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UTILITY PATENT APPLICATION TRANSMITTAL

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

Attorney Docket No.	090611-0356510
First Inventor	ROBERT A. KENNEWICK
Title	DYNAMIC SPEECH SHARPENING
Express Mail Label No.	

112935 U.S. PTO
11/513269

083106

APPLICATION ELEMENTS

See MPEP chapter 600 concerning utility patent application contents.

1. ☒ **Fee Transmittal Form** (e.g., PTO/SB/17)
(Submit an original and a duplicate for fee processing)
2. ☒ **Applicant claims small entity status.**
See 37 CFR 1.27.
3. ☒ **Specification** [Total Pages 27]
Both the claims and abstract must start on a new page
(For information on the preferred arrangement, see MPEP 608.01(a))
4. ☒ **Drawing(s)** (35 U.S.C. 113) [Total Sheets 3]
5. **Oath or Declaration** [Total Sheets _____]
a. ☐ Newly executed (original or copy)
b. ☐ A 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. ☒ **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, items a. - c. are required)
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
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Alexandria VA 22313-1450

ACCOMPANYING APPLICATION PARTS

9. ☐ **Assignment Papers** (cover sheet & document(s))
Name of Assignee _____
10. ☐ **37 CFR 3.73(b) Statement** ☐ **Power of Attorney**
(when there is an assignee)
11. ☐ **English Translation Document** (if applicable)
12. ☐ **Information Disclosure Statement** (PTO/SB/08 or PTO-1449)
☐ Copies of foreign patent documents, publications, & other information
13. ☐ **Preliminary Amendment**
14. ☒ **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:** _____

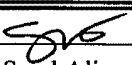
18. If a CONTINUING APPLICATION, check appropriate box, and supply the requisite information below and in the first sentence of the specification following the title, or in an Application Data Sheet under 37 CFR 1.76:

☐ Continuation ☐ Divisional ☐ Continuation-in-part (CIP) of prior application No.: _____
Prior application information: Examiner _____ Art Unit: _____

19. CORRESPONDENCE ADDRESS

☒ The address associated with Customer Number: 00909 OR ☐ Correspondence address below

Name					
Address					
City	State	Zip Code			
Country	Telephone	Email			

Signature		Date	August 31, 2006
Name (Print/Type)	Syed Ali	Registration No. (Attorney/Agent)	58,780

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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FEE TRANSMITTAL
For FY 2006☒ Applicant claims small entity status. See 37 CFR 1.27**TOTAL AMOUNT OF PAYMENT** (\$) 1,425.00**Complete if Known**

Application Number	TBD
Filing Date	August 31, 2006
First Named Inventor	ROBERT A. KENNEWICK
Examiner Name	
Art Unit	
Attorney Docket No.	090611-0356510

METHOD OF PAYMENT (check all that apply)

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

☒ 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)

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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.**FEE CALCULATION** (All the fees below are due upon filing or may be subject to a surcharge.)**1. BASIC FILING, SEARCH, AND EXAMINATION FEES**

Application Type	FILING FEES		SEARCH FEES		EXAMINATION FEES		Fees Paid (\$)
	Fee (\$)	Small Entity Fee (\$)	Fee (\$)	Small Entity Fee (\$)	Fee (\$)	Small Entity Fee (\$)	
Utility	300	150	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**

Each claim over 20 (including Reissues)

Fee (\$)	Small Entity Fee (\$)
50	25
200	100
360	180

Each independent claim over 3 (including Reissues)

Multiple dependent claims

Total Claims 45 - 20 or HP = 25 x 25.00 = 625.00

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

Indep. Claims 6 - 3 or HP = 3 x 100.00 = 300.00

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

Multiple Dependent Claims

Fee (\$) Fee Paid (\$)

3. APPLICATION SIZE FEE

If the specification and drawings exceed 100 sheets of paper (excluding electronically filed sequence or computer listings under 37 CFR 1.52(e)), 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 30 - 100 = -70 / 50 = 1 (round up to a whole number) x 125.00 = 0.00

4. OTHER FEE(S)

Non-English Specification, \$130 fee (no small entity discount)

Other (e.g., late filing surcharge): _____

Fees Paid (\$)

SUBMITTED BY

Signature		Registration No. (Attorney/Agent)	58,780	Telephone	703.770.7541
Name (Print/Type)	Syed Ali	Date	August 31, 2006		

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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DYNAMIC SPEECH SHARPENING

CROSS REFERENCE TO RELATED APPLICATIONS

[001] This application claims the benefit of provisional U.S. Patent Application Serial No. 60/712,412, entitled "Dynamic Speech Sharpening," filed August 31, 2005, and which is hereby incorporated by reference in its entirety.

