Nuance to Voice Inventions#page2.tif
source=2020-12-24 - Assignment Nuance to Voice Inventions#page3.tif
source=2020-12-24 - Assignment Nuance to Voice Inventions#page4.tif

PATENT ASSIGNMENT AGREEMENT

This PATENT ASSIGNMENT AGREEMENT (the "Assignment Agreement") between Nuance Communications, Inc., a Delaware corporation, with an address at One Wayside Road, Burlington, MA 01803 ("Assignor"), and Voice Inventions, LLC, a Texas Limited Liability Company, with an address at 2 Executive Drive, Suite 270, Fort Lee, NJ 07024 ("Assignee").

RECITALS

WHEREAS the parties have entered into a certain Patent Purchase and Licensing Agreement (the "Purchase Agreement"), with an effective date of January 1, 2021;

WHEREAS Assignor possesses all legal rights, title, and interests in and to the patents listed in Exhibit A (the "Assigned Patent Portfolio") to this Assignment Agreement;

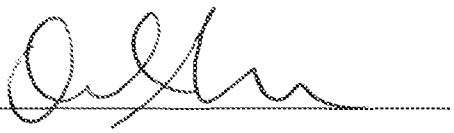
WHEREAS the parties desire to effectuate the assignment and transfer of the Assigned Patent Portfolio to Assignee such that Assignee shall acquire, and thus hereby acquires, all of Assignor's worldwide rights, title, and interests in and to the Assigned Patent Portfolio; and

WHEREAS the parties further desire that the assignment of the Assigned Patent Portfolio be undertaken in a such a manner as to allow Assignee to make such assignment a matter of record in the appropriate domestic and international patent offices;

NOW THEREFORE, for good and valuable consideration, the receipt of which by Assignor is hereby acknowledged, Assignor hereby sells, assigns, and transfers to Assignee, and Assignee hereby purchases and accepts from Assignor, all of Assignor's worldwide rights, title and interest, in and to the Assigned Patent Portfolio, including any and all of Assignor's rights to sue for past damages, subject to the terms and conditions of the Purchase Agreement.

IN WITNESS WHEREOF, intending to be legally bound, Assignor has caused this Assignment Agreement to by executed by its duly authorized representative and made effective, as of January 1, 2021.

Nuance Communications, Inc.
Assignor

By 

Name: David Greenbaum
Title: VP, Litigation & IP

Exhibit A

Assigned Patent Portfolio

	COUNTRY	TITLE	APPLICATION NUMBER	DATE FILED	PATENT NUMBER
1	US	SYSTEMS AND METHODS FOR RESPONDING TO NATURAL LANGUAGE SPEECH UTTERANCE	10/452,147	Jun 3, 2003	7,398,209
2	US	SYSTEMS AND METHODS FOR RESPONDING TO NATURAL LANGUAGE SPEECH UTTERANCE	11/747,547	May 11, 2007	7,502,738
3	US	SYSTEMS AND METHODS FOR RESPONDING TO NATURAL LANGUAGE SPEECH UTTERANCE	12/168,554	Jul 7, 2008	7,809,570
4	US	SYSTEMS AND METHODS FOR PROCESSING NATURAL LANGUAGE SPEECH UTTERANCES WITH CONTEXT-SPECIFIC DOMAIN AGENTS	12/130,397	May 30, 2008	8,015,006
5	US	SYSTEM AND METHOD FOR USER-SPECIFIC SPEECH RECOGNITION	12/765,733	Apr 22, 2010	8,112,275
6	US	SYSTEM AND METHOD FOR FILTERING AND ELIMINATING NOISE FROM NATURAL LANGUAGE UTTERANCES TO IMPROVE SPEECH RECOGNITION AND PARSING	12/765,753	Apr 22, 2010	8,140,327
7	US	METHOD AND SYSTEM FOR ASYNCHRONOUSLY PROCESSING NATURAL LANGUAGE UTTERANCES	12/838,982	Jul 19, 2010	8,155,962
8	US	AGENT ARCHITECTURE FOR DETERMINING MEANINGS OF NATURAL LANGUAGE UTTERANCES	12/365,516	Feb 4, 2009	8,731,929
9	US	SYSTEM AND METHOD FOR PROCESSING NATURAL LANGUAGE UTTERANCES	14/278,627	May 15, 2014	9,734,825
10	US	MOBILE SYSTEMS AND METHODS FOR RESPONDING TO NATURAL LANGUAGE SPEECH UTTERANCES	10/618,633	Jul 15, 2003	7,693,720
11	US	MOBILE SYSTEMS AND METHODS FOR RESPONDING TO NATURAL LANGUAGE SPEECH UTTERANCE	12/705,311	Feb 12, 2010	9,031,845

12	US	SYSTEMS AND METHODS FOR RESPONDING TO NATURAL LANGUAGE SPEECH UTTERANCE	11/197,504	Aug 5, 2005	7,640,160
13	US	SYSTEMS AND METHODS FOR RESPONDING TO NATURAL LANGUAGE SPEECH UTTERANCE	12/617,506	Nov 12, 2009	7,917,367
14	US	SYSTEMS AND METHODS FOR RESPONDING TO NATURAL LANGUAGE SPEECH UTTERANCE	13/019,834	Feb 2, 2011	8,326,634
15	US	SYSTEMS AND METHODS FOR RESPONDING TO NATURAL LANGUAGE SPEECH UTTERANCE	13/690,895	Nov 30, 2012	8,849,670
16	US	SYSTEMS AND METHODS FOR RESPONDING TO NATURAL LANGUAGE SPEECH UTTERANCE	14/500,723	Sep 29, 2014	9,263,039

17	US	SYSTEM AND METHOD OF SUPPORTING ADAPTIVE MISRECOGNITION IN CONVERSATIONAL SPEECH	11/200,164	Aug 10, 2005	7,620,549
18	US	SYSTEM AND METHOD OF SUPPORTING ADAPTIVE MISRECOGNITION IN CONVERSATIONAL SPEECH	12/571,795	Oct 1, 2009	8,332,224
19	US	SYSTEM AND METHOD OF SUPPORTING ADAPTIVE MISRECOGNITION IN CONVERSATIONAL SPEECH	13/022,370	Feb 7, 2011	8,620,659
20	US	SYSTEM AND METHOD OF SUPPORTING ADAPTIVE MISRECOGNITION IN CONVERSATIONAL SPEECH	14/143,903	Dec 30, 2013	9,626,959

21	US	MOBILE SYSTEMS AND METHODS OF SUPPORTING NATURAL LANGUAGE HUMAN-MACHINE INTERACTIONS	11/212,693	Aug 29, 2005	7,949,529
22	US	MOBILE SYSTEMS AND METHODS OF SUPPORTING NATURAL LANGUAGE HUMAN-MACHINE INTERACTIONS	13/084,197	Apr 11, 2011	8,195,468
23	US	MOBILE SYSTEMS AND METHODS OF SUPPORTING NATURAL LANGUAGE HUMAN-MACHINE INTERACTIONS	13/488,299	Jun 4, 2012	8,447,607
24	US	MOBILE SYSTEMS AND METHODS OF SUPPORTING NATURAL LANGUAGE HUMAN-MACHINE INTERACTIONS	13/898,045	May 20, 2013	8,849,652

25	US	MOBILE SYSTEMS AND METHODS OF SUPPORTING NATURAL LANGUAGE HUMAN-MACHINE INTERACTIONS	14/467,641	Aug 25, 2014	9,495,957

26	US	DYNAMIC SPEECH SHARPENING	11/513,269	Aug 31, 2006	7,634,409
27	US	DYNAMIC SPEECH SHARPENING	12/608,544	Oct 29, 2009	7,983,917
28	US	DYNAMIC SPEECH SHARPENING	12/608,572	Oct 29, 2009	8,069,046
29	US	SYSTEM AND METHOD FOR PROVIDING AN ACOUSTIC GRAMMAR TO DYNAMICALLY SHARPEN SPEECH INTERPRETATION	13/150,977	Jun 1, 2011	8,150,694

30	CN	SYSTEMS AND METHODS FOR RESPONDING TO NATURAL LANGUAGE SPEECH UTTERANCE	2006800362006	Aug 4, 2006	ZL200680036200.6
31	CN	SYSTEMS AND METHODS FOR RESPONDING TO NATURAL LANGUAGE SPEECH UTTERANCE	2015102059396	Aug 4, 2006	ZL201510205939.6
32	CN	MOBILE SYSTEMS AND METHODS OF SUPPORTING NATURAL LANGUAGE HUMAN-MACHINE INTERACTIONS	200680038560	Aug 29, 2006	200680038560

PTO/AIA/81A (02-15)
Approved for use through 03/31/2021. OMB 0651-0035
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PATENT - POWER OF ATTORNEY OR REVOCATION OF POWER OF ATTORNEY WITH A NEW POWER OF ATTORNEY AND CHANGE OF CORRESPONDENCE ADDRESS

Patent Number	7640160
Issue Date	12/29/09
First Named Inventor	Di Cristo, Philippe
Title	Systems and methods for responding to natural language speech utterance
Attorney Docket No.	9032-0006

I hereby revoke all previous powers of attorney given in the above-identified patent.

☐ A Power of Attorney is submitted herewith.

OR

☒ I hereby appoint Practitioner(s) associated with the Customer Number identified in the box at right as my/our attorney(s) or agent(s) with respect to the patent identified above, and to transact all business in the United States Patent and Trademark Office connected therewith: 174889

OR

☐ I hereby appoint Practitioner(s) named below as my/our attorney(s) or agent(s) with respect to the patent identified above, and to transact all business in the United States Patent and Trademark Office connected therewith:

Practitioner(s) Name	Registration Number

Please recognize or change the correspondence address for the above-identified patent to:

☒ The address associated with the above-identified Customer Number.

OR

☐ The address associated with the Customer Number identified in the box at right:

OR

☐ Firm or Individual Name					
Address					
City		State		Zip	
Country					
Telephone		Email			

I am the:

☐ Applicant.

OR

☒ Patent owner.

Statement under 37 CFR 3.73(c) (Form PTO/AIA/96) submitted herewith or filed on _____.

SIGNATURE of Applicant or Patent Owner

Signature	/Jeff Ronaldi/	Date	02/27/2023
Name	Jeff Ronaldi	Telephone	(571) 334-1112
Title and Company	Manager, Dialect, LLC		

NOTE: Signatures of all the applicants or patent owners of the entire interest or their representative(s) are required. If more than one signature is required, submit multiple forms, check the box below, and identify the total number of forms submitted in the blank below.

☐ A total of _____ forms are submitted.

This collection of information is required by 37 CFR 1.31, 1.32, and 1.33. The information is required to obtain or retain a benefit by the public, which is to update (and by the USPTO to process) the file of a patent or reexamination proceeding. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 3 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.

Privacy Act Statement

The **Privacy Act of 1974 (P.L. 93-579)** requires that you be given certain information in connection with your submission of the attached form related to a patent application or patent. Accordingly, pursuant to the requirements of the Act, please be advised that: (1) the general authority for the collection of this information is 35 U.S.C. 2(b)(2); (2) furnishing of the information solicited is voluntary; and (3) the principal purpose for which the information is used by the U.S. Patent and Trademark Office is to process and/or examine your submission related to a patent application or patent. If you do not furnish the requested information, the U.S. Patent and Trademark Office may not be able to process and/or examine your submission, which may result in termination of proceedings or abandonment of the application or expiration of the patent.

The information provided by you in this form will be subject to the following routine uses:

1. The information on this form will be treated confidentially to the extent allowed under the Freedom of Information Act (5 U.S.C. 552) and the Privacy Act (5 U.S.C 552a). Records from this system of records may be disclosed to the Department of Justice to determine whether disclosure of these records is required by the Freedom of Information Act.
2. A record from this system of records may be disclosed, as a routine use, in the course of presenting evidence to a court, magistrate, or administrative tribunal, including disclosures to opposing counsel in the course of settlement negotiations.
3. A record in this system of records may be disclosed, as a routine use, to a Member of Congress submitting a request involving an individual, to whom the record pertains, when the individual has requested assistance from the Member with respect to the subject matter of the record.
4. A record in this system of records may be disclosed, as a routine use, to a contractor of the Agency having need for the information in order to perform a contract. Recipients of information shall be required to comply with the requirements of the Privacy Act of 1974, as amended, pursuant to 5 U.S.C. 552a(m).
5. A record related to an International Application filed under the Patent Cooperation Treaty in this system of records may be disclosed, as a routine use, to the International Bureau of the World Intellectual Property Organization, pursuant to the Patent Cooperation Treaty.
6. A record in this system of records may be disclosed, as a routine use, to another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c)).
7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (*i.e.*, GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.
8. A record from this system of records may be disclosed, as a routine use, to the public after either publication of the application pursuant to 35 U.S.C. 122(b) or issuance of a patent pursuant to 35 U.S.C. 151. Further, a record may be disclosed, subject to the limitations of 37 CFR 1.14, as a routine use, to the public if the record was filed in an application which became abandoned or in which the proceedings were terminated and which application is referenced by either a published application, an application open to public inspection or an issued patent.
9. A record from this system of records may be disclosed, as a routine use, to a Federal, State, or local law enforcement agency, if the USPTO becomes aware of a violation or potential violation of law or regulation.

PTO/AIA/96 (08-12)
Approved for use through 01/31/2013. OMB 0651-0031
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

STATEMENT UNDER 37 CFR 3.73(c)

Applicant/Patent Owner: Dialect, LLC

Application No./Patent No.: 7640160 Filed/Issue Date: 12/29/09

Titled: Systems and methods for responding to natural language speech utterance

Dialect, LLC, a limited liability company

(Name of Assignee) (Type of Assignee, e.g., corporation, partnership, university, government agency, etc.)

states that, for the patent application/patent identified above, it is (choose **one** of options 1, 2, 3 or 4 below):

1. ☑ The assignee of the entire right, title, and interest.

2. ☐ An assignee of less than the entire right, title, and interest (check applicable box):

   ☐ The extent (by percentage) of its ownership interest is _____%. Additional Statement(s) by the owners holding the balance of the interest must be submitted to account for 100% of the ownership interest.

   ☐ There are unspecified percentages of ownership. The other parties, including inventors, who together own the entire right, title and interest are:

   Additional Statement(s) by the owner(s) holding the balance of the interest must be submitted to account for the entire right, title, and interest.

3. ☐ The assignee of an undivided interest in the entirety (a complete assignment from one of the joint inventors was made). The other parties, including inventors, who together own the entire right, title, and interest are:

   Additional Statement(s) by the owner(s) holding the balance of the interest must be submitted to account for the entire right, title, and interest.

4. ☐ The recipient, via a court proceeding or the like (*e.g.*, bankruptcy, probate), of an undivided interest in the entirety (a complete transfer of ownership interest was made). The certified document(s) showing the transfer is attached.

The interest identified in option 1, 2 or 3 above (not option 4) is evidenced by either (choose **one** of options A or B below):

A. ☐ An assignment from the inventor(s) of the patent application/patent identified above. The assignment was recorded in the United States Patent and Trademark Office at Reel _____, Frame _____, or for which a copy thereof is attached.

B. ☑ A chain of title from the inventor(s), of the patent application/patent identified above, to the current assignee as follows:

1. From: Di Cristo, Philippe et al. To: VoiceBox Technologies, Inc.

   The document was recorded in the United States Patent and Trademark Office at Reel 017554, Frame 0171, or for which a copy thereof is attached.

2. From: Armstrong, Lynn Elise To: VoiceBox Technologies, Inc.

   The document was recorded in the United States Patent and Trademark Office at Reel 019369, Frame 0297, or for which a copy thereof is attached.

This collection of information is required by 37 CFR 3.73(b). The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.

STATEMENT UNDER 37 CFR 3.73(c)

3. From: VoiceBox Technologies, Inc. To: VoiceBox Technologies Corporation

The document was recorded in the United States Patent and Trademark Office at
Reel 031715, Frame 0696, or for which a copy thereof is attached.

4. From: VoiceBox Technologies Corporation To: Nuance Communications, Inc.

The document was recorded in the United States Patent and Trademark Office at
Reel 034703, Frame 0429, or for which a copy thereof is attached.

5. From: Nuance Communications, Inc. To: Voice Inventions, LLC

The document was recorded in the United States Patent and Trademark Office at
Reel 056185, Frame 0742, or for which a copy thereof is attached.

6. From: Voice Inventions, LLC To: Dialect, LLC

The document was recorded in the United States Patent and Trademark Office at
Reel 60820, Frame 0857, or for which a copy thereof is attached.

☐ Additional documents in the chain of title are listed on a supplemental sheet(s).

☑ As required by 37 CFR 3.73(c)(1)(i), the documentary evidence of the chain of title from the original owner to the assignee was, or concurrently is being, submitted for recordation pursuant to 37 CFR 3.11.

[NOTE: A separate copy (i.e., a true copy of the original assignment document(s)) must be submitted to Assignment Division in accordance with 37 CFR Part 3, to record the assignment in the records of the USPTO. See MPEP 302.08]

The undersigned (whose title is supplied below) is authorized to act on behalf of the assignee.

/Jeff Ronaldi/	02/27/2023
Signature	Date
Jeff Ronaldi	Manager, Dialect, LLC
Printed or Typed Name	Title or Registration Number

[Page 2 of 2]

Privacy Act Statement

The **Privacy Act of 1974 (P.L. 93-579)** requires that you be given certain information in connection with your submission of the attached form related to a patent application or patent. Accordingly, pursuant to the requirements of the Act, please be advised that: (1) the general authority for the collection of this information is 35 U.S.C. 2(b)(2); (2) furnishing of the information solicited is voluntary; and (3) the principal purpose for which the information is used by the U.S. Patent and Trademark Office is to process and/or examine your submission related to a patent application or patent. If you do not furnish the requested information, the U.S. Patent and Trademark Office may not be able to process and/or examine your submission, which may result in termination of proceedings or abandonment of the application or expiration of the patent.

The information provided by you in this form will be subject to the following routine uses:

1. The information on this form will be treated confidentially to the extent allowed under the Freedom of Information Act (5 U.S.C. 552) and the Privacy Act (5 U.S.C 552a). Records from this system of records may be disclosed to the Department of Justice to determine whether disclosure of these records is required by the Freedom of Information Act.
2. A record from this system of records may be disclosed, as a routine use, in the course of presenting evidence to a court, magistrate, or administrative tribunal, including disclosures to opposing counsel in the course of settlement negotiations.
3. A record in this system of records may be disclosed, as a routine use, to a Member of Congress submitting a request involving an individual, to whom the record pertains, when the individual has requested assistance from the Member with respect to the subject matter of the record.
4. A record in this system of records may be disclosed, as a routine use, to a contractor of the Agency having need for the information in order to perform a contract. Recipients of information shall be required to comply with the requirements of the Privacy Act of 1974, as amended, pursuant to 5 U.S.C. 552a(m).
5. A record related to an International Application filed under the Patent Cooperation Treaty in this system of records may be disclosed, as a routine use, to the International Bureau of the World Intellectual Property Organization, pursuant to the Patent Cooperation Treaty.
6. A record in this system of records may be disclosed, as a routine use, to another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c)).
7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (*i.e.*, GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.
8. A record from this system of records may be disclosed, as a routine use, to the public after either publication of the application pursuant to 35 U.S.C. 122(b) or issuance of a patent pursuant to 35 U.S.C. 151. Further, a record may be disclosed, subject to the limitations of 37 CFR 1.14, as a routine use, to the public if the record was filed in an application which became abandoned or in which the proceedings were terminated and which application is referenced by either a published application, an application open to public inspection or an issued patent.
9. A record from this system of records may be disclosed, as a routine use, to a Federal, State, or local law enforcement agency, if the USPTO becomes aware of a violation or potential violation of law or regulation.

Electronic Acknowledgement Receipt

EFS ID:	47604613
Application Number:	11197504
International Application Number:	
Confirmation Number:	7092
Title of Invention:	SYSTEMS AND METHODS FOR RESPONDING TO NATURAL LANGUAGE SPEECH UTTERANCE
First Named Inventor/Applicant Name:	Philippe Di Cristo
Customer Number:	909
Filer:	David Alexander Gerasimow
Filer Authorized By:	
Attorney Docket Number:	090611-0316777
Receipt Date:	28-FEB-2023
Filing Date:	05-AUG-2005
Time Stamp:	14:24:49
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	no

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Power of Attorney	7640160.pdf	206849 98286f51d490835a6ab88498153d98f939668472	no	2

Warnings:

Information:					
2	Assignee showing of ownership per 37 CFR 3.73	7640160-aia0096.pdf	114352 01a0425554c1690db69e8e6e3ba548253b495f61	no	3
Warnings:					
Information:					
			Total Files Size (in bytes):	321201	

This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.

New Applications Under 35 U.S.C. 111

If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

National Stage of an International Application under 35 U.S.C. 371

If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

New International Application Filed with the USPTO as a Receiving Office

If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NUMBER	FILING OR 371(C) DATE	FIRST NAMED APPLICANT	ATTY. DOCKET NO./TITLE
11/197,504	08/05/2005	Philippe Di Cristo	090611-0316777

CONFIRMATION NO. 7092

IMPROPER CPOA LETTER

909
Pillsbury Winthrop Shaw Pittman, LLP
PO Box 10500
McLean, VA 22102

OC000000137523618

Date Mailed: 03/07/2023

NOTICE REGARDING POWER OF ATTORNEY

This is in response to the power of attorney filed 02/28/2023. The power of attorney in this application is not accepted for the reason(s) listed below:

- The person(s) appointed in the power of attorney is/are not registered to practice before the U.S. Patent and Trademark Office.

/sltorres/

Office of Data Management, Application Assistance Unit (571) 272-4000, or (571) 272-4200, or 1-888-786-0101

174889
Carbon Research, Inc (aka Research Carbon, Inc)
43 Luke St
Prospect, CT 06712
UNITED STATES

AO 120 (Rev. 08/10)

TO:	REPORT ON THE FILING OR DETERMINATION OF AN ACTION REGARDING A PATENT OR TRADEMARK
Mail Stop 8 **Director of the U.S. Patent and Trademark Office** **P.O. Box 1450** **Alexandria, VA 22313-1450**	

In Compliance with 35 U.S.C. § 290 and/or 15 U.S.C. § 1116 you are hereby advised that a court action has been filed in the U.S. District Court for the District of Delaware on the following

☐ Trademarks or ☑ Patents. (☐ the patent action involves 35 U.S.C. § 292.):

DOCKET NO.	DATE FILED	U.S. DISTRICT COURT
	4/3/2023	for the District of Delaware

PLAINTIFF	DEFENDANT
Dialect, LLC	Google LLC and Alphabet Inc.

	PATENT OR TRADEMARK NO.	DATE OF PATENT OR TRADEMARK	HOLDER OF PATENT OR TRADEMARK
1	See Attached		
2			
3			
4			
5			

In the above—entitled case, the following patent(s)/ trademark(s) have been included:

DATE INCLUDED	INCLUDED BY ☐ Amendment ☐ Answer ☐ Cross Bill ☐ Other Pleading	
PATENT OR TRADEMARK NO.	DATE OF PATENT OR TRADEMARK	HOLDER OF PATENT OR TRADEMARK
1		
2		
3		
4		
5		

In the above—entitled case, the following decision has been rendered or judgement issued:

DECISION/JUDGEMENT

CLERK	(BY) DEPUTY CLERK	DATE

Copy 1—Upon initiation of action, mail this copy to Director **Copy 3—Upon termination of action, mail this copy to Director**
Copy 2—Upon filing document adding patent(s), mail this copy to Director **Copy 4—Case file copy**

	PATENT OR TRADEMARK NO.	DATE OF PATENT OR TRADEMARK	HOLDER OF PATENT OR TRADEMARK
1	US 7,398,209 B2	7/8/2008	Dialect, LLC
2	US 7,502,738 B2	3/10/2009	Dialect, LLC
3	US 7,640,160 B2	12/29/2009	Dialect, LLC
4	US 7,693,720 B2	4/6/2010	Dialect, LLC
5	US 8,015,006 B2	9/6/2011	Dialect, LLC
6	US 8,447,607 B2	5/21/2013	Dialect, LLC
7	US 8,849,652 B2	9/30/2014	Dialect, LLC
8	US 9,031,845 B2	5/12/2015	Dialect, LLC

AO 120 (Rev. 08/10)

TO:	REPORT ON THE FILING OR DETERMINATION OF AN ACTION REGARDING A PATENT OR TRADEMARK
Mail Stop 8 Director of the U.S. Patent and Trademark Office P.O. Box 1450 Alexandria, VA 22313-1450	

In Compliance with 35 U.S.C. § 290 and/or 15 U.S.C. § 1116 you are hereby advised that a court action has been filed in the U.S. District Court District of Delaware on the following

☐ Trademarks or ☑ Patents. (☐ the patent action involves 35 U.S.C. § 292.):

DOCKET NO.	DATE FILED	U.S. DISTRICT COURT
	4/3/2023	District of Delaware

PLAINTIFF	DEFENDANT
Cedar Lane Technologies Inc.	Best Lighting Products Inc.

	PATENT OR TRADEMARK NO.	DATE OF PATENT OR TRADEMARK	HOLDER OF PATENT OR TRADEMARK
1	7,391,159	6/24/2008	Cedar Lane Technologies Inc.
2			Cedar Lane Technologies Inc.
3			Cedar Lane Technologies Inc.
4			Cedar Lane Technologies Inc.
5			Cedar Lane Technologies Inc.

In the above—entitled case, the following patent(s)/ trademark(s) have been included:

DATE INCLUDED	INCLUDED BY ☐ Amendment ☐ Answer ☐ Cross Bill ☐ Other Pleading	
PATENT OR TRADEMARK NO.	DATE OF PATENT OR TRADEMARK	HOLDER OF PATENT OR TRADEMARK
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In the above—entitled case, the following decision has been rendered or judgement issued:

DECISION/JUDGEMENT

CLERK	(BY) DEPUTY CLERK	DATE

Copy 1—Upon initiation of action, mail this copy to Director Copy 3—Upon termination of action, mail this copy to Director
Copy 2—Upon filing document adding patent(s), mail this copy to Director Copy 4—Case file copy

AO 120 (Rev. 08/10)

TO:	REPORT ON THE FILING OR DETERMINATION OF AN ACTION REGARDING A PATENT OR TRADEMARK
Mail Stop 8 Director of the U.S. Patent and Trademark Office P.O. Box 1450 Alexandria, VA 22313-1450	

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☐ Trademarks or ☑ Patents. (☐ the patent action involves 35 U.S.C. § 292.):

DOCKET NO.	DATE FILED	U.S. DISTRICT COURT
	4/3/2023	District of Delaware

PLAINTIFF	DEFENDANT
Cedar Lane Technologies Inc.	Hubbell Incorporated

	PATENT OR TRADEMARK NO.	DATE OF PATENT OR TRADEMARK	HOLDER OF PATENT OR TRADEMARK
1	7,391,159	6/24/2008	Cedar Lane Technologies Inc.
2			Cedar Lane Technologies Inc.
3			Cedar Lane Technologies Inc.
4			Cedar Lane Technologies Inc.
5			Cedar Lane Technologies Inc.

In the above—entitled case, the following patent(s)/ trademark(s) have been included:

DATE INCLUDED	INCLUDED BY ☐ Amendment ☐ Answer ☐ Cross Bill ☐ Other Pleading	
PATENT OR TRADEMARK NO.	DATE OF PATENT OR TRADEMARK	HOLDER OF PATENT OR TRADEMARK
1		
2		
3		
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In the above—entitled case, the following decision has been rendered or judgement issued:

DECISION/JUDGEMENT

CLERK	(BY) DEPUTY CLERK	DATE

Copy 1—Upon initiation of action, mail this copy to Director Copy 3—Upon termination of action, mail this copy to Director
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UNITED STATES
PATENT AND TRADEMARK OFFICE

P.O. Box 1450
Alexandria, VA 22313 - 1450
www.uspto.gov

ELECTRONIC ACKNOWLEDGEMENT RECEIPT

APPLICATION #	RECEIPT DATE / TIME	ATTORNEY DOCKET #
11/197,504	**11/06/2023 10:52:44 AM Z ET**	**090611-0316777**

Title of Invention

SYSTEMS AND METHODS FOR RESPONDING TO NATURAL LANGUAGE SPEECH UTTERANCE

Application Information

APPLICATION TYPE	Utility - Nonprovisional Application under 35 USC 111(a)	PATENT #	7640160
CONFIRMATION #	7092	FILED BY	David Gerasimow
PATENT CENTER #	63165899	FILING DATE	08/05/2005
CUSTOMER #	909	FIRST NAMED INVENTOR	Philippe Di Cristo
CORRESPONDENCE ADDRESS	-	AUTHORIZED BY	-

Documents

TOTAL DOCUMENTS: 1

DOCUMENT	PAGES	DESCRIPTION	SIZE (KB)
7640160.pdf	2	Power of Attorney	212 KB

Digest

DOCUMENT	MESSAGE DIGEST(SHA-512)
7640160.pdf	1ABA064066E5B01E83B05635D23C95EAB9FCC4910618BE07F 1205A7C7583785A0878E6D33869C67A51DE49418EB377782FE C511D1C910360A0D18A9F8A1BEFC3

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National Stage of an International Application under 35 U.S.C. 371

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New International Application Filed with the USPTO as a Receiving Office

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PTO/AIA/81A (02-15)
Approved for use through 03/31/2021. OMB 0651-0035
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
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PATENT - POWER OF ATTORNEY OR REVOCATION OF POWER OF ATTORNEY WITH A NEW POWER OF ATTORNEY AND CHANGE OF CORRESPONDENCE ADDRESS

Patent Number	7640160
Issue Date	12/29/09
First Named Inventor	Di Cristo, Philippe
Title	Systems and methods for responding to natural language speech utterance
Attorney Docket No.	9032-0006

I hereby revoke all previous powers of attorney given in the above-identified patent.

☐ A Power of Attorney is submitted herewith.

OR

☒ I hereby appoint Practitioner(s) associated with the Customer Number identified in the box at right as my/our attorney(s) or agent(s) with respect to the patent identified above, and to transact all business in the United States Patent and Trademark Office connected therewith: 174899

OR

☐ I hereby appoint Practitioner(s) named below as my/our attorney(s) or agent(s) with respect to the patent identified above, and to transact all business in the United States Patent and Trademark Office connected therewith:

Practitioner(s) Name	Registration Number

Please recognize or change the correspondence address for the above-identified patent to:

☒ The address associated with the above-identified Customer Number.

OR

☐ The address associated with the Customer Number identified in the box at right:

OR

☐ Firm or Individual Name					
Address					
City		State		Zip	
Country					
Telephone		Email			

I am the:

☐ Applicant.

OR

☒ Patent owner.

Statement under 37 CFR 3.73(c) (Form PTO/AIA/96) submitted herewith or filed on 02/28/2023.

SIGNATURE of Applicant or Patent Owner

Signature	/Jeff Ronaldi/	Date	11/06/2023
Name	Jeff Ronaldi	Telephone	(571) 334-1112
Title and Company	Manager, Dialect, LLC		

NOTE: Signatures of all the applicants or patent owners of the entire interest or their representative(s) are required. If more than one signature is required, submit multiple forms, check the box below, and identify the total number of forms submitted in the blank below.

☐ A total of _____ forms are submitted.

This collection of information is required by 37 CFR 1.31, 1.32, and 1.33. The information is required to obtain or retain a benefit by the public, which is to update (and by the USPTO to process) the file of a patent or reexamination proceeding. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 3 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

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3. A record in this system of records may be disclosed, as a routine use, to a Member of Congress submitting a request involving an individual, to whom the record pertains, when the individual has requested assistance from the Member with respect to the subject matter of the record.
4. A record in this system of records may be disclosed, as a routine use, to a contractor of the Agency having need for the information in order to perform a contract. Recipients of information shall be required to comply with the requirements of the Privacy Act of 1974, as amended, pursuant to 5 U.S.C. 552a(m).
5. A record related to an International Application filed under the Patent Cooperation Treaty in this system of records may be disclosed, as a routine use, to the International Bureau of the World Intellectual Property Organization, pursuant to the Patent Cooperation Treaty.
6. A record in this system of records may be disclosed, as a routine use, to another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c)).
7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (*i.e.*, GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.
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9. A record from this system of records may be disclosed, as a routine use, to a Federal, State, or local law enforcement agency, if the USPTO becomes aware of a violation or potential violation of law or regulation.

UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NUMBER	FILING OR 371(C) DATE	FIRST NAMED APPLICANT	ATTY. DOCKET NO./TITLE
11/197,504	08/05/2005	Philippe Di Cristo	090611-0316777

CONFIRMATION NO. 7092

174899
The Law Offices of David A. Gerasimow, P.C.
211 W. Wacker Dr.
Ste. 1717
Chicago, IL 60606

POA ACCEPTANCE LETTER

OC000000064400374

Date Mailed: 11/14/2023

NOTICE OF ACCEPTANCE OF POWER OF ATTORNEY

This is in response to the Power of Attorney filed 11/06/2023.

The Power of Attorney in this application is accepted. Correspondence in this application will be mailed to the above address as provided by 37 CFR 1.33.

Questions about the contents of this notice and the requirements it sets forth should be directed to the Office of Data Management, Application Assistance Unit, at **(571) 272-4000** or **(571) 272-4200** or **1-888-786-0101**.

/sltorres/

Trials@uspto.gov
571-272-7822

Paper 11
Date: October 23, 2024

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

GOOGLE LLC,
Petitioner,

v.

DIALECT, LLC,
Patent Owner.

IPR2024-00753
Patent 7,640,160 B2

Before NEIL T. POWELL, GEORGE R. HOSKINS, and JON M. JURGOVAN, *Administrative Patent Judges*.

JURGOVAN, *Administrative Patent Judge*.

DECISION
Granting Institution of *Inter Partes* Review
35 U.S.C. § 314

I. INTRODUCTION

Petitioner Google LLC filed a Petition (Paper 2, "Pet.") pursuant to 35 U.S.C. §§ 311–319 to institute an *inter partes* review of claim 12 of U.S. Patent No. 7,640,160 B2 (Ex. 1001, "the '160 patent").

Patent Owner Dialect, LLC filed a Preliminary Response (Paper 9, "Prelim. Resp."). Patent Owner argues the Petition fails to satisfy the requisite threshold for instituting review on the merits, and also urges us to exercise our discretion under 35 U.S.C. § 325(d) to deny institution.

For reasons provided below, we determine on behalf of the Director (*see* 37 C.F.R. § 42.4(a)) that the record demonstrates a reasonable likelihood that Petitioner would prevail with respect to the challenged claim, so we grant institution of the petitioned *inter partes* review on the merits. *See* 35 U.S.C. § 314(a). We further decline to exercise our discretion to deny institution under § 325(d) for reasons explained below.

II. BACKGROUND

A. Real Parties-in-Interest and Related Proceedings

Petitioner identifies itself (i.e., Google LLC) as the real party-in-interest. *See* Pet. 5 & n.1. Patent Owner identifies itself (i.e., Dialect, LLC) as the real party-in-interest. *See* Paper 5, 1.

Petitioner has filed several IPR proceedings to challenge patents owned by Patent Owner. *See* Pet. 5–6. They are: IPR2024-00746 (U.S. Patent No. 7,398,209 B2); IPR2024-00747 (U.S. Patent No. 7,502,738 B2); IPR2024-00748 (U.S. Patent No. 8,015,006 B2); IPR2024-00749 (U.S. Patent No. 7,693,720 B2); IPR2024-00750 (U.S. Patent No. 9,031,845 B2); IPR2024-00751 (U.S. Patent No. 8,447,607 B2); IPR2024-00752 (U.S.

Patent No. 8,849,652 B2); and IPR2024-00753 (U.S. Patent No. 7,640,160 B2).

The parties also identify two district court litigations as related to the '160 patent. *See* Pet. 5; Paper 5, 1.

B. The '160 Patent

The '160 patent is titled "Systems and Methods for Responding to Natural Language Speech Utterance." Ex. 1001, code (54). The '160 patent's method allows "users to submit natural language questions or commands via a speech interface" and obtain "[i]nformation in a wide range of disciplines." *Id.* at 1:12–15. The '160 patent seeks to properly respond to questions and/or commands based on "imperfect information" such as incomplete thoughts, sentences, or phrases, slang terminology, repeated words, word variations, synonyms, or others. *Id.* at 1:51–61.