[002] This application is related to the following co-pending applications, which are hereby incorporated by reference in their entirety: "Systems and Methods for Responding to Natural Language Speech Utterance," Ser. No. 10/452,147, filed June 3, 2003, and published as US Patent Application Publication No. US 2004/0044516; "Mobile Systems and Methods for Responding to Natural Language Speech Utterance," Ser. No. 10/618,633, filed July 15, 2003, and published as US Patent Application Publication No. US 2004/0193420; "Systems and Methods for Responding to Natural Language Speech Utterance," Ser. No. 11/197,504, filed August 5, 2005; "System and Method of Supporting Adaptive Misrecognition in Conversational Speech," Ser. No. 11/200,164, filed August 10, 2005; and "Mobile Systems and Methods of Supporting Natural Language Human-Machine Interactions," Ser. No. 11/212,693, filed August 29, 2005.

FIELD OF THE INVENTION

[003] The invention is related generally to automated speech interpretation, and in particular, to enhancing the accuracy and performance of speech interpretation engines.

BACKGROUND OF THE INVENTION

[004] The field of automated speech interpretation is in increasingly higher demand. One use of automated speech interpretation is to provide voice requests to electronic devices. This may enable a user to simply speak to an electronic device rather than manually inputting requests, or other information, through pressing buttons, uploading information, or by other request input methods. Controlling various electronic devices through speech may enable the user to use the electronic devices more efficiently.

[005] However, existing technology in the field of automated speech interpretation, such as standard speech engines, automatic speech recognition (ASR), and other

systems for interpreting speech, are unable to process a speech signal in an efficient manner, often constructing large grammars that include a large number of items, nodes, and transitions, which is a concern particularly for large-list recognition for embedded applications. If the grammar for an embedded application grows too much, it may not fit within the constrained space of an embedded application. With limited CPU power, response time and performance is easily affected due to the significant time needed to compile and load the grammar. Response time is further degraded because the speech engine has to parse through a large number of transition states to come up with a recognition result. Even when the speech engine is able recognize a word, the results are often unreliable because large grammars introduce greater risk of confusion between items as the size of the grammar increases. Existing techniques focus on reducing the size of a grammar tree by removing command variants or criteria items, but this approach strips functionality from the application.

[006] In addition to the performance problems associated with speech recognition engines that employ large word grammars, existing speech processing engines are unable to interpret natural human speech with a suitable accuracy to sufficiently control some electronic devices. In particular, speech interpretation engines still have substantial problems with accuracy and interpreting words that are not defined in a predetermined vocabulary or grammar context. Poor quality microphones, extraneous noises, unclear or grammatically incorrect speech by the user, or an accent of the user may also cause shortcomings in accuracy, such as when a particular sound cannot be mapped to a word in the grammar.

[007] In light of these and other problems, there is a need for enhanced automated speech interpretation that may interpret natural human speech with an augmented accuracy.

SUMMARY OF THE INVENTION

[008] According to one aspect of the invention, a system for enhancing automated speech interpretation is provided. The system may include a set of techniques for use in a speech-to-text engine to enhance accuracy and performance, for example, by reducing the search space of the speech engine. The problems with large-list

recognition for embedded applications may also be improved by using phonetic dictation, which may recognize a phoneme string by disregarding the notion of words. The system may also use one or more post-processing techniques to sharpen an output of a preliminary speech interpretation made by a speech engine. The system may be modeled at least partially after one or more speech pattern recognition techniques used by humans, such as interpreting speech using words, word sequences, word combinations, word positions, context, phonetic similarities between two or more words, parts of speech, or other techniques.

[009] In one implementation of the invention, the system may receive a verbalization made by a user, where a speech engine may receive the verbalization. The speech engine may output information relating to a plurality of preliminary interpretations of the verbalization, where the plurality of preliminary interpretations represent a set of best guesses at the user verbalization. According to one aspect of the invention, the performance of the speech engine may be improved by using phoneme recognition. Phoneme recognition may disregard the notion of words, instead interpreting a verbalization as a series of phonemes, which may provide out-of-vocabulary (OOV) capabilities, such as when a user misspeaks or an electronic capture devices drops part of a speech signal, or for large-list applications, such as city and street names or song titles, for example. Phoneme recognition may be based on any suitable acoustic grammar that maps a speech signal into a phonemic representation. For example, the English language may be broken down into a detailed grammar of the phonotactic rules of the English language. Portions of a word may be represented by a syllable, which may be further broken down into core components of an onset, a nucleus, and a coda, which may be further broken down into sub-categories. Various different acoustic grammars may be formed as trees with various branches representing many different syllables forming a speech signal.