Figure 1 of the '160 patent is reproduced below.

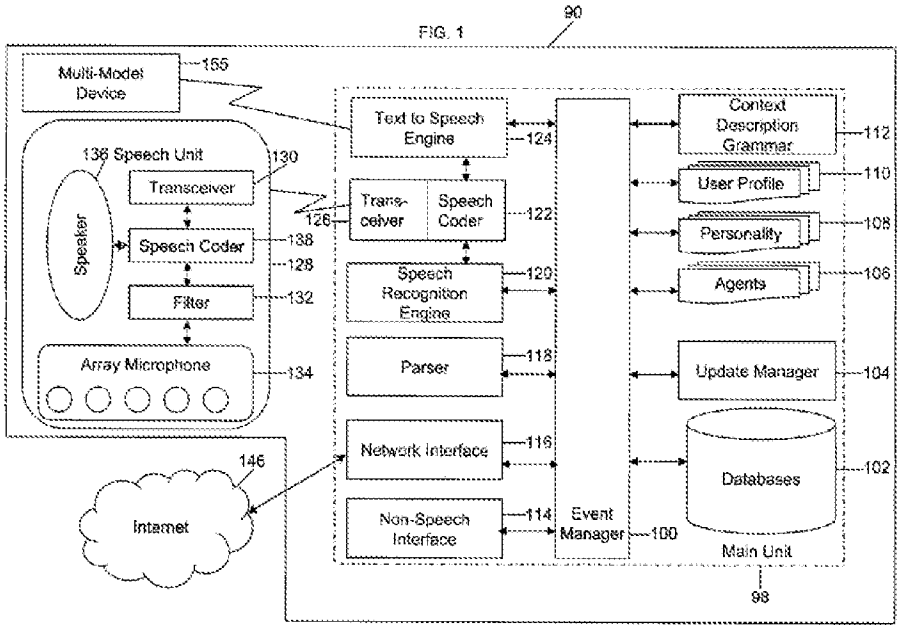


Figure 1 shows a system 90 that includes *inter alia* speech unit 128, speech recognition engine 120, context description grammar module 112, parser 118, and agents 106. Speech unit 128 includes a microphone to receive a spoken utterance from a user. *Id.* at 11:55–57. The speech unit 128 processes (i.e., encodes and compresses) the speech and transmits it to main unit 98 where it is further processed (i.e., decoded and decompressed). In main unit 98, speech recognition engine 120 processes the received speech using context description grammar module 112. *Id.* at 12:23–25. Speech recognition engine 120 passes recognized speech to parser 118 which transforms the information into complete algorithms or questions using data supplied by knowledge agents 106. *Id.* at 12:25–28. Knowledge agents 106 then process the commands or questions to carry out the intended actions or to provide responses to the requesting user by querying local databases 102 or external data sources over Internet 146. *Id.* at 12:32–36. Knowledge agents 106 may respond to the user's request or command with speech using the speech unit 128. *Id.* at 12:41–47. Alternatively, knowledge agents 106 may present results to non-speech questions or commands using multi-modal devices 155. *Id.* at 12:47–55.

Speech may be compared against entries in a context description grammar associated with each agent 106. *Id.* at 13:47–49. Matches may be scored and the agents ranked based on the determined score. *Id.* at 13:51–56. If no match or only a partial match is found, "then a knowledge-enhanced speech recognition system may be used to semantically broaden the search." *Id.* at 13:60–64. "The knowledge-enhanced speech recognition may access a set of expected contexts that are stored in a context stack to determine a most likely context." *Id.* at 13:66–14:2. "The knowledge-

enhanced speech recognition may use context specific matchers that are able to identify context such as time, location, numbers, dates, categories (e.g., music, movies, television, addresses, etc.) and other context." *Id.* at 14:2–6.

C. Claim 12

Claim 12 is the only claim challenged in this proceeding. Pet. 7–8. Claim 12 is set forth below, with bracket identifiers to indicate particular limitations, and our emphasis showing the limitation that is in dispute.

12. [preamble] A method for interpreting natural language utterances using knowledge-enhanced speech recognition engine, wherein the knowledge-enhanced speech recognition engine is configured to determine an intent and correct false recognitions of the natural language utterances, comprising:

[a] receiving a transcription of a natural language utterance at a computer comprising the knowledge-enhanced speech recognition engine;

[b] identifying one or more contexts that completely or partially match one or more text combinations contained in the transcription, *wherein identifying the matching contexts includes comparing the text combinations against the grammar expression entries in the context description grammar and against one or more expected contexts stored in a context stack*;

[c] scoring each of the identified matching contexts;

[d] selecting the matching context having a highest score to determine a most likely context for the utterance; and

[e] communicating a request to a domain agent configured to process requests in the most likely context for the utterance, the request formulated using at least one grammar expression entry in the context description grammar.

Ex. 1001, 30:60–31:14 (emphases added).

D. Asserted Prior Art

Petitioner relies on the following two references as prior art against claim 12 of the '160 patent. *See* Pet. 7–8.

Name	Reference	Exhibit No.
Kennewick	US 2004/0044516 A1	1004
Ross	US 2002/0133354 A1	1005

Patent Owner does not dispute that these references are prior art against claim 12 of the '160 patent. *See* Prelim. Resp. *generally*.

E. Asserted Ground

Petitioner asserts the following ground of unpatentability. *See* Pet. 7–8.

35 U.S.C. §[1]	References	Claim Challenged
103(a)	Kennewick, Ross	12

F. Testimonial Evidence

Petitioner relies on the proffered expert witness testimony of Mr. Christopher Schmandt (Exhibit 1002). Patent Owner does not rely on opposing expert witness testimony. *See* Prelim. Resp. *generally*.

[1] Amendments to 35 U.S.C. § 103 enacted by the Leahy-Smith America Invents Act, Pub. L. No. 112-29, 125 Stat. 284 (2011) ("AIA") took effect in March 2013. The '160 patent issued from an application filed in August 2005. *See* Ex. 1001, code (22). Therefore, we apply the pre-AIA version of § 103.

III. PRELIMINARY MATTER

Petitioner and Patent Owner present arguments concerning our discretion to deny institution under § 325(d). Pet. 8–9; Prelim. Resp. 25–29. After evaluating the parties' arguments, we are not persuaded to exercise our discretion to deny institution under § 325(d) for the following reasons.

In evaluating discretionary denial under § 325(d), the Board follows a two-part framework: (1) whether the same or substantially the same art previously was presented to the Office or whether the same or substantially the same arguments previously were presented to the Office; and (2) if either condition of the first part of the framework is satisfied, whether the petitioner has demonstrated that the Office erred in a manner material to the patentability of challenged claims. *Advanced Bionics, LLC v. MED-EL Elektromedizinische Geräte GmbH*, IPR2019-01469, Paper 6 at 8 (PTAB Feb. 13, 2020) (precedential) ("*Advanced Bionics*"). The *Advanced Bionics* framework is further informed by the factors set forth in *Becton, Dickinson & Co. v. B. Braun Melsungen AG*, IPR2017-01586, Paper 8 (Dec. 15, 2017) (precedential as to § III.C.5, first paragraph) ("*Becton, Dickinson*").[2]

[2] *Becton, Dickinson* identifies the following non-exclusive factors: (a) the similarities and material differences between the asserted art and the prior art involved during examination; (b) the cumulative nature of the asserted art and the prior art evaluated during examination; (c) the extent to which the asserted art was evaluated during examination, including whether the prior art was the basis for rejection; (d) the extent of the overlap between the arguments made during examination and the manner in which petitioner relies on the prior art; (e) whether petitioner has pointed out sufficiently how the examiner erred in its evaluation of the asserted prior art; and (f) the extent to which additional evidence and facts presented in the petition warrant reconsideration of the prior art or arguments. *Becton, Dickinson*,

Addressing *Advanced Bionics* part (1), Petitioner and Patent Owner agree that Kennewick was considered during examination of the '160 patent. Pet. 8–9 (citing Ex. 1012, 196–210, 220–227, 305, 369–370, 382); Prelim. Resp. 27. Specifically, the Examiner considered Kennewick in combination with another reference, Coffman[3], which is not asserted in this proceeding. *See, e.g.*, Ex. 1012, 208, 216.

Petitioner argues that Ross was not before the Examiner during examination (Pet. 9), a contention which Patent Owner does not dispute. After reviewing the prosecution history (Ex. 1012), we agree with Petitioner that Ross was not considered during examination.

Nonetheless, Patent Owner asserts that Ross is cumulative to Kennewick. We do not agree. Although Ross relates to similar speech-enabled systems for responding to users' utterances, there are several material differences between Kennewick and Ross.

For example, Ross discloses a context manager that maintains a priority-ordered list of contexts for the most-recently-accessed speech-enabled applications, and checks the list in priority when interpreting the user's next utterance. Ex. 1005 ¶¶ 10, 12, 33, 35, Fig. 4. This Ross disclosure is not present in Kennewick, and no arguments related to it could have been considered in examination.

Patent Owner argues that Petitioner's "vague suggestion" that Ross "somehow provides 'further context and detail for understanding

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Paper 8 at 17–18 (§ III.C.5, first paragraph). Factors (a), (b) and (d) relate to *Advanced Bionics* part (1), and factors (c), (e) and (f) relate to *Advanced Bionics* part (2). *Advanced Bionics*, Paper 6 at 10.

[3] U.S. Patent No. 7,137,126 B1 published as WO00/20962 on April 13, 2000.

Kennewick'" amounts to an admission that Ross's teachings would be cumulative to Kennewick. Prelim. Resp. 27–28. We do not agree that Petitioner made such an admission because Petitioner relied on Ross disclosures that are not present in Kennewick in its challenge against claim 12. *See, e.g.*, Pet. 31–33 (citing Ex. 1005 ¶¶ 10, 12, 33, 35, Fig. 4).

Patent Owner further argues that Ross does not address the deficiency that the Examiner found in the prior art that claim 12 requires "comparing text combinations against ***both*** grammar expression entries in the context description grammar and against one or more expected contexts stored in a context stack." Prelim. Resp. 28 (citing Ex. 1012, 305). For reasons discussed in § IV.E.4.iii, we do not agree with Patent Owner's argument because Petitioner's contentions on the current record demonstrate sufficiently that Ross does disclose these features.

Accordingly, under *Advanced Bionics* part (1), we find that the record does not support that the same prior art or arguments were considered by the Examiner during prosecution of the '160 patent. Specifically, the combination of Kennewick and Ross was not considered during examination, nor any arguments directed to the features Ross adds to the combination. Therefore, we decline to exercise our discretion to deny institution of *inter partes* review under § 325(d) and do not reach the parties' remaining arguments concerning *Advanced Bionics* part (2).

IV. PETITIONER'S GROUND OF UNPATENTABILITY

A. Legal Standards — Petitioner's Burden

"In an [*inter partes* review], the petitioner has the burden from the onset to show with particularity why the patent it challenges is

unpatentable." *Harmonic Inc. v. Avid Tech., Inc.*, 815 F.3d 1356, 1363 (Fed. Cir. 2016) (citing 35 U.S.C. § 312(a)(3) (requiring *inter partes* review petitions to identify "with particularity . . . the evidence that supports the grounds for the challenge to each claim")). This burden of persuasion never shifts to the patent owner. *See Dynamic Drinkware, LLC v. Nat'l Graphics, Inc.*, 800 F.3d 1375, 1378 (Fed. Cir. 2015).

B. Legal Standards — Obviousness

A patent claim is unpatentable under 35 U.S.C. § 103 if the differences between the claimed subject matter and the prior art are such that the subject matter, as a whole, would have been obvious at the time the invention was made to a person having ordinary skill in the art ("POSITA") to which said subject matter pertains. *KSR Int'l Co. v. Teleflex Inc.*, 550 U.S. 398, 406 (2007). The question of obviousness is resolved on the basis of underlying factual determinations including: (1) the scope and content of the prior art; (2) any differences between the claimed subject matter and the prior art; (3) the level of ordinary skill in the art; and (4) objective evidence of nonobviousness, if made available in the record, which has not happened here. *See Graham v. John Deere Co.*, 383 U.S. 1, 17–18 (1966).

C. Level of Ordinary Skill in the Art

Petitioner contends a POSITA pertaining to the '160 patent "would have possessed a bachelor's degree in electrical engineering or computer science, and two years of work experience in the field of speech- and natural language-interfaces for interacting with and directing computer systems and software, including speech recognition and processing (and more experience

could substitute for less formal education, and vice versa)." Pet. 10; Ex. 1002 ¶¶ 11–15.

Patent Owner does not oppose Petitioner's formulation of the level of ordinary skill in the art. *See* Prelim. Resp. *generally*.

For purposes of this Decision, we are satisfied that Petitioner's formulation of the level of ordinary skill in the art generally comports with the level of skill necessary to understand and implement the teachings of the '160 patent and the asserted prior art, so we apply that formulation here.

D. Claim Construction

We interpret the '160 patent claims "using the same claim construction standard that would be used to construe the claim in a civil action under 35 U.S.C. 282(b)." 37 C.F.R. § 42.100(b). This "includ[es] construing the claim in accordance with the ordinary and customary meaning of such claim as understood by one of ordinary skill in the art and the prosecution history pertaining to the patent." *Id.*

Petitioner argues: "Express claim construction is unnecessary because the prior art renders the challenged claims obvious under any reasonable construction." Pet. 12.

Patent Owner argues "the Board need not engage in any pre-institution claim construction" because "Petitioner's grounds include fundamental flaws" regardless of any claim construction issues. Prelim. Resp. 10–11. Patent Owner further notifies the Board that the United States District Court for the Eastern District of Virginia has construed various terms found in the claims of the '160 patent, albeit in the context of other patents owned by Patent Owner. *See id.* at 9–10 (citing Exs. 2002–2007).

Based on the arguments and evidence presented, we determine no explicit construction is needed to resolve the parties' controversy. *See Realtime Data, LLC v. Iancu*, 912 F.3d 1368, 1375 (Fed. Cir. 2019) ("The Board is required to construe 'only those terms . . . that are in controversy, and only to the extent necessary to resolve the controversy.'") (quoting *Vivid Techs., Inc. v. Am. Sci. & Eng'g, Inc.*, 200 F.3d 795, 803 (Fed. Cir. 1999)).

E. Obviousness over Kennewick and Ross

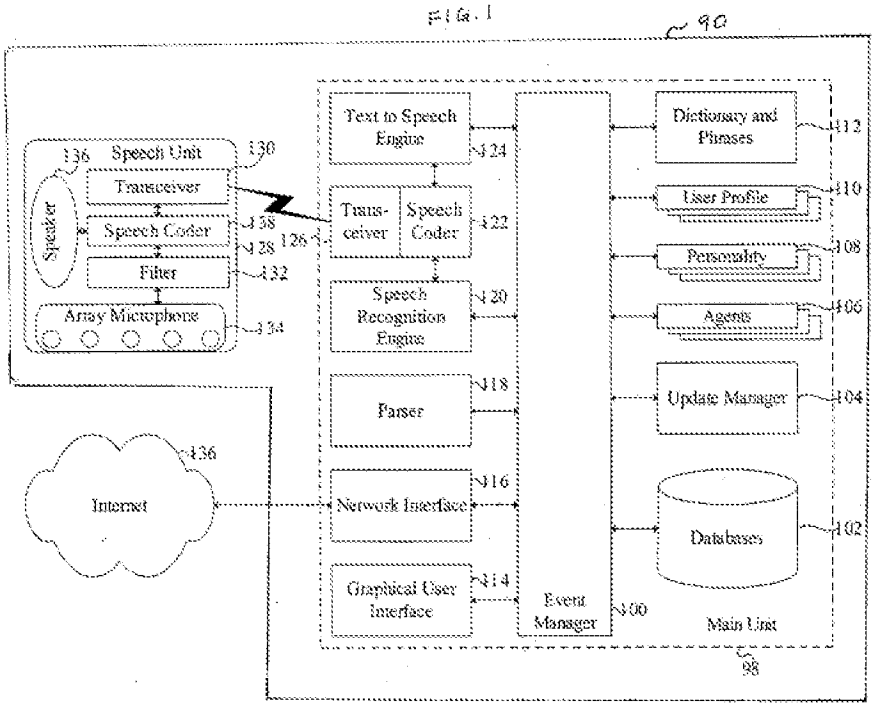
In the sole ground at issue in this proceeding, Petitioner asserts that claim 12 of the '160 patent would have been obvious over Kennewick and Ross. *See* Pet. 7–8, 13–74. Patent Owner disagrees. *See* Prelim. Resp. 4–46.

We conclude that the record demonstrates a reasonable likelihood that Petitioner would prevail with respect to the challenged claim for the following reasons.

1. Kennewick (Ex. 1004)

Like the '160 patent, Kennewick is titled "Systems and Methods for Responding to Natural Language Speech Utterance." Ex. 1004, code (54). Although Kennewick and the '160 patent are not related by priority, the two have similar disclosures, as shown in a comparison that Petitioner has provided in the record. *See* Ex. 1007. The inventor, Robert A. Kennewick, is named in both the Kennewick reference and the '160 patent. Ex. 1001, code (76); Ex, 1004, code (76).

Kennewick's Figure 1 is shown below.



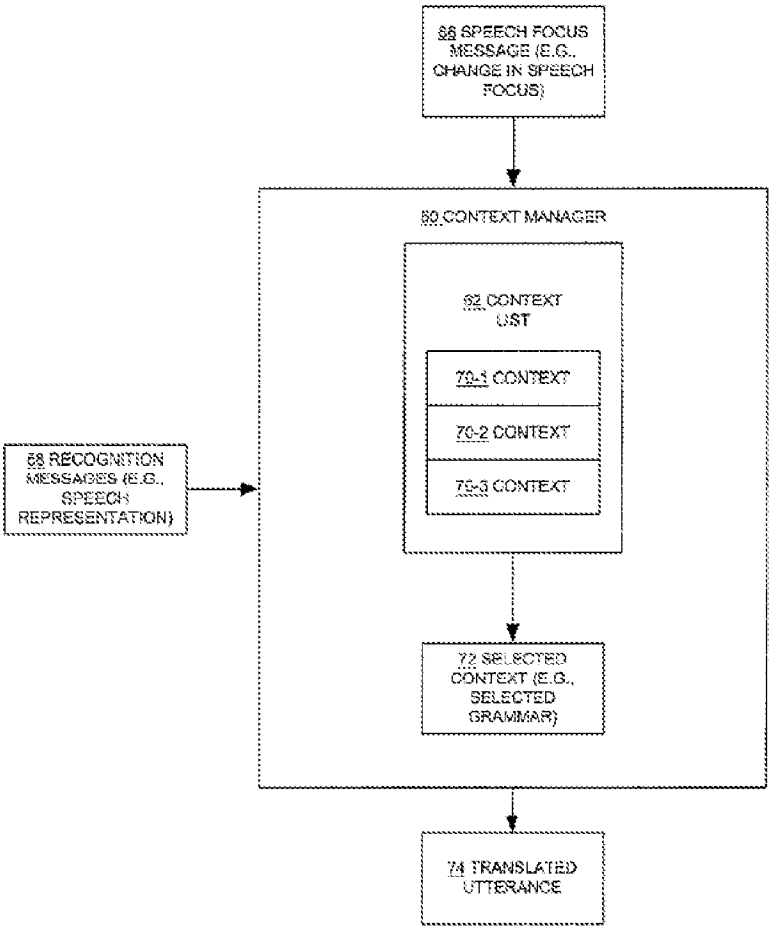
Kennewick discloses system 90 with speech unit 128 and main unit 98 similar to what has already been described for the '160 patent. *See* § II.B. Among the notable differences are that the main unit 98 has dictionary and phrase tables 112 instead of the context description grammar module 112 of the '160 patent. Ex. 1004 ¶ 149. Dictionary and phrase tables 112 are used by the speech recognition engine 120 to recognize spoken words and phrases. *Id.* ¶ 88. Also, Kennewick lacks disclosure that the '160 patent has concerning multi-modal interactions, non-speech-based queries, and a context manager. *See, e.g.*, Ex. 1007, 1–4.

2. Ross (Ex. 1005)

Ross is titled "System and Method for Determining Utterance Context in a Multi-Context Speech Application." Ex. 1005, code (54). Ross discloses "a method and apparatus [] for determining a speech-enabled application to receive a spoken utterance in a multi-context speech enabled

environment." *Id.* ¶ 10. Specifically, Ross's apparatus has a message handler that receives and provides a representation of a spoken utterance to a context manager. *Id.* The context manager uses the utterance representation to evaluate contexts of speech-enabled applications to determine one to which to direct the utterance representation. *Id.* The context manager evaluates contexts for speech-enabled applications based on an access characteristic. *Id.* "The context manager may prioritize the contexts based on the access characteristic," which "may be based on the recency of relevant access to the context." *Id.* ¶ 12.

Ross's Figure 4 is shown below.



Ross's Figure 4 shows components of context manager 50. *Id.* ¶ 33. Context manager 50 includes context list 62 with "contexts 70 (e.g., 70-1, 70-2, 70-3, etc.) for speech enabled applications 26, which represent the grammars for the applications 26." *Id.*

In implementing a speech center for language translation, Ross discloses that

> when an utterance is recognized, it will be tested against each application's grammar to see if the grammar will accept it. The order of testing is based on a dynamic speech focus priority. The first application's grammar which will accept the utterance is then used for translation, and the command dispatched to the corresponding application 26. The speech focus priority is established by maintaining an ordered list of applications (e.g., context list 62). Whenever an application 26 gains window focus, it will move to the head of the list 62. Likewise, whenever an application 26 which is not the top priority application 26 is chosen as the target for a speech command, the application 26 indicated by the selected context 72 will move to the head of the list 62. In this way, the last application 26 that the user touched or talked to will get the first opportunity at interpreting the next user utterance, and the other applications 26 will be ordered in a most-recently-accessed way.

Id. ¶ 35.

3. Motivation to Combine with Reasonable Expectation of Success

We now address Petitioner's motivation to combine and Patent Owner's arguments against the combination. Pet. 36–37, 40–41; Prelim. Resp. 22–25. We determine on this record that Petitioner has provided sufficient motivations to combine Kennewick and Ross for the reasons that follow.

(i) Petitioner's Contentions

Petitioner presents two sets of motivations to combine Kennewick and Ross. Pet. 36–42. The first set of Petitioner's proffered motivations to combine relates to the "comparing the text combinations against the grammar expression entries in the context description grammar" of claim limitation 12b. Pet. 36–37. The second set of Petitioner's proffered motivations relates to the "one or more expected contexts stored in a context stack" of limitation 12b. *Id.* at 40–41.

For the first set of Petitioner's proffered motivations, Petitioner contends that a POSITA would have combined "Kennewick with Ross's teachings regarding comparing transcribed user utterances to grammar expressions in a grammar to identify a context." Pet. 36 (citing Ex. 1002 ¶ 74). Petitioner contends that the "combination would have predictably resulted in Kennewick's parser identifying context(s) matching text combination(s) contained in a transcribed user utterance by '**comparing the text combinations against the** [sic] **grammar expression entries in the** [sic; a] **context description grammar**' as claimed." *Id.* Petitioner contends the references are analogous art because they are in the same field as the '160 patent, and because they pertain to the problems identified in the '160 patent. *Id.* (citing Ex. 1001, 1:8–14; Ex. 1004 ¶ 3; Ex. 1005 ¶¶ 10, 13; Ex. 1002 ¶ 75).

Petitioner contends that a POSITA would have understood that Kennewick's use of grammars would involve comparing text combinations against grammar expression entries in a context description grammar as claimed, and asserts that Ross "detail[s] a remarkably similar technique" that

"picks up where Kennewick leaves off" with Ross's "more detailed teachings." *Id.* at 37 (citing Ex. 1002 ¶ 76).

Petitioner further asserts that a POSITA would have had a reasonable expectation of success in combining Ross and Kennewick as "involv[ing] the straightforward application of conventional techniques and technologies without undue experimentation." *Id.* at 37. Specifically, Petitioner asserts that Ross discloses that each speech-enabled application 26 may have a well-known Backus Naur Form (BNF) grammar, and examples of that grammar are shown in Ross. *Id.* (citing Ex. 1002 ¶ 77; Ex. 1005 ¶ 60; Ex. 1009, 8).

For the second set of motivations, Petitioner contends that "it would have been obvious to combine Kennewick with Ross's disclosures regarding storing contexts associated with accessed applications on a context stack." *Id.* at 40–41 (citing Ex. 1002 ¶ 81). Particularly, Petitioner alleges that "[t]he combination would have predictably resulted in '**one or more expected contexts**'—such as the contexts associated with applications that had already been invoked—'**stored in a context stack**.'" *Id.* at 41 (citing Ex. 1002 ¶ 81).

Petitioner contends that "[t]he combination would have involved the application of known techniques to improve a similar system in the same way." *Id.* (citing Ex. 1002 ¶ 82). Particularly, Petitioner states that "Kennewick already describes using a context stack storing context keywords in connection with determining a context for a user's question" and "further suggests that the context keywords in the context stack correspond to previously identified contexts, by describing how 'key words and criteria can be inherited from the stack' when evaluating 'a following-on question.'" *Id.* (citing Ex. 1004 ¶¶ 144–145; Ex. 1002 ¶ 82). Petitioner

contends that "Ross's . . . similar system confirms storage of '**expected contexts**' in a '**context stack**,' and that doing so enables comparing text against the expected contexts to efficiently identify a matching context." *Id.* at 41–42 (citing Ex. 1005 ¶ 35; Ex. 1002 ¶ 82).

(ii) Patent Owner's Contentions

Patent Owner argues that a POSITA would not have been motivated to combine Ross's first-to-match teachings with Kennewick's scoring system. Prelim. Resp. 22–25. Specifically, Patent Owner contends that "the claim should be viewed as a whole, and not a collection of elements" and that "[w]hen that is done in this case, Petitioner's stated motivations fail to support obviousness." *Id.* at 23. Patent Owner asserts that "only the product of impermissible hindsight would cause a POSITA to pick and choose features from Kennewick and Ross to attempt to reconstruct the invention of claim 12 of the '160 [p]atent." *Id.* at 22–23. Patent Owner argues that Kennewick and Ross lack "expected contexts" and asserts that "there certainly would not be any justifiable motivation to include that feature in the combination." *Id.* at 23.

Patent Owner asserts that Petitioner's motivation theories do not view the claim as a whole but instead "assert[] distinct motivations for the elements in isolation." *Id.* (citing Pet. 36–37 (Petitioner's first set of proffered motivations), 40–41 (Petitioner's second set of proffered motivations)).

For Petitioner's first set of proffered motivations, Patent Owner asserts that "Petitioner's theories do not offer any advantage in use of any technique of Ross with Kennewick" and "fails to acknowledge that Ross implements a completely different context selection scheme than Kennewick

and does not support a combination of Ross's scheme with Kennewick's." *Id.* at 37. Specifically, Patent Owner asserts that "Ross uses a different, first-to-match system for selecting a context instead of a scoring system like that found in Kennewick." *Id.* Patent Owner argues that "[c]ombining Ross's different techniques into Kennewick would not 'pick up' where Kennewick 'left off' but instead would change the fundamental operation of both Kennewick and Ross as they relate to the selection of contexts." *Id.* at 23–24 (citing *In re Ratti*, 270 F.2d 810, 813 (CCPA 1959); *In re Gordon*, 733 F.2d 900, 902 (Fed. Cir. 1984); *ActiveVideo Networks, Inc. v. Verizon Commc'ns, Inc.*, 694 F.3d 1312, 1327–28 (Fed. Cir. 2012)).

Patent Owner further contends that Petitioner's second set of motivations "highlight the incompatibility with a combination of Ross's first-to-match system in a scoring system." Prelim. Resp. 24. Patent Owner argues that "Petitioner contends it is making the combination to 'efficiently identify a matching context' and seeks to implement the highest priority context method in Ross." *Id.* at 24–25 (citing Pet. 41–42). Patent Owner asserts that Petitioner's "motivation to be vaguely 'more efficient' is conclusory and fails to establish obviousness." *Id.* at 25 (citing *ActiveVideo*, 694 F.3d at 1328). In any case, Patent Owner argues that Petitioner's second proffered motivation to combine would remove from Kennewick the scoring features that Petitioner relies on to disclose limitations of claim 12. *Id.* at 25.

(iii) Analysis

We do not agree with Patent Owner's arguments, which lack support in the record. *See Icon Health & Fitness, Inc. v. Strava, Inc.*, 849 F.3d 1034, 1043 (Fed. Cir. 2017) ("attorney argument is not evidence").

Specifically, we do not agree with Patent Owner's argument that Petitioner failed to consider the claimed invention as a whole but instead as a collection of elements picked from the prior art references using impermissible hindsight. Prelim. Resp. 23. Petitioner provided motivations to combine Kennewick and Ross which are supported by record evidence. Pet. 36–37, 40–41.

For example, Petitioner stated that Kennewick, Ross, and the '160 patent are directed to similar systems and methods for responding to natural language using speech contexts to identify agents and applications to generate a response to a question and/or command. *Id.* at 36–37 (citing Ex. 1001, 1:8–14; Ex. 1004 ¶ 3; Ex. 1005 ¶¶ 10, 13; Ex. 1002 ¶¶ 74–77). Petitioner further stated that Ross's technique of storing contexts associated with accessed applications in a context stack would make the system resulting from the combination more efficient in identifying contexts for spoken questions and/or commands. *Id.* (citing Ex. 1002 ¶¶ 81–82).

On this record, we agree with Petitioner that the similarities of Kennewick and Ross to the '160 patent and the efficiency that would be obtained by using Ross's technique of storing contexts of most-recently-accessed applications would have led a POSITA to combine the references. Ross expressly states that "[t]he goal is to provide multiple-application support relatively quickly," meaning Ross's technique seeks to be more efficient. Ex. 1005 ¶ 35.

Although Patent Owner argues that Kennewick's context scoring system is different from what Patent Owner characterizes as Ross's "first-to-match" system, on this record, we agree with Petitioner that Ross fits well

with Kennewick's teachings, or, as Petitioner puts it, "picks up where Kennewick leaves off." Pet. 37 (citing Ex. 1002 ¶ 76).

Specifically, Kennewick describes matching text in a transcription, such as keywords and criteria, to grammar expressions, to identify contexts for scoring. Ex. 1002 ¶ 68 (citing Ex. 1004 ¶ 144). Kennewick discloses that possible contexts are scored and the top one or few are used for further processing. Ex. 1002 ¶ 78; Ex. 1004 ¶ 152. Kennewick further teaches that a follow-on question of a dialog may inherit key words and criteria from a stack. Ex. 1002 ¶ 78; Ex. 1004 ¶¶ 144–145, 166. Ross discloses that the most-recently-accessed context in a list will be the first context evaluated when processing the next utterance. Ex. 1002 ¶ 80; Ex. 1005 ¶ 35.

On this record, we do not see these teachings as conflicting or incompatible, but instead complimentary and advantageous to pursue in combination. Furthermore, the complimentary nature of the Kennewick and Ross teachings indicates that Petitioner is not considering the limitations of the claim in isolation as Patent Owner asserts, but as a whole, considering how the reference teachings logically fit together.

Although Patent Owner characterizes Ross as a "first-to-match" system, Ross states that the most-recently-accessed context "will get the *first opportunity* at interpreting the next user utterance." Ex. 1005 ¶ 35. This means the most-recently-accessed context is not necessarily the one Ross's system will ultimately select for use, nor could the system function properly in a multi-threaded environment if Patent Owner's characterization was correct.

Patent Owner does not dispute Petitioner's contentions concerning the reasonable expectation of success in combining Kennewick and Ross. In

any case, Petitioner has demonstrated sufficiently that the teachings of Kennewick and Ross and general knowledge of a POSITA, such as the well-known Backus Naur Form (BNF) grammar to define contexts, would have been adequate for a POSITA to implement the combination. Pet. 37 (citing Ex. 1005 ¶ 60; Ex. 1009, 8; Ex. 1002 ¶ 77).

We determine that Petitioner has shown sufficiently that a POSITA would have had reasons to combine Kennewick and Ross with a reasonable expectation of success in making the combination.

4. Comparison of Claim 12's Limitations with Combination Disclosures

We now consider Petitioner's and Patent Owner's contentions with regard to each limitation of claim 12. Pet. 13–46; Prelim. Resp. 11–22. We determine that Petitioner has demonstrated sufficiently that each limitation of claim 12 is disclosed by the combination of Kennewick and Ross for the reasons that follow.

(i) Preamble

The preamble of claim 12 recites "A method for interpreting natural language utterances using knowledge-enhanced speech recognition engine, wherein the knowledge-enhanced speech recognition engine is configured to determine an intent and correct false recognitions of the natural language utterances, comprising:" Ex. 1001, 30:60–64.

Petitioner contends that Kennewick discloses the preamble of claim 12. Pet. 13. Specifically, Petitioner asserts that "Kennewick discloses a '**knowledge-enhanced speech recognition engine**' in the form of a parser that interprets a transcribed natural language utterance by (1) determining the intent of a request in a transcribed natural language utterance to select an application to invoke to process a command or question in the utterance, and

(2) identifying potentially false recognitions and prompting the user to correct them." Pet. 13 (citing Ex. 1004 ¶¶ 31, 92, 152–153; Ex. 1002 ¶ 51).

Patent Owner does not dispute Petitioner's contentions for the preamble of claim 12.

On the current record, after reviewing the evidence, we find that Petitioner has shown sufficiently that Kennewick discloses the preamble of claim 12. Therefore, we need not and do not consider whether the preamble is limiting.

(ii) Limitation 12a: Receiving a Transcription at a Computer

Limitation 12a recites "receiving a transcription of a natural language utterance at a computer comprising the knowledge-enhanced speech recognition engine." Ex. 1001, 30:65–67.

Petitioner contends that Kennewick discloses limitation 12a. Pet. 14–22. Specifically, Petitioner contends that Kennewick discloses receiving "a natural language utterance" from a user. *Id.* at 14 (citing Ex. 1004 ¶ 10). Petitioner further asserts that "Kennewick discloses the natural language utterance input from the user is passed to a speech recognition engine that generates a '**transcription**' of the utterance by recognizing words and phrases." *Id.* (citing Ex. 1004 ¶¶ 142, 147, 186–187; Ex. 1002 ¶ 52). Petitioner contends that Kennewick discloses that this transcription is passed to a parser (i.e., the claimed "**knowledge-enhanced speech recognition engine**") for interpretation. *Id.* (citing Ex. 1004 ¶ 152). Because the parser runs on a computer, Petitioner contends, the receiving of the transcription is "**at a computer comprising the knowledge-enhanced speech recognition engine**." *Id.* (citing Ex. 1004 ¶ 52).

Patent Owner does not dispute Petitioner's contentions for limitation 12a.

On this record, after reviewing the evidence, we find that Petitioner has shown sufficiently that Kennewick discloses limitation 12a.

(iii) Limitation 12b: Identifying One or More Contexts

Limitation 12b recites "identifying one or more contexts that completely or partially match one or more text combinations contained in the transcription, *wherein identifying the matching contexts includes comparing the text combinations against the grammar expression entries in the context description grammar and against one or more expected contexts stored in a context stack*." Ex. 1001, 31:1–7 (emphasis added). As earlier noted, Petitioner and Patent Owner dispute whether the combination of Kennewick and Ross discloses the claim language shown in italics. Pet. 23–42 (citing Ex. 1002 ¶¶ 60–82); Prelim. Resp. 12–22. We address the parties' contentions below.

Petitioner contends that Kennewick discloses "**identifying one or more contexts that**…**match**…**text. . .in the transcription**," describing matching tokens (e.g., words) in a recognized utterance to contexts—such as the text "temperature" to the context "weather." Pet. 23–24 (citing Ex. 1004 ¶ 152; Ex. 1002 ¶ 61). Petitioner further asserts that Kennewick discloses "**text combinations**" because some of the examples it provides are multi-word keywords in utterances like "get the value" and "my stock portfolio" in the phrase "please get the value of my stock portfolio." *Id.* at 25–26 (citing Ex. 1004 ¶¶ 98, 186–187; Ex. 1002 ¶ 62). Petitioner contends that Kennewick discloses "**text combinations**" because "Kennewick makes clear

that the evaluation of a context can involve matching not only keyword(s) in the transcription, but criteria or parameters in the transcription as well." *Id.* at 26 (citing Ex. 1004 ¶¶ 31, 93; Ex. 1002 ¶ 63).