[010] According to another aspect of the invention, the performance of the speech engine and the phonemic recognition may be improved by pruning the search space used by the speech engine using a common phonetic marker. In one implementation, the acoustic grammar may be represented entirely by a loop of phonemes. In another implementation, the speech engine may reduce the search space by reducing the

number of transitions in a grammar tree, thereby speeding up the process of compiling, loading, and executing the speech engine. For example, the phoneme loop may include a linking element between transitions. This may reduce the number of grammar transitions, such that grammar paths merge after a first transition and diverge after the linking element. In one implementation of the invention, a common acoustic element that is part of a speech signal may be used as the linking element. In one implementation of the invention, the acoustic element may be one that is very likely to be triggered even if it is unpronounced. For example, a *schwa* in the English language may be used as the linking element because *schwa* represents an unstressed, central vowel that is likely to be spoken even if unintended. Those skilled in the art will appreciate that acoustic models for different languages may use other frequently elided phonemes as linking elements to reduce the search space used by the speech engine.

[011] The speech engine may generate a plurality of preliminary interpretations representing a set of best guesses at the user verbalization. The preliminary interpretations may be stored in a matrix, array, or another form, and may be provided to an interpretation sharpening module to determine a probable interpretation of a verbalization made by a user by applying heuristic policies against the preliminary interpretation to identify dominant words and/or phrases. According to various aspects of the invention, the interpretation sharpening module may include a policy module that may manage and/or provide one or more policies that enable the sharpening module to generate a plurality of probable interpretations of the verbalization made by the user. For example, according to one aspect of the invention, the plurality of preliminary interpretations may be applied against one or more policies to generate a set of hypotheses as to a candidate recognition. Each hypothesis may be reanalyzed to generate an interpretation score that may relate to a likelihood of the probable interpretation being a correct interpretation of the verbalization, and the preliminary interpretation corresponding to the highest (or lowest) interpretation score may then be designated as a probable interpretation of the verbalization. The designated probable interpretation may be stored and used for augmenting the policies to improve accuracy.

[012] According to one aspect of the invention, the policy module may include one or more agents that represent domains of knowledge. The agents may compete using a

weighted model to revise a preliminary interpretation by determining context and intent. Relevant substitution of suspect words and phrases may be based on phonetic similarities or domain appropriateness. A domain agent may include one or more domain parameters for determining a probable interpretation from a preliminary interpretation. For example, domain parameters may include a policy vocabulary, a word position in the verbalization, a word combination, a sentence structure, or other parameters. A domain agent may include a parameter weighting scheme that may weight individual parameters according to one or more weighting factors, such as, a frequency of use, a difficulty to understand, or other factors.

[013] According to one aspect of the invention, the domain agents may revise a preliminary interpretation into a probable interpretation using phonetic fuzzy matching (PFM). In one implementation of the invention, the speech engine may output a phoneme stream that is applied against a model of phoneme feature similarities, drawn from domain agents, to identify a closest phonetic match using a multi-pass method. Domain agents may be loaded and prioritized into an M-Tree, which accounts for the possibility of the speech engine dropping or adding phonemes. An M-Tree may be an index structure that resolves similarity queries between phonemes using a closest-distance metric based on relative weightings of phoneme misrecognition, phoneme addition, and phoneme deletion. The M-Tree may be updated using an adaptive misrecognition model. For example, information about a verbalization and its components, as well as a probability that the probable interpretation was correct, may be stored and used for adapting the policy module for the user.

[014] In one implementation of the invention, the domain agents in the policy module may include one or more profile agents that may manage and/or provide one or more profile policies for revising a preliminary interpretation of a phoneme stream. For example, a profile agent may correspond to a user and may include one or more profile parameters tailored to the user. The profile agent may be used as a base policy to interpret any verbalizations made by the user. In other implementations, a profile agent may correspond to a particular language, a regional accent, or other profiles for interpreting a user verbalization. The profile agents may be augmented to enable the system to provide more accurate interpretations of verbalizations made by the user.

The augmentation may include a user augmentation, such as providing additional vocabulary (e.g., names in an address book), one or more personalized pronunciations or other pronunciation information, or other user provided augmentations. The augmentation may also include a non-user provided augmentation, such as updates generated by a third party (e.g., a commercial administration and/or maintenance entity), or other non-user provided augmentations. The augmentation may be automated, such as adjusting a profile parameter-weighting scheme through an adaptive misrecognition model, as discussed above.