Petitioner contends that Kennewick discloses "**comparing the text combinations against grammar expression entries in a context description grammar**." Pet. 27. Petitioner asserts that "Kennewick discloses that an agent 'passes a regular grammar expression to the parser 118 for evaluation of a context or question.'" *Id.* (citing Ex. 1004 ¶ 108; Ex. 1002 ¶ 66). Petitioner states that "Kennewick further describes how, in one example, a grammar is used 'to clearly specify the keyword used to determine the context and a set of one or [sic] criteria or parameters.'" *Id.* (citing Ex. 1004 ¶ 144). According to Petitioner, "Kennewick also discloses that the grammar would include multiple grammar expressions." *Id.* at 28 (citing Ex. 1002 ¶ 67). Petitioner further asserts that "Kennewick explains how a 'content package' for an agent 'include[s] questions or commands' and that each question or command has an associated regular grammar expression." *Id.* (citing Ex. 1004 ¶ 108).

Therefore, Petitioner contends, "a collection of grammar expressions used to identify a context in Kennewick discloses '**grammar expression entries in a context description grammar**' as claimed." *Id.* (citing Ex. 1002 ¶ 68). Petitioner alleges that "[t]he collection discloses '**a context description grammar**' because it comprises a grammar that describes context(s)" consistent with how the '160 patent uses the term. *Id.* at 28–30 (citing Ex. 1001, 13:47–50, 16:46–54; Ex. 1004 ¶¶ 108, 144, 152; Ex. 1002 ¶ 68).

Petitioner also relies on Ross's "context manager 50 that includes a context list 62" with "contexts 70 (e.g., 70-1, 70-2, 70-3, etc.) for speech enabled applications 26, which represent grammars for the applications 26." *Id.* at 32 (citing Ex. 1005 ¶ 33, Fig. 4). Petitioner states that a "user's transcribed utterance (a 'recognition message') is tested against the grammars in the context list in order to determine an application to invoke." *Id.* at 32–33 (citing Ex. 1005 ¶ 34). Petitioner asserts that "Ross further makes clear that 'test[ing]…against the active grammars' and finding a successful 'match' involves matching text combinations in a user's transcribed utterance to grammar expressions in a grammar." Pet. 33 (citing Ex. 1002 ¶ 72). Petitioner asserts that Ross provides two example grammars, one for an email application, and the other for a calendar application. *Id.* at 33–35 (citing Ex. 1005 ¶¶ 35, 40–53; Ex. 1002 ¶¶ 72–73).

Patent Owner argues that Kennewick fails to disclose "grammar expression entries." Prelim. Resp. 13–14 (citing Pet. 27–28; Ex. 1002 ¶ 68). However, as explained, Petitioner also relied on Ross to disclose this feature, and Patent Owner does not dispute Petitioner's contention.

For the part of limitation 12b which recites that identifying the one or more matching contexts also "**includes comparing the text combinations**…**against one or more expected contexts stored in a context stack**," Petitioner argues that a POSITA would have "found it obvious that Kennewick's parser would access one or more expected contexts that are stored in a context stack to determine a most likely context." Pet. 38. Petitioner asserts that "Kennewick discloses the '**one or more expected contexts**' in a few different ways." *Id.* First, Petitioner contends that Kennewick discloses that, "as part of determining the most

likely context, multiple 'possible contexts are scored and the top one or few are used for further processing.'" *Id.* (citing Ex. 1004 ¶ 152). Second, Petitioner contends that "Kennewick further discloses that possible contexts matching a transcription are stored in a context stack, describing an example of how 'the contents of the context stack,' such as keywords and criteria corresponding to past contexts, may be used in determining the context of a user's next request (e.g., 'a following-on question')." *Id.* at 38–39 (citing Ex. 1004 ¶¶ 144–145, 166). Specifically, Petitioner asserts that "the context keyword(s) stored in the context stack and associated with an earlier question is an example of an 'expected context.'" *Id.* at 39 (citing Ex. 1002 ¶ 78).

Petitioner also relies on Ross as disclosing "**comparing the text combinations…against one or more expected contexts stored in a context stack**." Pet. 39–40. Petitioner contends that "Ross describes a context manager 50 that includes a context list 62" with contexts 70 that "are sorted in priority order, such that the most-recently-accessed context will be the first context evaluated when processing the next user utterance." *Id.* at 39–40 (citing Ex. 1005 ¶¶ 33, 35, 37; Ex. 1009, 17, 22; Ex. 1002 ¶ 80).

Patent Owner argues that Kennewick fails to disclose "**expected contexts**." Prelim. Resp. 14–19. Particularly, Patent Owner asserts that Kennewick's "possible contexts" or storage of dialog history are not "expected contexts" as claimed. *Id.* at 14–15. Patent Owner contends that Kennewick's scoring of possible contexts and using the top one or few for further processing does not satisfy limitation 12b because it "requires a comparison of 'expected contexts' against text combinations, and this

requirement is not disclosed by Kennewick.'" *Id.* at 15 (citing Pet. 38; Ex. 1004 ¶ 152); *see also* 16–17 (citing Pet. 39; Ex. 1002 ¶ 78).

Concerning Kennewick's dialog history, Patent Owner asserts that "Petitioner provides no reasoning to support the asserted linkage of 'context keyword(s) … associated with an earlier question,' or dialog history, to expected contexts, nor does Petitioner explain how 'context keyword(s)' can be an 'example' of expected contexts." Prelim. Resp. 17–18 (citing Pet. 38–39; Ex. 1004 ¶¶ 144–145, 166). Patent Owner asserts that "even if context entries with dialog history were incorrectly considered a set of 'expected' contexts, [limitation 12b] still requires that set of contexts to be compared against text combinations to identify matching contexts." *Id.* at 18–19 (citing Pet. 39; Ex. 1002 ¶ 78).

Patent Owner further argues that Ross also fails to disclose "**expected contexts**" as claimed. Prelim. Resp. 19–22. Specifically, Patent Owner argues that Ross's first-to-match system processes an ordered list of applications sequentially so that the highest context with grammar that matches the grammar in a recognition message becomes the selected context. *Id.* at 19–20 (citing Ex. 1005 ¶¶ 33, 35, 53, Fig. 5, step 106). Patent Owner argues that "Ross never encounters any possibility that the grammar in the recognition message would match multiple contexts." *Id.* at 20–21 (citing Ex. 1005 ¶¶ 53–55).

On this record, we do not agree with Patent Owner's argument that Ross does not disclose matching multiple contexts. Specifically, Ross discloses that

> [o]ne grammar from each application 26 is active simultaneously, *but since there will always be overlap between what the different application grammars will accept*, the speech

> center 20 does not necessarily dispatch a command back to the application 26 whose grammar recognized it. Instead, when an utterance is recognized, *it will be tested against each application's grammar to see if the grammar will accept it*.

Ex. 1005 ¶ 35. Thus, Ross discloses matching multiple contexts. *See* Pet. 39–40.

Accordingly, we do not reach the dispute of whether Kennewick also discloses "expected contexts."

On this record, we find that Petitioner shows sufficiently that the combination of Kennewick and Ross discloses limitation 12b notwithstanding Patent Owner's arguments to the contrary.

(iv) Limitation 12c: Scoring Identified Matching Contexts

Limitation 12c recites "scoring each of the identified matching contexts." Ex. 1001, 31:8.

Petitioner contends that Kennewick discloses limitation 12c. Pet. 42–43. Petitioner contends that Kennewick discloses "identifying possible contexts that match a user's utterance 'by applying prior probabilities or fuzzy possibilities to keyword matching, user profile 110, and dialog history.'" *Id.* at 42 (citing Ex. 1004 ¶ 152). Petitioner further notes that Kennewick states "[b]ased on these probabilities or possibilities the possible contexts are scored and the top one or few are used for further processing." *Id.* (citing Ex. 1004 ¶¶ 30, 152, 153).

Patent Owner does not dispute Petitioner's contentions for limitation 12c.

We find that Petitioner shows sufficiently that Kennewick discloses limitation 12c.

(v) Limitation 12d: Selecting Matching Context

Limitation 12d recites "selecting the matching context having a highest score to determine a most likely context for the utterance." Ex. 1001, 31:9–10.

Petitioner contends that Kennewick discloses limitation 12d. Pet. 43–44. Specifically, Petitioner asserts that "Kennewick discloses that 'the possible contexts are scored and the top one or few are used for further processing.'" *Id.* at 43 (citing Ex. 1004 ¶ 152). Petitioner further states that Kennewick "describes how '[t]he parser 118 uses a scoring system to determine the most[] likely context or domain for a user's question and/or command' and that '[b]ased on this scoring, the system 90 invokes the correct agent.'" *Id.* at 43–44 (citing Ex. 1004 ¶ 153). Petitioner contends that a POSITA "would have understood and found it obvious that the matching context '**having a highest score**' would determine the '**most likely context.**'" *Id.* at 44. Petitioner asserts this is so, "first, because Kennewick discloses selecting only the context with the 'top' score, and second, because it would be quite sensible to select the context having a highest score as a mostly likely context even where 'the top…few are used for further processing.'" *Id.* (citing Ex. 1002 ¶ 85).

Patent Owner does not dispute Petitioner's contention that Kennewick discloses limitation 12d.

On the current record, Petitioner demonstrates sufficiently that Kennewick discloses limitation 12d.

(vi) Limitation 12e: Communication Request to Domain Agent

Limitation 12e recites "communicating a request to a domain agent configured to process requests in the most likely context for the utterance, the request formulated using at least one grammar expression entry in the context description grammar." Ex. 1001, 31:11–14.

Petitioner contends that Kennewick discloses limitation 12e. Pet. 45–46. Specifically, Petitioner contends that Kennewick discloses "**communicating a request to a domain agent configured to process requests in the most likely context for the utterance**." Pet. 45. Petitioner asserts that "Kennewick explains, for example, that '[b]oth system agents 150 and domain agents 156 receive questions and commands from the parser 118' and that '[a]fter selecting the agents 106, a properly formatted query and/or command that will be submitted to the agents 106 may be determined at 608.'" *Id.* (citing Ex. 1004 ¶¶ 91, 92, 185, 189; Ex. 1002 ¶ 87).

Petitioner further contends that Kennewick "discloses and renders obvious that the request communicated to a domain agent would be '**formulated using at least one grammar expression entry in the context description grammar**.'" Pet. 45. Petitioner asserts that "Kennewick discloses and renders obvious a context description grammar that includes one or more grammar expression entries." *Id.* at 46. Petitioner argues that "Kennewick refers to a 'regular grammar' that serves the same purpose of the 'context description grammar' in the '160 patent." *Id.* (citing Ex. 1004 ¶ 108; Ex. 1001, 16:46–54). Petitioner alleges that "Kennewick refers back to the "regular grammar," similarly disclosing "formulat[ing] a question or command in the regular grammar used by agents." *Id.* (citing Ex. 1004 ¶¶ 154, 189). Petitioner argues that "Kennewick, alone or in view of Ross,

therefore discloses formulating a request to a domain agent '**using at least one grammar expression entry in the context description grammar**.'" *Id.* (citing Ex. 1002 ¶ 88). Petitioner contends that "because grammar expression entries are used when matching a transcription to determine a context and application to invoke, as taught by both Kennewick and Ross, a person of ordinary skill in the art would have understood that the resulting request communicated to the domain agent would have been formulated 'using at least one grammar expression entry in the context description grammar.'" *Id.* (citing Ex. 1002 ¶ 88).

Patent Owner does not dispute Petitioner's contentions concerning limitation 12e.

On the current record, we find that Petitioner demonstrates sufficiently that Kennewick and Ross disclose limitation 12e.

(vii) Conclusion for Claim 12

Petitioner has shown sufficiently that a POSITA would have had reason to combine Kennewick and Ross with a reasonable expectation of success, and that each limitation of claim 12 is disclosed by the combination.

Accordingly, we determine that Petitioner has demonstrated a reasonable likelihood to prevail in demonstrating unpatentability of claim 12 of the '160 patent as obvious over the combination of Kennewick and Ross.

V. CONCLUSION

For the above reasons, we conclude the record demonstrates a reasonable likelihood that Petitioner would prevail with respect to the challenged claim, so we grant institution of the petitioned *inter partes*

review per 35 U.S.C. § 314(a). We decline to exercise discretion to deny institution under 35 U.S.C. § 325(d).

VI. ORDER

In consideration of the foregoing, it is hereby:

ORDERED that, pursuant to 35 U.S.C. § 314(a), the petitioned institution of *inter partes* review of claim 12 of the '160 patent is *granted*; and

FURTHER ORDERED that pursuant to 35 U.S.C. § 314(c) and 37 C.F.R. § 42.4, notice is hereby given of the institution of a trial and that the trial will commence on the entry date of this decision.

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Paper 36
Date: October 17, 2024

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

GOOGLE LLC,
Petitioner,

v.

DIALECT, LLC,
Patent Owner.

IPR2024-00753
Patent 7,640,160 B2

Before NEIL T. POWELL, GEORGE R. HOSKINS, and JON M. JURGOVAN, *Administrative Patent Judges*.

JURGOVAN, *Administrative Patent Judge*.

JUDGMENT
Final Written Decision
Determining All Challenged Claims Unpatentable
35 U.S.C. § 318(a)

I. INTRODUCTION

Google LLC ("Petitioner") filed a Petition (Paper 2, "Pet.") requesting *inter partes* review pursuant to 35 U.S.C. §§ 311–319 of claim 12 of U.S. Patent No. 7,640,160 B2 (Ex. 1001, "the '160 patent"). Dialect, LLC ("Patent Owner") filed a Preliminary Response (Paper 9, "Prelim. Resp."). We instituted *inter partes* review. Paper 11 ("Institution Decision" or "Inst. Dec.").

Thereafter, Patent Owner filed a Response (Paper 16, "PO Resp."), Petitioner filed a Reply (Paper 23, "Pet. Reply"), and Patent Owner filed a Sur-reply (Paper 29, "PO Sur-reply"). An oral hearing was conducted, and the transcript is in the record, along with the demonstratives. Paper 33 ("Transcript" or "Tr."); Ex. 1018 (Petitioner's Demonstratives); Ex. 2016 (Patent Owner's Demonstratives).

We have jurisdiction under 35 U.S.C. § 6. This Final Written Decision is entered pursuant to 35 U.S.C. § 318(a). Having reviewed the complete trial record, we determine that Petitioner has shown, by a preponderance of the evidence, that challenged claim 12 is unpatentable.

II. BACKGROUND

A. Real Parties-in-Interest and Related Proceedings

Petitioner identifies itself (i.e., Google LLC) as the real party-in-interest. *See* Pet. 5 & n.1. Patent Owner identifies itself (i.e., Dialect, LLC) as the real party-in-interest. *See* Paper 5, 1.

Petitioner has filed several IPR proceedings to challenge patents owned by Patent Owner. *See* Pet. 5–6. They are: IPR2024-00746 (U.S. Patent No. 7,398,209 B2); IPR2024-00747 (U.S. Patent No.

7,502,738 B2); IPR2024-00748 (U.S. Patent No. 8,015,006 B2); IPR2024-00749 (U.S. Patent No. 7,693,720 B2); IPR2024-00750 (U.S. Patent No. 9,031,845 B2); IPR2024-00751 (U.S. Patent No. 8,447,607 B2); IPR2024-00752 (U.S. Patent No. 8,849,652 B2); and IPR2024-00753 (U.S. Patent No. 7,640,160 B2).

Petitioner and Patent Owner ("the parties") also identify two district court litigations as related to the '160 patent. *See* Pet. 5; Paper 5, 1.

B. The '160 Patent

The '160 patent is titled "Systems and Methods for Responding to Natural Language Speech Utterance." Ex. 1001, code (54). The '160 patent's method allows "users to submit natural language questions [or] commands via [a] speech interface" and obtain information "from a wide range of disciplines." *Id.* at 1:12–15. The '160 patent seeks to properly respond to questions and/or commands based on "imperfect information" such as incomplete thoughts, sentences, or phrases, slang terminology, repeated words, word variations, synonyms, or others. *Id.* at 1:51–61.

Figure 1 of the '160 patent is reproduced below.

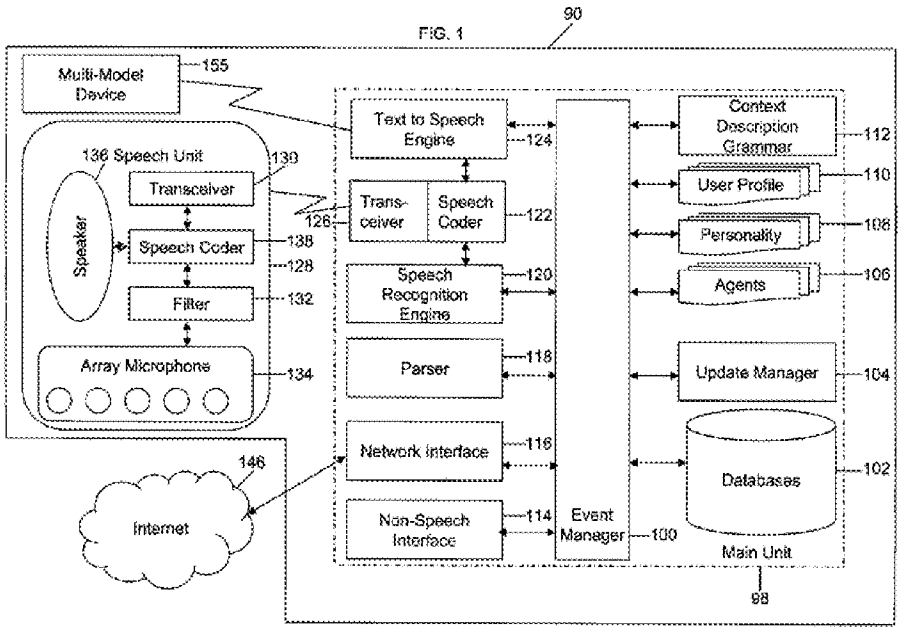


Figure 1 shows a system 90 that includes *inter alia* speech unit 128, speech recognition engine 120, context description grammar module 112, parser 118, and agents 106. Speech unit 128 includes a microphone to receive a spoken utterance from a user. *Id.* at 11:55–57. The speech unit 128 processes (i.e., encodes and compresses) the speech and transmits it to main unit 98 where it is further processed (i.e., decoded and decompressed). In main unit 98, speech recognition engine 120 processes the received speech using context description grammar module 112. *Id.* at 12:23–25. Speech recognition engine 120 passes recognized speech to parser 118 which transforms the information into complete algorithms or questions using data supplied by knowledge agents 106. *Id.* at 12:25–28. Knowledge agents 106 then process the commands or questions to carry out the intended actions or to provide responses to the requesting user by querying local databases 102 or external data sources over Internet 146. *Id.* at 12:32–36. Knowledge agents 106 may respond to the user's request or

command with speech using the speech unit 128. *Id.* at 12:41–47. Alternatively, knowledge agents 106 may present results to non-speech questions or commands using multi-modal devices 155. *Id.* at 12:47–55.

Speech may be compared against entries in a context description grammar associated with each agent 106. *Id.* at 13:47–49. Matches may be scored and the agents ranked based on the determined score. *Id.* at 13:51–56. If no match or only a partial match is found, "then a knowledge-enhanced speech recognition system may be used to semantically broaden the search." *Id.* at 13:60–64. "The knowledge-enhanced speech recognition may access a set of expected contexts that are stored in a context stack to determine a most likely context." *Id.* at 13:66–14:2. "The knowledge-enhanced speech recognition may use context specific matchers that are able to identify context such as time, location, numbers, dates, categories (e.g., music, movies, television, addresses, etc.) and other context." *Id.* at 14:2–6.

C. Claim 12

Claim 12 is the only claim challenged in this proceeding. Pet. 7–8. Claim 12 is set forth below, with bracket identifiers to indicate particular limitations, and our emphasis showing disputed language in the claim.

> 12. [preamble] A method for interpreting natural language utterances using knowledge-enhanced speech recognition engine, wherein the knowledge-enhanced speech recognition engine is configured to determine an intent and correct false recognitions of the natural language utterances, comprising:
>
> [a] receiving a transcription of a natural language utterance at a computer comprising the knowledge-enhanced speech recognition engine;
>
> [b] identifying one or more contexts that completely or partially match one or more text combinations contained in

> the transcription, *wherein identifying the matching contexts includes comparing the text combinations against the grammar expression entries in the context description grammar and against one or more expected contexts stored in a context stack*;
>
> [c] scoring each of the identified matching contexts;
>
> [d] selecting the matching context having a highest score to determine a most likely context for the utterance; and
>
> [e] communicating a request to a domain agent configured to process requests in the most likely context for the utterance, the request formulated using at least one grammar expression entry in the context description grammar.

Ex. 1001, 30:60–31:14 (emphases added).

D. Asserted Prior Art

Petitioner relies on the following two references as prior art against claim 12 of the '160 patent. *See* Pet. 7–8.

Name	**Reference**	**Date**	**Exhibit No.**
Kennewick	US 2004/0044516 A1	Filed June 3, 2003 Published March 4, 2004	1004
Ross	US 2002/0133354 A1	Filed Aug. 16, 2001 Published September 19, 2002	1005

Petitioner contends that both Kennewick and Ross are prior art under at least pre-AIA[1] § 102(b). Pet. 13. The priority date for the '160 patent is its filing date, August 5, 2005. Kennewick and Ross were each published more than one year prior to the '160 patent's priority date such that they are § 102(b) prior art to the '160 patent. Patent Owner does not dispute that Kennewick and Ross are prior art. *See* PO Resp. *generally*.

E. Asserted Ground

Petitioner asserts the following ground of unpatentability. *See* Pet. 7–8.

35 U.S.C. §	References	Claim Challenged
103	Kennewick, Ross	12

F. Testimonial Evidence

Petitioner relies on expert witness testimony of Mr. Christopher Schmandt. Ex. 1002; Ex. 1016. Patent Owner relies on opposing expert witness testimony of Mr. Benedict Occhiogrosso. Ex. 2010. Depositions of the parties' experts are also in the record. Ex. 1017; Ex. 2011; Ex. 2014; Ex. 2015.

[1] Amendments to 35 U.S.C. §§ 102 and 103 enacted by the Leahy-Smith America Invents Act, Pub. L. No. 112-29, 125 Stat. 284 (2011) ("AIA") took effect in March 2013. The priority date of the '160 patent is its filing date of August 5, 2005. *See* Ex. 1001, code (22). Therefore, we apply the pre-AIA version of §§ 102 and 103 in this proceeding.

III. PETITIONER'S GROUND OF UNPATENTABILITY

A. Legal Principles

"In an [*inter partes* review], the petitioner has the burden from the onset to show with particularity why the patent it challenges is unpatentable." *Harmonic Inc. v. Avid Tech., Inc.*, 815 F.3d 1356, 1363 (Fed. Cir. 2016) (citing 35 U.S.C. § 312(a)(3) (requiring *inter partes* review petitions to identify "with particularity . . . the evidence that supports the grounds for the challenge to each claim")). This burden of persuasion never shifts to the patent owner. *See Dynamic Drinkware, LLC v. Nat'l Graphics, Inc.*, 800 F.3d 1375, 1378 (Fed. Cir. 2015). The burden of production, however, may shift between the petitioner and patent owner as arguments and evidence are presented during the proceeding. *Id.*

A patent claim is unpatentable under 35 U.S.C. § 103 if the differences between the claimed subject matter and the prior art are such that the subject matter, as a whole, would have been obvious at the time the invention was made to a person having ordinary skill in the art ("POSITA") to which said subject matter pertains. *KSR Int'l Co. v. Teleflex Inc.*, 550 U.S. 398, 406 (2007). The question of obviousness is resolved on the basis of underlying factual determinations including: (1) the scope and content of the prior art; (2) any differences between the claimed subject matter and the prior art; (3) the level of ordinary skill in the art; and (4) objective evidence of nonobviousness.[2] *See Graham v. John Deere Co.*, 383 U.S. 1, 17–18 (1966).

[2] Neither party relies on objective evidence of nonobviousness to support their contentions.

B. Level of Ordinary Skill in the Art

Petitioner contends a POSITA pertaining to the '160 patent "would have possessed a bachelor's degree in electrical engineering or computer science, and two years of work experience in the field of speech and natural language-interfaces for interacting with and directing computer systems and software, including speech recognition and processing (and more experience could substitute for less formal education, and vice versa)." Pet. 10; Ex. 1002 ¶¶ 11–15.

Patent Owner does not respond to Petitioner's formulation of the level of ordinary skill in the art. *See* PO Resp. *generally*.

We determine that Petitioner's proposed skill level is consistent with the problems and solutions identified in the '160 patent and the prior art references asserted by Petitioner. In addition, we find the skill level consistent with the education and experience that a POSITA would have had. *See In re GPAC Inc.*, 57 F.3d 1573, 1579 (Fed. Cir. 1995) (citing *Custom Accessories, Inc. v. Jeffrey-Allan Indus., Inc.*, 807 F.2d 955, 962 (Fed. Cir. 1986)) (citing factors to consider when determining level of ordinary skill in the art). Accordingly, we adopt Petitioner's proposed skill level to apply in this proceeding.

C. Claim Construction

We interpret the '160 patent claims "using the same claim construction standard that would be used to construe the claim in a civil action under 35 U.S.C. 282(b)." 37 C.F.R. § 42.100(b). This "includ[es] construing the claim in accordance with the ordinary and customary

meaning of such claim as understood by one of ordinary skill in the art and the prosecution history pertaining to the patent." *Id.*

Petitioner argues: "Express claim construction is unnecessary because the prior art renders the challenged claims obvious under any reasonable construction." Pet. 12.

Patent Owner indicates that the U.S. District Court for the Eastern District of Virginia issued constructions for the following terms in other patents assigned to Patent Owner:

Term	Patent(s)	Claim(s)	Construction
context	'720 Patent	1, 31	"the subject matter area to which a particular user input is directed and which is used to determine the meaning of the user input"
	'006 Patent	1, 2, 4, 5, 10	
	'468 Patent	19, 28	
	'039 Patent	17, 18	
context stack	'006 Patent	2	"a data structure that stores or references contexts in a manner that can be ordered"
	'468 Patent	19, 28	
	'039 Patent	17	
	'957 Patent	1, 3, 4, 7	
entries in a context stack	'468 Patent	19	"elements of a context stack that store or reference contexts"

context entries	'957 Patent	1, 3, 4, 5, 7	"elements of a context stack that store or reference contexts"
grammar	'720 Patent	1, 31	"a set of rules governing how inputs and requests to a domain agent should be structured"
	'006 Patent	1, 5, 10	
context description grammar	'039 Patent	13	"a data structure containing entries constituting or referencing sets of rules, wherein each of those sets describes the structure of natural language in a particular context"
domain agent	'720 Patent	1, 31	"executables associated with a specific domain that receive, process and respond to user questions, queries and commands"
	'006 Patent	1, 2, 5, 10	
	'468 Patent	19, 30, 32	"software with domain-specific behavior and information"
	'039 Patent	13, 14	
procedures sensitive to the determined context	'006 Patent	5	"procedures that differ based on which context has been determined"
parser	'720 Patent	1, 35	"software that analyzes a string of words"
	'006 Patent	1, 5, 10	

PO Resp. 11–12 (citing Ex. 2007). Claim 12 recites several of these terms including "context," "context stack," "context description grammar," and "domain agent." The parties do not dispute the meanings of any of these terms in this proceeding.

1. "Expected Contexts"

However, the parties do dispute what is meant by "expected contexts" in claim 12. Patent Owner argues that "expected contexts" are "a subset of the contexts in a context stack." PO Resp. 15 (citing Ex. 2010 ¶ 56). Patent Owner contends that a particular set of contexts in the context stack could be "expected contexts" based on their use of context specific matchers that identify contexts such as time, location, numbers, dates, and categories (e.g., music, movies, television, addresses, etc.). *Id.* (citing Ex. 1001, 14:2–6). According to Patent Owner, for example, if the system expects text combinations to refer to a "television," the "expected contexts" in the context stack could be those entries containing the "television" context specific matcher. *Id.* at 15–16 (citing Ex. 2010 ¶ 56).

Patent Owner further argues that "expected contexts" are distinct from "possible contexts" which relate to a different embodiment in the '160 patent where "the possible contexts are scored and the top one or few are used for further processing" as described in the '160 patent and Kennewick. *Id.* at 16–17 (citing Ex. 1001, 13:60, 21:4–9). Patent Owner contends that Petitioner treats "expected contexts" as the same as "possible contexts" when the '160 patent describes them as different concepts related to different embodiments. *Id.* at 16–17 (citing Ex. 2010 ¶¶ 49–60; Ex. 2011, 70:14–15).

Petitioner argues that "one or more expected contexts" are contexts "recognized as possibly matching the user's intent." Pet. Reply 2 (citing Pet. 38; Ex. 1002 ¶ 78; Ex. 1004 ¶¶ 144–145). According to Petitioner, "Kennewick's processing reflects an anticipation, or expectation, that they may match the user's intent." *Id.* (citing Ex. 1016 ¶ 4). Petitioner contends that "neither claim 12 nor the written description [of the '160 patent]

imposes any requirement as to the point in time when a context may be 'expected,' nor is there any requirement that the system expressly flag or otherwise identify a context as 'expected.'" *Id.* (citing Ex. 1016 ¶ 4). Moreover, Petitioner argues that "Kennewick does not say that all contexts are scored, only 'possible' contexts." *Id.*

After review of the evidence, we determine that the record does not support Patent Owner's construction of "expected contexts" as "a subset of the contexts in a context stack." PO Resp. 16–17. The sole mention of "expected contexts" in the '160 patent's description is the following: "The knowledge-enhanced speech recognition may access *a set of expected contexts* that are stored in a context stack to determine a most likely context." Ex. 1001, 13:66–14:2. This statement does not provide any definition for "expected contexts." Although the '160 patent's description mentions a "set," this is not the same as a "subset" as Patent Owner proposes in its construction. Similarly, claims 1, 12, 13, and 15 of the '160 patent recite "one or more expected contexts" but do not elaborate further on what an "expected context" is. Likewise, "expected contexts" were mentioned but not discussed or defined in the prosecution history of the '160 patent. Ex. 1012, 281, 305, 382. Consequently, we decline to restrict the construction of "one or more expected contexts" as Patent Owner proposes.

To the extent that Patent Owner so argues, we do not consider "expected contexts" to require the use of "context specific matchers." In this regard, the '160 patent states that "knowledge-enhanced speech recognition ***may*** use context specific matchers that are able to identify context such as time, location, numbers, dates, categories (e.g., music, movies, television, addresses, etc.) and other context." Ex. 1001, 14:2–6 (emphasis added).

Hence, the '160 patent states that "contexts" ***may*** be identified using "context specific matchers" but this is not required.

We further decline to interpret "one or more expected contexts" to exclude "possible contexts" as Patent Owner argues. Simply put, we find no support in the '160 patent or elsewhere that "expected contexts" cannot be "possible contexts" or that the two terms are mutually exclusive of one another. Although the '160 patent mentions scoring "possible contexts" (Ex. 1001, 21:7–9), we find no reason why these "possible contexts" cannot also be "expected contexts."

Although we agree with Petitioner that "expected contexts" are ones that are "anticipated," we do not agree that "expected contexts" must be related to the "user's intent." Pet. Reply 2. We find insufficient evidence in the '160 patent and its file history to support such a construction. Although claim 12's preamble mentions the word "intent" it does not necessarily tie this word to a user or expected contexts. We do agree with Petitioner, however, that the term does not impose any requirement as to the point in time when a context may be expected, that the context need not be flagged or identified as expected, and that it does not require all contexts to be scored. *Id.*

As the intrinsic evidence is sufficient to determine the meaning of "one or more expected contexts," we do not resort to extrinsic evidence such as the declarations and deposition testimony of the parties' experts to construe the term. *See Phillips v. AWH Corp.*, 415 F.3d 1303, 1317 (Fed. Cir. 2005) (explaining that extrinsic evidence is less significant than intrinsic evidence); *Seabed Geosolutions (US) Inc. v. Magseis FF LLC*, 8 F.4th 1285, 1287 (Fed. Cir. 2021) (Court of Appeals gives primacy to intrinsic evidence

and resorts to extrinsic evidence only if consistent with intrinsic evidence); *Sequoia Tech., LLC v. Dell, Inc.*, 66 F.4th 1317, 1324 (Fed. Cir. 2023) (Court of Appeals stating that its "decision rests solely on the intrinsic evidence").

Consequently, we construe the term "one or more expected contexts" in claim 12 of the '160 patent under its ordinary and customary meaning as "one or more probable or anticipated contexts" in accordance with the dictionary definition of "expected."[3] The "one or more expected contexts" is not required to be a "*subset* of contexts in a context stack," nor must it be determined with context specific matchers. There is no requirement as to the point in time when a context must be expected, it need not be explicitly identified or indicated as expected, and it does not require that all contexts are scored.

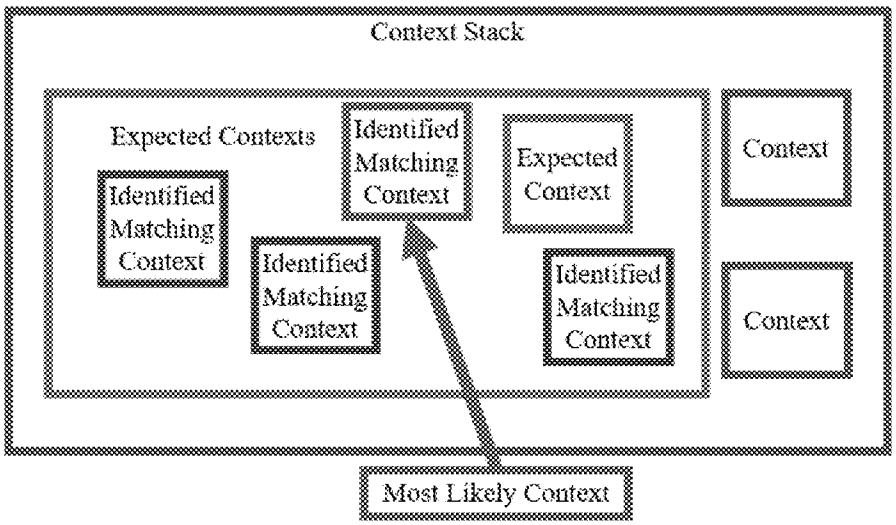
We need not construe the term further to resolve the parties' dispute over its meaning because "[t]he Board is required to construe 'only those terms . . . that are in controversy, and only to the extent necessary to resolve the controversy.'" *Realtime Data, LLC v. Iancu*, 912 F.3d 1368, 1375 (Fed. Cir. 2019) (quoting *Vivid Techs., Inc. v. Am. Sci. & Eng'g, Inc.*, 200 F.3d 795, 803 (Fed. Cir. 1999)).

2. Order of Steps

Patent Owner contends that claim 12 imposes a certain order of performance of its recited steps. PO Resp. 17–21. Specifically, Patent

[3] Merriam-Webster Dictionary defines "expect" as "1 a: to consider probable or certain" and "2 : to anticipate or look forward to the coming or occurrence of." https://www.merriam-webster.com/dictionary/expected?src=search-dict-hed (last viewed October 14, 2025). Ex. 3002.

Owner argues that "identifying one or more contexts" and "scoring each of the identified matching contexts" are separate steps that must be performed sequentially. *Id.* at 18–21. Patent Owner provides the following diagram to explain its contentions:



As shown in the above diagram, Patent Owner argues that "the claim requires a context stack with contexts, with some of those contexts being expected contexts, and with some of those expected contexts being identified as matching contexts, which are scored to select one of those identified matching contexts as a most likely context." *Id.* at 20–21.