[015] In another implementation of the invention, the domain agents in the policy module may include one or more context agents that may manage and/or provide one or more context policies for revising a preliminary interpretation of a phoneme stream. For example, a context agent may correspond to a context, such as song titles, city and street names, movie titles, finance, or other contexts. A context agent may include one or more context parameters that may be tailored to a verbalization context. The context policy may enhance an ability of the system related to interpreting verbalizations made by the user in the verbalization context corresponding to the context agent. The context agents may be augmented to enable the system to provide more accurate interpretations of verbalizations made in a verbalization context corresponding to the context agent. The augmentation may include a user provided augmentation, a non-user provided augmentation, an automated augmentation, or other augmentations. The augmentation may be automated, such as adjusting a profile parameter-weighting scheme through an adaptive misrecognition model, as discussed above.

[016] According to various implementations of the invention, the policy module may determine which profile agents and/or which context agents to use through a set of heuristics provided in a context-tracking module. In one implementation, the context-tracking module may use phonetic fuzzy matching to track a series of verbalizations by the user to identify a verbalization context. The context-tracking module may utilize one or more M-Trees to track the series of verbalizations and determine a closest phonetic match. The context-tracking module may track one or more past verbalization contexts for the series of verbalizations, one or more current verbalization contexts for the series of verbalizations, and/or make predictions regarding one or more future verbalization

contexts for the series of verbalizations. The policy module may utilize information about the verbalization context of the series of verbalizations generated by the context tracking module to manage and/or provide one or more profile and/or context agents.

[017] According to one aspect of the invention, the system may include an interpretation history analysis module that may enable the system to augment one or more domain agents based on an analysis of past interpretations related to previously interpreted verbalizations. The augmentations enabled by the interpretation history analysis module may include a user augmentation, a third-party augmentation, an automated augmentation, or other augmentations. The interpretation history analysis module may include an information storage module that may store interpretation information related to past verbalizations, such as one or more preliminary interpretations associated with a past verbalization, one or more interpretation scores associated with a past verbalization, one or more probable interpretations associated with a past verbalization, whether or not a past verbalization was interpreted correctly, or other information. A frequency module may be included in the interpretation history module, and the frequency module may use some or all of the information stored in the information storage module to generate one or more frequencies related to one or more past verbalizations. For example, the frequency module may calculate a frequency of word usage, word combinations, phonetic homonyms, interpretation errors for a particular verbalization, or other frequencies.

[018] The Information generated and/or stored by the interpretation history analysis module may be used to augment the profile and/or context agents in order to enhance the accuracy of subsequent interpretations. In some implementations, an adaptive misrecognition model may use one or more generated frequencies to augment one or more agents. For example, one or more parameters and/or weighting schemes of an agent or phonetic model may be augmented based on a frequency generated by the interpretation history analysis module. Other augmentations using information stored and/or generated by the interpretation history analysis module may be made, and the system may include a policy agent handler that may augment, update, remove, and/or provide one or more domain agents to the system. A domain agent may comprise a profile or context agent, and the policy agent handler may be controlled, directly or

indirectly by a third party (e.g. a commercial entity, etc.). The policy agent handler may augment, update, remove, and/or provide domain agents to the system as part of a commercial agreement, such as a licensing agreement, a subscription agreement, a maintenance agreement, or other agreements.

[019] Other objects and advantages of the invention will be apparent to those skilled in the art based on the following detailed description and accompanying drawings.

BRIEF DESCRIPTION OF THE DRAWINGS

[020] Fig. 1 illustrates an exemplary system for enhancing automated speech interpretation according to one implementation of the invention.

[021] Fig. 2 illustrates an exemplary grammar tree for enhancing the performance of a speech engine according to one implementation of the invention.

[022] Fig. 3 illustrates an exemplary flow chart of a method for enhancing automated speech interpretation according to one implementation of the invention.

DETAILED DESCRIPTION

[023] Fig. 1 illustrates an exemplary system for enhancing automated speech interpretation according to one implementation of the invention. A speech-to-text processing engine 112 may receive a user verbalization, and speech engine 112 may generate one or more preliminary interpretations of the user verbalization. The preliminary interpretations may represent a set of best guesses as to the user verbalization arranged in any predetermined form or data structure, such as an array, a matrix, or other forms. In one implementation of the invention, speech engine 112 may generate the preliminary interpretations by performing phonetic dictation to recognize a stream of phonemes, instead of a stream of words. Phonemic recognition provides several benefits, particularly in the embedded space, such as offering out-of-vocabulary (OOV) capabilities, improving processing performance by reducing the size of a grammar, and eliminating the need to train Statistic Language Models (SLMs). Those skilled in the art will recognize other advantages of phonemic recognition.