Petitioner asserts that claim 12 is not limited to the scenario that Patent Owner describes in its diagram. Pet. Reply 10–13. Specifically, Petitioner contends that because of its open-ended "comprising" language, claim 12 does not exclude scoring other contexts besides "identified matching contexts." *Id.* at 12 (citing *CIAS Inc. v. Alliance Gaming Corp.*, 504 F.3d 1356, 1360–61 (Fed. Cir. 2007); Ex. 1016 ¶ 21). Petitioner further argues that limitation 12b broadly recites that the "identifying . . . includes" a comparison against expected contexts but does not state that the

identifying is limited to only the recited comparisons. *Id.* Petitioner further argues that the "scoring" of limitation 12c could occur in parallel with or as part of the "identifying" step in limitation 12b. *Id.*

Reviewing the '160 patent and its file history, we find little if any evidence to support Patent Owner's restrictive constructions of claim 12, nor does Patent Owner point to any definition or other evidence in the '160 patent or its file history that would lend support. We agree with Petitioner that the "comprising" language of claim 12 does not preclude scoring contexts other than "identified matching contexts" nor their identification by other than the recited comparisons. *See, e.g.*, *CIAS*, 504 F.3d at 1360–61. We further agree with Petitioner that the claim does not require the "identifying" of limitation 12b to be completed before the "scoring" of limitation 12c, and they could be performed in parallel. *See, e.g.*, *Mformation Technologies, Inc. v. Research in Motion Ltd.*, 764 F.3d 1392, 1398–1399 (Fed. Cir. 2014). However, we do not agree with Petitioner that the two steps could be performed as part of one another because they are set out in the claim as distinct steps. *See, e.g.*, *Becton, Dickinson and Co. v. Tyco Healthcare Group, LP*, 616 F.3d 1249, 1254–1255 (Fed. Cir. 2010).

With these constructions in mind, we proceed to consider Petitioner's obviousness challenge.

D. Obviousness over Kennewick and Ross

In the sole ground at issue in this proceeding, Petitioner asserts that claim 12 of the '160 patent would have been obvious over Kennewick and Ross. *See* Pet. 7–8, 13–46. Patent Owner disputes Petitioner's proffered

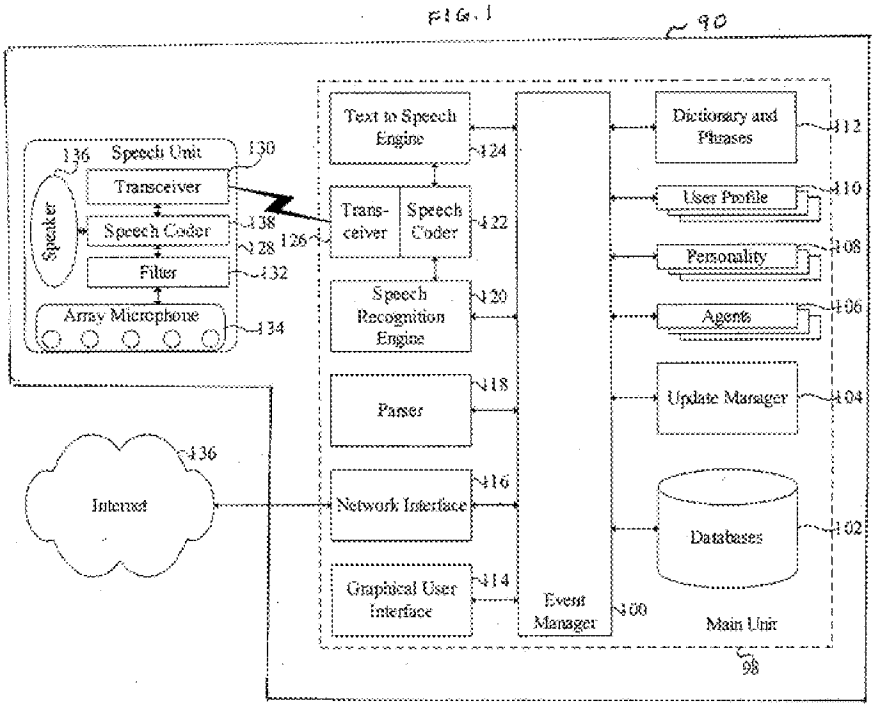
motivations to combine with reasonable expectation of success, and argues that the combination of Kennewick and Ross fails to disclose the step recited in limitation 12b and the ordering of steps recited in limitations 12b and 12c. Patent Owner does not dispute Petitioner's contentions for the remaining limitations of claim 12. *See* PO Resp. 21–38. We address the parties' dispute regarding limitation 12b and the ordering of steps in limitations 12b and 12c under the corresponding subsections below.

For reasons explained below, we determine that Petitioner has demonstrated by a preponderance of the evidence that claim 12 is unpatentable as obvious over the combination of Kennewick and Ross.

1. Kennewick (Ex. 1004)

Like the '160 patent, Kennewick is titled "Systems and Methods for Responding to Natural Language Speech Utterance." Ex. 1004, code (54). Although Kennewick and the '160 patent are not related by priority, the two have similar disclosures, as shown in a comparison that Petitioner has provided in the record. *See* Ex. 1007. The inventor, Robert A. Kennewick, is named in both the Kennewick reference and the '160 patent. Ex. 1001, code (75); Ex. 1004, code (76).

Kennewick's Figure 1 is shown below.



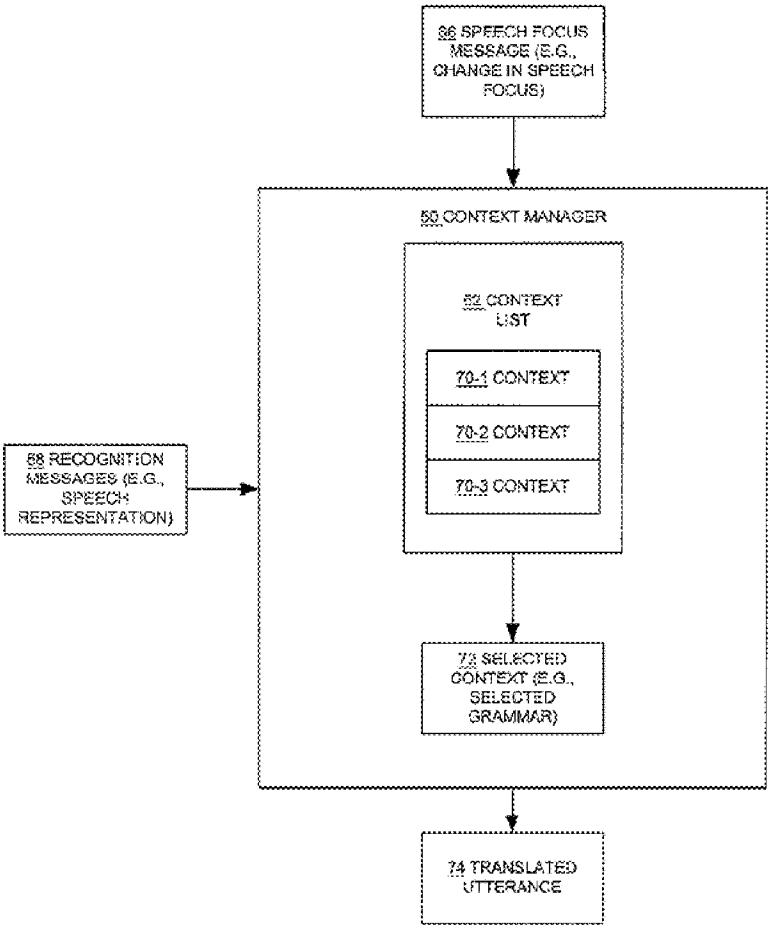
Kennewick discloses system 90 with speech unit 128 and main unit 98 similar to what already has been described for the '160 patent. *See* § II.B. Among the notable differences are that the main unit 98 has dictionary and phrase tables 112 instead of the context description grammar module 112 of the '160 patent. Ex. 1004 ¶ 149. Dictionary and phrase tables 112 are used by the speech recognition engine 120 to recognize spoken words and phrases. *Id.* ¶ 88. Also, Kennewick lacks disclosure that the '160 patent has concerning multi-modal interactions, non-speech-based queries, and a context manager. *See, e.g.*, Ex. 1007, 1–4.

2. Ross (Ex. 1005)

Ross is titled "System and Method for Determining Utterance Context in a Multi-Context Speech Application." Ex. 1005, code (54). Ross discloses "a method and apparatus . . . for determining a speech-enabled application to receive a spoken utterance in a multi-context speech enabled

environment." *Id.* ¶ 10. Specifically, Ross's apparatus has a message handler that receives and provides a representation of a spoken utterance to a context manager. *Id.* The context manager uses the utterance representation to evaluate contexts of speech-enabled applications to determine one to which to direct the utterance representation. *Id.* The context manager evaluates contexts for speech-enabled applications based on an access characteristic. *Id.* "The context manager may prioritize the contexts based on the access characteristic," which "may be based on [the] recency of relevant access to the context." *Id.* ¶ 12.

Ross's Figure 4 is shown below.



Ross's Figure 4 shows components of context manager 50. *Id.* ¶ 33. Context manager 50 includes context list 62 with "contexts 70 (e.g., 70-1, 70-2, 70-3, etc.) for speech enabled applications 26, which represent the grammars for the applications 26." *Id.*

In implementing a speech center for language translation, Ross discloses that

> when an utterance is recognized, it will be tested against each application's grammar to see if the grammar will accept it. The order of testing is based on a dynamic speech focus priority. The first application's grammar which will accept the utterance is then used for translation, and the command dispatched to the corresponding application 26. The speech focus priority is established by maintaining an ordered list of applications (e.g., context list 62). Whenever an application 26 gains window focus, it will move to the head of the list 62. Likewise, whenever an application 26 which is not the top priority application 26 is chosen as the target for a speech command, the application 26 indicated by the selected context 72 will move to the head of the list 62. In this way, the last application 26 that the user touched or talked to will get the first opportunity at interpreting the next user utterance, and the other applications 26 will be ordered in a most-recently-accessed way.

Id. ¶ 35.

3. Motivation to Combine with Reasonable Expectation of Success

Petitioner contends that a POSITA would have been motivated to combine Kennewick and Ross with a reasonable expectation of success. Pet. 36–42; *see also, e.g.*, *Elekta Ltd. v. ZAP Surgical Sys., Inc.*, 81 F.4th 1368, 1375 (Fed. Cir. 2023) (obviousness requires motivation to combine prior art references with a reasonable expectation of success). Specifically, Petitioner contends that Kennewick's use of grammars would involve comparing text combinations against grammar expression entries in a

context description grammar as claimed, and that a POSITA would have turned to Ross's "remarkably similar technique" "for its more detailed teachings." *Id.* at 37 (citing Ex. 1002 ¶ 76).

Petitioner further argues that Kennewick's context stack stores keywords associated with previously identified contexts and explains that keywords and criteria can be inherited from the stack when evaluating a "following-on question." *Id.* at 41 (citing Ex. 1005 ¶¶ 144–145; Ex. 1002 ¶ 82). According to Petitioner, Ross's similar system compares text against expected contexts such as the context for the last application the user touched or talked to. *Id.* at 41–42 (citing Ex. 1005 ¶ 35; Ex. 1002 ¶ 82). Hence, Petitioner asserts that the "combination would have involved the application of known techniques to improve a similar system in the same way." *Id.* at 41.

Petitioner contends that a POSITA would have had a reasonable expectation of success because combining Kennewick and Ross "would have involved the straightforward application of conventional techniques and technologies without undue experimentation" using, for example, Backus Naur Form (BNF) grammar. *Id.* at 37 (citing Ex. 1002 ¶ 77; Ex. 1005 ¶ 60; Ex. 1009, 8).

In its Response, Patent Owner does not dispute Petitioner's proffered motivations to combine with reasonable expectation of success. However, in its Sur-reply, Patent Owner argues that Petitioner's combination "makes no sense" because Ross's contexts are arranged in order by recency of access such that no scoring is required to find a selected context, whereas Kennewick scores every context in the context stack to select a context. PO Sur-reply 9–10. Patent Owner further argues that Ross's context

grammars are fixed whereas Kennewick's are dynamic according to prior utterances, and that Ross's search ends upon finding a match whereas Kennewick scores the entire context stack. *Id.* at 10.

Patent Owner's late arguments, to which Petitioner has not had an opportunity to respond, do not undermine Petitioner's proposed motivations to combine with reasonable expectation of success. *See* 37 C.F.R. § 42.23(b). Patent Owner's arguments hinge on its assertion that "expected contexts" are not scored and are dynamic, but the '160 patent does not define "expected contexts" in this way. *See* § III.C, *supra*. Furthermore, we do not agree that Ross's search necessarily ends upon finding a match or that Kennewick and Ross are otherwise incompatible. *See* Inst. Dec. 19–22.

Thus, we find that Petitioner has demonstrated by a preponderance of the evidence that a POSITA would have been motivated to combine Kennewick and Ross with a reasonable expectation of success to arrive at the claimed invention.

4. Comparison of Claim 12's Limitations with Combination Disclosures

We now consider Petitioner's contentions with regard to each limitation of claim 12. Pet. 13–46. Patent Owner disputes Petitioner's contentions for limitation 12b which we address below in the subsection discussing this limitation. We determine that Petitioner has provided preponderant evidence that each limitation of claim 12 is disclosed by the combination of Kennewick and Ross for the reasons that follow.

(i) Preamble

The preamble of claim 12 recites "A method for interpreting natural language utterances using knowledge-enhanced speech recognition engine, wherein the knowledge-enhanced speech recognition engine is configured to

determine an intent and correct false recognitions of the natural language utterances, comprising:" Ex. 1001, 30:60–64.

Petitioner contends that Kennewick discloses the preamble of claim 12. Pet. 13. Specifically, Petitioner asserts that "Kennewick discloses a '**knowledge-enhanced speech recognition engine'** in the form of a parser that interprets a transcribed natural language utterance by (1) determining the intent of a request in a transcribed natural language utterance to select an application to invoke to process a command or question in the utterance, and (2) identifying potentially false recognitions and prompting the user to correct them." Pet. 13 (citing Ex. 1004 ¶¶ 31, 92, 152–153; Ex. 1002 ¶ 51). Hence, Kennewick's "**knowledge-enhanced speech recognition engine**" performs a "**method for interpreting natural language utterances**" and "**is configured to determine an intent and correct false recognitions of the natural language utterances**."

Patent Owner does not dispute Petitioner's contentions for the preamble of claim 12.

We find that Petitioner has shown preponderant evidence that Kennewick discloses claim 12's preamble. Accordingly, we need not decide whether the preamble is limiting.

(ii) Limitation 12a: Receiving a Transcription at a Computer

Limitation 12a recites "receiving a transcription of a natural language utterance at a computer comprising the knowledge-enhanced speech recognition engine." Ex. 1001, 30:65–67.

Petitioner contends that Kennewick discloses limitation 12a. Pet. 14–22. Specifically, Petitioner contends that Kennewick discloses

receiving "a natural language utterance" from a user. *Id.* at 14 (citing Ex. 1004 ¶ 10). Petitioner further asserts that "Kennewick discloses the natural language utterance input from the user is passed to a speech recognition engine that generates a '**transcription**' of the utterance by recognizing words and phrases." *Id.* (citing Ex. 1004 ¶¶ 142, 147, 186–187; Ex. 1002 ¶ 52). Petitioner contends that Kennewick discloses that this transcription is passed to a parser (i.e., the claimed "**knowledge-enhanced speech recognition engine**") for interpretation. *Id.* (citing Ex. 1004 ¶ 152). Because the parser runs on a computer, Petitioner contends, the "**receiving of [the] transcription of a natural language utterance**" is "**at a computer comprising the knowledge-enhanced speech recognition engine**." *Id.* at 15 (citing Ex. 1002 ¶ 52).

Patent Owner does not dispute Petitioner's contentions for limitation 12a.

We find that Petitioner has shown preponderant evidence that Kennewick discloses limitation 12a.

(iii) Limitation 12b: Identifying One or More Matching Contexts

Limitation 12b recites "identifying one or more contexts that completely or partially match one or more text combinations contained in the transcription, *wherein identifying the matching contexts includes comparing the text combinations against the grammar expression entries in the context description grammar and against one or more expected contexts stored in a context stack.*" Ex. 1001, 31:1–7 (emphasis added).

As earlier noted, Petitioner and Patent Owner dispute whether the combination of Kennewick and Ross discloses the claim language shown in

italics. Pet. 23–42 (citing Ex. 1002 ¶¶ 60–82); PO Resp. 1–4, 21–38. The parties' disputes relate to Petitioner's three theories for ways that Kennewick and Ross teach the claimed "expected contexts" as well as the order of performance of the steps recited in limitations 12b and 12c. We first address Petitioner's undisputed contentions for this limitation, then address the parties' contentions regarding Petitioner's "expected context" theories and step ordering below.

(a) Petitioner's Undisputed Contentions

Petitioner contends that Kennewick discloses "**identifying one or more contexts that**…**match**…**text…in the transcription**," describing matching tokens (e.g., words) in a recognized utterance to contexts—such as the text "temperature" to the context "weather." Pet. 23–24 (citing Ex. 1004 ¶ 152; Ex. 1002 ¶ 61). Petitioner contends that Kennewick's contexts may "**completely or partially**" match the text combinations. *Id.* at 24 (citing Ex. 1004 ¶ 152). Petitioner further asserts that Kennewick discloses "**text combinations**" because some of the examples it provides are multi-word keywords in utterances like "get the value" and "my stock portfolio" in the phrase "please get the value of my stock portfolio." *Id.* at 25–26 (citing Ex. 1004 ¶¶ 98, 186–187; Ex. 1002 ¶ 62). Petitioner contends that Kennewick discloses "**text combinations**" because "Kennewick makes clear that the evaluation of a context can involve matching not only keyword(s) in the transcription, but criteria or parameters in the transcription as well." *Id.* at 26 (citing Ex. 1004 ¶¶ 31, 93; Ex. 1002 ¶ 63).

Petitioner contends that Kennewick discloses "**comparing the text combinations against grammar expression entries in a context**

description grammar." Pet. 27. Petitioner asserts that "Kennewick discloses that an agent 'passes a regular grammar expression to the parser 118 for evaluation of a context or question.'" *Id.* (citing Ex. 1004 ¶ 108; Ex. 1002 ¶ 66). Petitioner states that "Kennewick further describes how, in one example, a grammar is used 'to clearly specify the keyword used to determine the context and a set of one or [sic] criteria or parameters.'" *Id.* (citing Ex. 1004 ¶ 144). According to Petitioner, "Kennewick also discloses that the grammar would include multiple grammar expressions." *Id.* at 28 (citing Ex. 1002 ¶ 67). Petitioner further asserts that "Kennewick explains how a 'content package' for an agent 'include[s] questions or commands' and that each question or command has an associated regular grammar expression." *Id.* (citing Ex. 1004 ¶ 108).