[024] Speech engine 112 may apply the phoneme stream against one or more acoustic grammars that reliably map a speech signal to a phonemic representation in

order to generate the plurality of preliminary interpretations. Characteristics of a speech signal may be mapped to a phonemic representation to construct a suitable acoustic grammar, and various acoustic grammars may be included in speech engine 112 to generate one or more preliminary interpretations according to the various acoustic grammars. For example, the English language may be mapped into a detailed acoustic grammar representing the phonotactic rules of English, where words may be divided into syllables, which may further be divided into core components of an onset, a nucleus, and a coda, which may be further broken down into one or more sub-categories.

[025] Once the phonotactic rules of a speech signal have been identified, a detailed acoustic grammar tree may be constructed that accounts for the nuances of the speech signal. The acoustic grammar may include a loop of phonemes, or the phoneme loop may include a linking element to reduce a size of a search space associated with the grammar. Using the English language as an example, the grammar tree may include various branches representing English language syllables. The speech engine may traverse one or more grammar trees to generate one or more preliminary interpretations of a phoneme stream as a series of syllables that map to a word or phrase. By using phonemic recognition rather than word recognition, the size of the grammar can be reduced, which reduces the amount of time required to compile, load, and execute speech interpretation. Moreover, because the grammar maintains a high level of phonotactic constraints and therefore a large number of syllables, speech engine 112 may be very precise in generating phonemic representations of human verbalizations.

[026] An acoustic grammar used by speech engine 112 may be further optimized to reduce compile time, load time, and execution time by reducing the size of a search space associated with the acoustic grammar. Referring now to Fig. 2, a traditional grammar tree 120 is compared to an exemplary grammar tree according to one aspect of the invention to demonstrate the performance enhancements of speech engine 112. In traditional speech processing engines, nodes in a grammar tree 210 tend to represent words, or large-list applications may be supported provided through a grammar tree 210 where the nodes represent items in the large-list. This requires the speech engine to parse through a large number of transition states to come up with a

recognition result, which degrades response time. An example of this is seen in the following grammar structure:

[027] "<street name> <city name>" → e.g., "NE 24th Street Bellevue"

[028] In the above example, a large list of street names is followed by a large list of city names. Assuming three elements in the list of street names, and three elements in the list of city names, this results in twenty-one transitions, which may be represented by traditional grammar tree 210. Every end-node of the first list is followed by all entries in the second list, potentially leading to very large grammars because most real-world large-list applications are likely to include much more than three list items. For example, a city may have hundreds or thousands of street names, and there may be hundreds or thousands of city names. Moreover, every element in the second segment of traditional grammar tree 210 is repeated, once for each first segment, which introduces redundancy.

[029] According to an aspect of the invention, the problems with traditional grammar trees may be resolved by using phonemic acoustic grammars instead of large-lists. The grammar may further be improved by including linking elements to reduce the number of transition states in the grammar. Thus, a grammar tree with a linking element 220 will merge after a first segment and then spread out again at a second segment, where the segments may represent a phoneme in an acoustic grammar, as discussed above. For example, assume a two-syllable word in an acoustic grammar consisting of three phonemes, which is able to reduce the number of transitions from twenty-one in a traditional grammar tree 210 to twelve in a grammar tree with a linking element 220. Two syllables and three phonemes are chosen to show the reduction in search space in a grammar tree with a linking element 220 as opposed to a corresponding traditional grammar tree 210, although a real-world acoustic grammar modeled after a language is likely to have a maximum of roughly fifty phonemes. Moreover, the search space may be further reduced by restricting available transitions based on phonotactic constraints for an acoustic model.

[030] Using the approach described in Fig. 2, adding a linking element to an acoustic grammar may reduce both grammar size and response time. Part of a speech signal may be mapped to the linking element in order to maintain the phonotactic rules of the

acoustic grammar. The linking element may be an acoustic element that is likely to be triggered even if unpronounced. For example, a *schwa* represents an unstressed, central vowel in the English language (e.g., the first and last sound in the word “arena” is *schwa*). The phoneme *schwa* is an ideal linking element because of how it is represented in a frequency spectrum. That is, *schwa* is a brief sound and when a person opens their mouth to speak, there is a strong likelihood of passing through the frequencies of *schwa* even if unintended. Those skilled in the art will recognize that this approach may be extended to acoustic models of speech signals for other languages by using frequently elided phonemes as linking elements to reduce the search space of an acoustic grammar.

[031] Referring again to Fig. 1, speech engine 112 may receive a user verbalization and process the verbalization into a plurality of preliminary interpretations using the techniques described above. That is, the verbalization may be interpreted as a series of phonemes, and the series of phonemes may be mapped to one or more preliminary interpretations by traversing one or more acoustic grammars that are modeled after grammar 220 of Fig. 2. The plurality of preliminary interpretations may take the form of words, parts of words, phrases, utterances, or a combination thereof, and the plurality of preliminary interpretations may be arranged as a matrix, an array, or in another form. The plurality of preliminary interpretations are then passed to a speech sharpening engine 110 for deducing a most probable interpretation of the verbalization.

[032] According to various aspects of the invention, speech sharpening engine 110 may include an interpretation sharpening module 116, a policy module 114, an interpretation history analysis module 118, and a policy agent handler 120. The plurality of preliminary interpretations may be received by interpretation sharpening module 116, which forwards the preliminary interpretations to policy module 114 for further processing. Policy module 114 may include one or more context agents 126, one or more profile agents 128, and a context tracking module 130 that collectively revise the plurality of preliminary interpretations into a set of hypotheses that represent candidate recognitions of the verbalization. Policy module 114 may assign each hypothesis an interpretation score, and interpretation sharpening module 116 may designate the hypothesis with the highest (or lowest) interpretation score as a probable interpretation.

[033] According to one aspect of the invention, policy module 114 may include one or more context agents 126. Context agents 126 may represent domains of knowledge corresponding to a given context, such as song titles, city and street names, finance, movies, or other contexts. Context agents 126 may use context objects and associated dynamic languages to represent a corresponding context. Policy module 114 may also include one or more profile agents 128. Profile agents 128 may represent domains of knowledge corresponding to a given profile, such as a specific user, language, accent, or other profiles. Profile agents 128 may use profile objects and dynamic languages to represent a corresponding profile. Dynamic languages for context agents 126 or profile agents 128 may specify vocabularies, word combinations, phrases, sentence structures, criteria, and priority weightings for any given context or profile, respectively. The priority weightings may weight individual parameters according to one or more weighting factors, such as assigning a weight according to a frequency of use, a difficulty to understand, or other factors. Policy module 114 may also include a context-tracking module 130. Context tracking module 130 may track a verbalization context of a consecutive series of verbalizations. Context tracking module 130 may utilize one or more conversation trees to track the series of verbalizations. Context tracking sub-module 214 may track one or more past or current verbalization contexts of the series of verbalizations, and/or may make predictions regarding one or more future verbalization contexts of the series of verbalizations. Policy module 114 may utilize information about the verbalization context, generated by context tracking module 130, to generate one or more sharpened interpretations and corresponding interpretation scores.

[034] In some implementations, policy module 114 may use context tracking module 130 to apply objects from one or more context agents 126 and/or profile agents 128 to the preliminary interpretations provided by speech engine 112. The various agents may compete with each other using a set of heuristics in a phonetic fuzzy matcher, where an intent or context of the user may be identified based on the set of heuristics about how a request may be phrased in a given domain. A closest phonetic match may be identified for suspect words and/or phrases among the plurality of preliminary interpretations.

[035] The phonetic fuzzy matcher may include an M-Tree that is populated with context objects, profile objects, and/or dynamic language data from one or more of context

agents 126 and/or profile agents 128. M-Trees are known to those skilled in the art. The M-Tree may assign relative priority weights to the context objects, profile objects, and/or dynamic language data in order to account for the possibility of misrecognized phonemes, extraneous phonemes, or erroneously deleted phonemes. A closest distance metric associated with the M-Tree may be used given the relative weightings of phoneme misrecognition, phoneme addition, and phoneme deletion for various contexts and/or profiles.

[036] According to one aspect of the invention, one or more passes may be taken over the plurality of preliminary interpretations to identify dominant words and/or phrases among the plurality of preliminary interpretations. Using the M-Tree weighted model, one or more candidate interpretations may be made based on relevant substitution of suspect words and/or phrases based on phonetic similarities and/or domain appropriateness. For example, if a set of dominant words appear to be a movie name, a candidate interpretation will substitute the relevant words and/or phrases to generate a candidate interpretation about movies. After a set of candidate interpretations have been generated, the candidate interpretations are analyzed using the M-Tree weighted model. With the relevant domains constrained by the candidate interpretations, a confidence or interpretation score may be assigned to each candidate interpretation, with the interpretation score representing a likelihood that a particular candidate interpretation is a correct interpretation of the verbalization. The candidate interpretations may then be returned to interpretation sharpening module 116, and interpretation sharpening module 116 may select a candidate interpretation with a highest (or lowest) interpretation score as a probable interpretation of the verbalization.