Therefore, Petitioner contends, "a collection of grammar expressions used to identify a context in Kennewick discloses '**grammar expression entries in a context description grammar**' as claimed." *Id.* (citing Ex. 1002 ¶ 68). Petitioner alleges that "[t]he collection discloses '**a context description grammar**' because it comprises a grammar that describes context(s)" consistent with how the '160 patent uses the term. *Id.* at 28–30 (citing Ex. 1001, 13:47–50, 16:46–54; Ex. 1004 ¶¶ 108, 144, 152; Ex. 1002 ¶ 68).

Petitioner also relies on Ross's "context manager 50 that includes a context list 62" with "contexts 70 (e.g., 70-1, 70-2, 70-3, etc.) for speech enabled applications 26, which represent grammars for the applications 26." *Id.* at 32 (citing Ex. 1005 ¶ 33, Fig. 4). Petitioner states that a "user's transcribed utterance (a 'recognition message') is tested against the grammars in the context list in order to determine an application to invoke."

Id. at 32–33 (citing Ex. 1005 ¶ 34). Petitioner asserts that "Ross further makes clear that 'test[ing]…against the active grammars' and finding a successful 'match' involves matching text combinations in a user's transcribed utterance to grammar expressions in a grammar." Pet. 33 (citing Ex. 1002 ¶ 72). Petitioner asserts that Ross provides two example grammars, one for an email application, and the other for a calendar application. *Id.* at 33–35 (citing Ex. 1005 ¶¶ 35, 40–53; Ex. 1002 ¶¶ 72–73).

(b) Petitioner's Disputed Contentions

For the part of limitation 12b which recites that "**identifying the one or more matching contexts**" also "**includes comparing the text combinations…against one or more expected contexts stored in a context stack**," Petitioner argues that a POSITA would have "found it obvious that Kennewick's parser would access one or more expected contexts that are stored in a context stack to determine a most likely context." Pet. 38. Petitioner asserts that "Kennewick discloses the '**one or more expected contexts**' in a few different ways." *Id.*

In its first theory, Petitioner contends that Kennewick discloses that, "as part of determining the most likely context, multiple 'possible contexts are scored and the top one or few are used for further processing.'" *Id.* (citing Ex. 1004 ¶ 152). Petitioner contends that because these "possible contexts" are recognized as possibly matching the user's intent, Kennewick discloses the "**one or more expected contexts**." *Id.*

In its second theory, Petitioner contends that "Kennewick further discloses that possible contexts matching a transcription are stored in a context stack, describing an example of how 'the contents of the context

stack,' such as keywords and criteria corresponding to past contexts, may be used in determining the context of a user's next request (e.g., 'a following-on question')." *Id.* at 38–39 (citing Ex. 1004 ¶¶ 144–145, 166). Specifically, Petitioner asserts that "the context keyword(s) stored in the context stack and associated with an earlier question is an example of an '**expected context**.'" *Id.* at 39 (citing Ex. 1002 ¶ 78).

Petitioner's third theory also relies on Ross as disclosing "**comparing the text combinations…against one or more expected contexts stored in a context stack**." Pet. 39–40. Petitioner contends that "Ross describes a context manager 50 that includes a context list 62" with contexts 70 that "are sorted in priority order, such that the most-recently-accessed context will be the first context evaluated when processing the next user utterance" and thus discloses "**one or more expected contexts**." *Id.* at 39–40 (citing Ex. 1005 ¶¶ 33, 35, 37; Ex. 1009, 17, 22; Ex. 1002 ¶ 80).

Patent Owner argues that the combination of Kennewick and Ross fails to disclose claim 12's limitation 12b. PO Resp. 21–38. Specifically, Patent Owner argues that neither Kennewick nor Ross discloses "expected contexts" or comparing text combinations against "expected contexts" to identify matching contexts in limitation 12b. *Id.* at 23–24.

Petitioner's First Theory of "Expected Contexts"

Patent Owner argues that Petitioner's first theory of the claimed "expected contexts" as corresponding to Kennewick's "possible contexts" is incorrect because the '160 patent distinguishes these two types of contexts such that Kennewick's "possible contexts" cannot be the claimed "expected contexts." PO Resp. 25–27. Patent Owner states that the "expected

contexts" embodiment is an addition to the '160 patent that is not present in Kennewick. *Id.*

Petitioner argues that Kennewick's "possible contexts" correspond to the claimed "expected contexts" "because they are recognized as possibly matching the user's intent." Pet. Reply 13–14 (citing Pet. 38; Ex. 1002 ¶ 78; Ex. 1004 ¶¶ 144–145; Ex. 1016 ¶¶ 4–5, 26).

We agree with Patent Owner that "expected contexts" and "possible contexts" are different terms and thus have different meanings. *See, e.g.*, *Neville v. Foundation Constructors, Inc.*, 972 F.3d 1350, 1357 (Fed. Cir. 2020); *CAE Screenplates Inc. v. Heinrich Fiedler GmbH & Co. KG*, 224 F.3d 1308, 1317 (Fed. Cir. 2000). Therefore, we do not agree with Petitioner that "possible contexts" are necessarily "expected contexts" (although they could be).

Consequently, Petitioner's first theory for "one or more expected contexts" fails.

Petitioner's Second Theory of "Expected Contexts"

Petitioner's second theory equates "one or more expected contexts" with "previous contexts" that are stored in Kennewick's context stack and subsequently searched using keywords, criteria, or parameters in determining the context of the user's next request (e.g., a "following-on question"). Pet. 38–39 (citing Ex. 1004 ¶¶ 144–145, 166; Ex. 1002 ¶ 78). We agree with Petitioner that such "previous contexts" in Kennewick are equivalent to the claimed "one or more expected contexts" because their storage for use with future requests reflects that they are "probable or

anticipated" contexts under the plain meaning of "expected." *See* § III.C.1, *supra*.

Patent Owner argues that Petitioner does not provide reasoning to link "previous contexts" to "expected contexts." PO Resp. 29–30 (citing Ex. 2010 ¶¶ 93–95); PO Sur-Reply 7 (citing Pet. Reply 3–4; Ex. 1004 ¶ 153; Ex. 2010 ¶¶ 88–90). We do not agree. Petitioner's reasoning is sufficient because, in essence, "previous contexts" stored in a context stack that are associated with "following-on questions" or dialog history are "expected" (i.e., probable or anticipated) even if Kennewick does not explicitly identify them as such.

Patent Owner further argues that Petitioner improperly views all contexts in the stack as both "possible" and "expected" when limitation 12b requires that the "expected contexts" must be a subset of contexts stored in the stack. PO Resp. 30–31 (citing Pet. 39; Ex. 1002 ¶ 78); PO Sur-reply 8. We find no prohibition in limitation 12b that would preclude "previous contexts" in the stack from being considered both "possible" and "expected" and we have already considered and rejected Patent Owner's assertion that "expected contexts" must be a subset of those stored in the context stack. *See* § III.C.1, *supra*.

We further do not agree with Patent Owner that the claim language somehow restricts comparison of text combinations to only grammar expression entries and expected contexts because, as Petitioner notes, the claim is drafted with open-ended "comprising" language and recites no such restrictions. Pet. Reply 12 (citing *CIAS*, 504 F.3d at 1360–61). *See In re Self*, 671 F.2d 1344, 1348 (CCPA 1982) (stating that limitations not appearing in the claims cannot be relied upon for patentability).

Accordingly, we find that Petitioner has shown preponderant evidence that Kennewick's "previous contexts" teach the claimed "**one or more expected contexts**" under Petitioner's second theory.

Petitioner's Third Theory of "Expected Contexts"

Petitioner contends that Ross discloses a context manager that includes a context list with contexts sorted in priority order, such that the most-recently-accessed context will be the first context evaluated when processing the next user utterance. Pet. 39–40 (citing Ex. 1005 ¶¶ 33, 35, 37). Petitioner contends that Ross thus discloses the claimed "one or more expected contexts" of limitation 12b under this third theory. *Id.*

Patent Owner argues that Ross has no concept of "expected contexts" because it selects the highest ordered context in the context list for further processing without consideration of which contexts are "expected." PO Resp. 31–38 (citing Ex. 1005 ¶¶ 40–59; Ex. 2010 ¶¶ 102–103, 105–106). We do not agree with Patent Owner's argument. As Petitioner correctly contends, Ross discloses "expected contexts" because Ross matches and reorders contexts in its stack by recency of access of the corresponding applications invoked by user utterances, reflecting expectations that these contexts are likely to be matched in the future. Pet. 41–42; Pet. Reply 17–19.

Although Patent Owner argues that the "expected contexts" must be a subset of contexts in the stack, as already explained, we do not agree with Patent Owner's construction, and claim 12 recites no such limitation. PO Resp. 36–37 (citing Ex. 2011, 70:14–15; Ex. 2010 ¶ 109); PO Sur-reply 8. Even if Patent Owner's restrictive view of "expected contexts" was correct,

Petitioner further notes that Ross's context manager moves the most recently accessed context matching a user's utterance to the top of the context stack, and correctly asserts that this is an example of an "expected context." Pet. Reply 19 (citing Ex. 1016 ¶ 37).

Patent Owner argues that Ross does not compare an utterance against one or more expected contexts (i.e., prior utterances) stored in a context stack, but instead checks which application can process a transcribed utterance. PO Resp. 31–32 (citing Ex. 1005 ¶¶ 33, 35, 37; Ex. 2010 ¶¶ 96–110). Although Patent Owner is correct that Ross checks which application can process a speech representation (i.e., text combination), Patent Owner overlooks that Ross's context manager does so by checking the speech representation against contexts stored in the context list. Ex. 1005 ¶ 37. Hence, we disagree with Patent Owner's argument.

Patent Owner contends that Ross does not disclose how to proceed if Ross's search of its context list yields no grammar and no priority context that can process the phrase. PO Resp. 35 (citing Ex. 1005 ¶ 53, Fig. 5; Ex. 2010 ¶ 103). We discern no relationship of this hypothetical to the claim language and it is thus unavailing.

Accordingly, we find Petitioner has provided preponderant evidence to support its third theory concerning how Ross discloses "one or more expected contexts." Patent Owner's arguments do not undermine Petitioner's showing that Ross teaches the claimed "**one or more expected contexts**" and their comparison against text combinations corresponding to the user's utterance.

Dispute Over Order of Steps

Patent Owner contends that Petitioner ignores the claimed order of steps in claim 12 in asserting that scoring "possible contexts" to determine the top one or few means that those must have been "expected contexts" whereas, in contrast, claim 12 requires comparing text combinations against expected contexts to identify matching contexts which are then scored. PO Resp. 25–31 (citing Ex. 1001, 13:64–14:2; Ex. 1004 ¶¶ 152–153; Ex. 2010 ¶¶ 83–84, 88–90). Patent Owner argues that Petitioner's theories for how "one or more expected contexts" is disclosed in the combination of Kennewick and Ross either conflate the "identifying" of limitation 12b and the "scoring" of limitation 12c, or they are missing a step. PO Sur-reply 4–6.

We do not agree with Patent Owner's arguments. Kennewick's "previous contexts" are searched by comparison with keywords, criteria or parameters in the text combinations corresponding to a user's utterance, which in essence determines "matching contexts" which are then scored. Pet. 38–39; Ex. 1004 ¶¶ 144–145, 152–153, 166. Similarly, Ross compares recognized speech against contexts for previously invoked applications in the stack to determine partial or complete matches, which may then be scored per Kennewick. Pet. 39–40; Ex. 1005 ¶¶ 35, 37, 39, Fig. 4; Ex. 1002 ¶ 80. Thus, we do not agree with Patent Owner that Petitioner's theories conflate identifying matching contexts and scoring, or are missing a claimed step.

Accordingly, Petitioner has shown that the combination of Kennewick and Ross satisfies the ordering of steps in limitations 12b and 12c.

(c) Conclusion for Limitation 12b

We find that Petitioner has shown preponderant evidence that the combination of Kennewick and Ross discloses limitation 12b notwithstanding Patent Owner's arguments.

(iv) Limitation 12c: Scoring Identified Matching Contexts

Limitation 12c recites "scoring each of the identified matching contexts." Ex. 1001, 31:8.

Petitioner contends that Kennewick discloses limitation 12c. Pet. 42–43. Specifically, Petitioner contends that Kennewick discloses "identifying possible contexts that match a user's utterance 'by applying prior probabilities or fuzzy possibilities to keyword matching, user profile 110, and dialog history.'" *Id.* at 42 (citing Ex. 1004 ¶ 152). Petitioner further notes that Kennewick states "[b]ased on these probabilities or possibilities the possible contexts are scored and the top one or few are used for further processing." *Id.* (citing Ex. 1004 ¶¶ 30, 152, 153). Hence, Petitioner asserts that Kennewick discloses the claimed "**scoring each of the identified matching contexts**."

Other than the dispute addressed above regarding the order of performance of limitations 12b and 12c, Patent Owner does not dispute Petitioner's contentions for limitation 12c.

We find that Petitioner shows preponderant evidence that Kennewick discloses limitation 12c.

(v) Limitation 12d: Selecting Matching Context

Limitation 12d recites "selecting the matching context having a highest score to determine a most likely context for the utterance." Ex. 1001, 31:9–10.

Petitioner contends that Kennewick discloses limitation 12d. Pet. 43–44. Specifically, Petitioner asserts that "Kennewick discloses that 'the possible contexts are scored and the top one or few are used for further processing.'" *Id.* at 43 (citing Ex. 1004 ¶ 152). Petitioner further states that Kennewick "describes how '[t]he parser 118 uses a scoring system to determine the most[] likely context or domain for a user's question and/or command' and that '[b]ased on this scoring, the system 90 invokes the correct agent.'" *Id.* at 43–44 (citing Ex. 1004 ¶ 153). Petitioner contends that a POSITA "would have therefore understood and found it obvious that the matching context '**having a highest score**' would determine the '**most likely context.**'" *Id.* at 44. Petitioner asserts this is so, "first, because Kennewick discloses selecting only the context with the 'top' score, and second, because it would be quite sensible to select the context having a highest score as a mostly likely context even where 'the top…few are used for further processing.'" *Id.* (citing Ex. 1002 ¶ 85). Hence, Petitioner asserts that Kennewick discloses "**selecting the matching context having a highest score to determine a most likely context for the utterance**."

Patent Owner does not dispute Petitioner's contention that Kennewick discloses limitation 12d.

We find that Petitioner demonstrates preponderant evidence that Kennewick discloses limitation 12d.

(vi) Limitation 12e: Communication Request to Domain Agent

Limitation 12e recites "communicating a request to a domain agent configured to process requests in the most likely context for the utterance, the request formulated using at least one grammar expression entry in the context description grammar." Ex. 1001, 31:11–14.

Petitioner contends that Kennewick discloses limitation 12e. Pet. 45–46. Specifically, Petitioner contends that Kennewick discloses the part of limitation 12e reciting "**communicating a request to a domain agent configured to process requests in the most likely context for the utterance**." Pet. 45. Petitioner asserts that "Kennewick explains, for example, that '[b]oth system agents 150 and domain agents 156 receive questions and commands from the parser 118' and that '[a]fter selecting the agents 106, a properly formatted query and/or command that will be submitted to the agents 106 may be determined at 608.'" *Id.* (citing Ex. 1004 ¶¶ 91, 92, 185, 189; Ex. 1002 ¶ 87).

Petitioner further contends that Kennewick "discloses and renders obvious that the request communicated to a domain agent would be '**formulated using at least one grammar expression entry in the context description grammar**.'" Pet. 45. Petitioner asserts that "Kennewick discloses and renders obvious a context description grammar that includes one or more grammar expression entries." *Id.* at 46. Petitioner argues that "Kennewick refers to a 'regular grammar' that serves the same purpose of the 'context description grammar' in the '160 patent." *Id.* (citing Ex. 1004 ¶ 108; Ex. 1001, 16:46–54). Petitioner alleges that "Kennewick refers back to the 'regular grammar,' similarly disclosing 'formulat[ing] a question or command in the regular grammar used by agents.'" *Id.* (citing Ex. 1004

¶¶ 154, 189). Petitioner argues that "Kennewick, alone or in view of Ross, therefore discloses formulating a request to a domain agent '**using at least one grammar expression entry in the context description grammar**.'" *Id.* (citing Ex. 1002 ¶ 88). Petitioner contends that "because grammar expression entries are used when matching a transcription to determine a context and application to invoke, as taught by both Kennewick and Ross, a person of ordinary skill in the art would have understood that the resulting request communicated to the domain agent would have been formulated 'using at least one grammar expression entry in the context description grammar.'" *Id.* (citing Ex. 1002 ¶ 88).

Patent Owner does not dispute Petitioner's contentions concerning limitation 12e.

We determine that Petitioner demonstrates preponderant evidence that Kennewick and Ross disclose limitation 12e.

IV. CONCLUSION

We determine that Petitioner has shown by a preponderance of the evidence that a POSITA would have had reason to combine Kennewick and Ross with a reasonable expectation of success, and that each limitation of claim 12 is taught by the combination notwithstanding Patent Owner's arguments. Accordingly, we determine that Petitioner has demonstrated that claim 12 of the '160 patent is unpatentable as obvious over the combination of Kennewick and Ross.

V. ORDER

For the foregoing reasons, it is

ORDERED that pursuant to 35 U.S.C. § 318(a), claim 12 of the '160 patent has been shown to be unpatentable; and

FURTHER ORDERED that any party seeking judicial review must comply with the notice and service requirements of 37 C.F.R. § 90.2.[4]

In summary:

Claim(s)	35 U.S.C. §	Reference(s)/Basis	Claim(s) Shown Unpatentable	Claim(s) Not shown Unpatentable
12	103	Kennewick, Ross	12	

[4] Should Patent Owner wish to pursue amendment of the challenged claims in a reissue or reexamination proceeding subsequent to the issuance of this Decision, we draw Patent Owner's attention to the April 2019 Notice Regarding Options for Amendments by Patent Owner Through Reissue or Reexamination During a Pending AIA Trial Proceeding. *See* 84 Fed. Reg. 16,654 (Apr. 22, 2019). If Patent Owner chooses to file a reissue application or a request for reexamination of the challenged patent, we remind Patent Owner of its continuing obligation to notify the Board of any such related matters in updated mandatory notices. *See* 37 C.F.R. § 42.8(a)(3), (b)(2).

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