[037] According to various implementations of the invention, speech sharpening engine 110 may include an interpretation history analysis module 118. Interpretation history analysis module 118 may include an information storage module 122 a frequency module 124. Information storage module 122 may store information related to verbalizations, including components of verbalizations, preliminary interpretations, dominant words and/or phrases, candidate interpretations, probable interpretations, and/or interpretation scores associated with verbalizations, as well as whether or not a verbalization was interpreted correctly, or other information. Interpretation history

analysis module 118 may also include a frequency module 124. Frequency module 124 may use some or all of the information stored in information storage module 122 to generate one or more frequencies related to one or more past verbalizations. For example, frequency module 124 may calculate a word usage frequency, a word combination frequency, a frequency related to a set of verbalizations that are phonetically similar but have distinct meanings, an interpretation error frequency for a particular verbalization, or other frequencies.

[038] Information stored and/or generated by interpretation history analysis module 118 may be used to augment speech sharpening engine 110. In some implementations, the information may be used to adjust various weights used in phonetic models, such as context agents 126 or profile agents 128, as well as adapting the relative weights in the M-Tree in context tracking module 130 to enhance accuracy for subsequent verbalizations. In another implementation, the stored information may be sent to a third-party or commercial entity for analyzing the data and developing new domain agents or further improving the accuracy of speech sharpening engine 110. For example, one or more parameters and/or weighting schemes of an agent may be augmented based on a frequency generated by interpretation history analysis module 118. Other augmentations related to information stored on and/or generated by interpretation history analysis module 118 may be made. Speech sharpening engine 110 may also include a policy agent handler 120 that may augment, update, remove, and/or provide one or more domain agents to policy module 114. A domain agent may include one or more new, modified, or updated context agents 126 and/or profile agents 128. Policy agent handler 120 may also augment or update the M-Tree in context tracking module 130 to adjustments in priority weighting schemes or phonetic models. Policy agent handler 120 may be controlled, directly or indirectly, by a third party, such as a commercial entity, and domain agents may be augmented, updated, removed, and/or provided by policy agent handler 120 as part of a commercial agreement, licensing agreement, subscription agreement, maintenance agreement, or other agreement.

[039] Referring to Fig. 3, a flow chart demonstrating an exemplary method for enhancing the performance and accuracy of speech interpretation is provided. The

method may begin by receiving a user verbalization at an operation 312. The received user verbalization may be electronically captured at operation 312, such as by a microphone or other electronic audio capture device. The electronically captured verbalization may be provided to a speech interpretation engine, such as speech engine 112 in Fig. 1.

[040] The speech interpretation may then generate one or more preliminary interpretations of the received verbalization at an operation 314. According to one implementation of the invention, the plurality of preliminary interpretations may be generated using phonetic dictation, grammar trees with linking elements, or any combination thereof to improve performance and enhance accuracy. Phonetic dictation and reducing a search space of a grammar tree by including linking elements is discussed in greater detail above. The preliminary interpretations may be arranged in any predetermined form, such as an array, a matrix, or other forms.

[041] In an operation 320, the preliminary interpretations may be provided to a speech sharpening engine. The speech sharpening engine may take one or more passes over the plurality of preliminary interpretations to identify dominant words and/or phrases in operation 320. This information may then be used to generate one or more candidate interpretations. The candidate interpretations may be based on various domain agents, such as context agents and/or profile agents, which may be organized as a weighted domain model, such as an M-Tree. For example, if a set of dominant words sound like a movie name, apply policies operation 320 may generate a candidate interpretation that substitutes relevant words and/or phrases based on a domain agent populated with movie titles. Additional passes may be made over the candidate interpretations, which may be constrained by domain information associated with the candidate interpretations, to thereby generate a confidence score or interpretation score for each candidate interpretation. The interpretation score may represent a likelihood that a particular candidate interpretation is a correct interpretation of the verbalization received in operation 312. The operation of apply policies 320 is described in greater detail above in reference to Fig. 1.

[042] The candidate interpretations and corresponding interpretation scores may then be analyzed to determine a probable interpretation in an operation 322. In one

implementation of the invention, a candidate interpretation with a highest (or lowest) score may be designated as a probable interpretation. The probable interpretation may then be output in an operation 324, such as for use in a voice-activated vehicular navigation system, a voice-controlled server or desktop computer, or other electronic device that can be controlled using voice commands.

[043] Information relating to the verbalization and the interpretations of the verbalization may be provided in a store interpretation operation 325. Store interpretation operation 324 may store interpretation information related to verbalizations, such as components of verbalizations, preliminary interpretations, dominant words and/or phrases, candidate interpretations, probable interpretations, and/or interpretation scores associated with verbalizations, as well as whether or not a verbalization was interpreted correctly, or other information. In some implementations of the invention, some or all of the interpretation information stored at store interpretation operation 324 may be used to determine one or more frequencies at a determine frequencies operation 326. The frequencies calculated at determine frequencies operation 326 may include one or more frequencies related to past verbalizations, such as, a word usage frequency, a word combination frequency, a frequency related to a set of verbalizations that are phonetically similar but have distinct meanings, an interpretation error frequency for a particular verbalization, or other frequencies. Determine frequencies operation 326 may be performed by interpretation history analysis module 118.

[044] In various implementations, a decision may be made whether to augment a speech sharpening engine in an augmentation decision operation 328. The decision concerning system augmentation may be based at least in part on information generated at determine frequencies block 326, such as one or more frequencies, or other information. If it is decided that no augmentation is needed, no further action is taken until another verbalization is captured, and the method ends. In some instances, decision operation 328 may determine that augmentation may be made and control passes to an augment system operation 330. Augment system operation 330 may include making an augmentation to a speech sharpening engine. For example, one or more domain agents may be augmented to reflect probabilities of an interpretation

being a correct interpretation of a verbalization, to update a user profile, or other augmentation. Dynamic languages associated with context agents and/or profile agents may be augmented, or parameters weights may be augmented to enhance accuracy when interpreting subsequent verbalizations. For example, an adaptive misrecognition technique may adjust the various weights in a phonetic model or update similarity weights for regional accents, or other augmentations may be made. In parallel to augment system operation 330, new agent policies may be received in an operation 332. For example, a third party or commercial entity may redesign or modify various domain agents, new domain agents may be developed and installed as plug-ins, domain agents that are unreliable may be removed, or other augmentations or modifications may be made. Thus, the method continually refines the domain agents and the weighting of various parameters in order to refine the accuracy of the speech sharpening engine for subsequent verbalizations.

[045] The above disclosure has been described in terms of specific exemplary aspects, implementations, and embodiments of the invention. However, those skilled in the art will recognize various changes and modifications that may be made without departing from the scope and spirit of the invention. For example, references throughout the specification to “one implementation,” “one aspect,” “an implementation,” or “an aspect” may indicate that a particular feature, structure, or characteristic is included in at least one implementation. However, the particular features, structures, or characteristics may be combined in any suitable manner in one or more implementations. Therefore, the specification and drawings are to be regarded as exemplary only, and the scope of the invention is to be determined solely by the appended claims.

CLAIMS

What is claimed is:

1. A computer-implemented method for interpreting speech, the method comprising:
receiving a user verbalization;
parsing the verbalization into a plurality of phonemes; and
generating at least one interpretation of the verbalization based on the plurality of phonemes.
2. The method of claim 1, wherein generating the at least one preliminary interpretation includes traversing an acoustic grammar based on the plurality of phonemes.
3. The method of claim 2, wherein the acoustic grammar is a phonemic representation of a speech signal.
4. The method of claim 3, wherein the acoustic grammar includes a linking element between segments, the linking element being an acoustic element in the speech signal.
5. The method of claim 4, wherein the acoustic element is a phoneme representing an unstressed vowel.
6. The method of claim 1, further comprising:
revising the at least one interpretation, wherein the revising includes generating a plurality of candidate interpretations of the verbalization;
assigning an interpretation score to each candidate interpretation; and
selecting a candidate interpretation with a highest interpretation score as a probable interpretation of the verbalization.

7. The method of claim 6, wherein revising the at least one interpretation includes:
applying the at least one interpretation against at least one domain agent;
identifying suspect words and/or phrases in the at least one interpretation;
identifying a closest phonetic match for the suspect words and/or phrases based on a relative weighting of parameters in at least one domain associated with the at least one domain agent; and
substituting the closest phonetic match for the suspect words and/or phrases to generate a candidate interpretation.
8. The method of claim 7, wherein the closest phonetic match is stored in an M-Tree, and wherein identifying the closest phonetic match includes using a closest-distance metric associated with the M-Tree.
9. The method of claim 7, wherein the parameters include at least one of a context of the verbalization, a verbalization criteria, a history of user verbalizations, a user profile, or domain specific information.
10. The method of claim 7, further comprising adjusting the relative weighting of parameters in response to the selection of a probable interpretation of the verbalization.
11. A method for sharpening a preliminary interpretation of a user verbalization, the preliminary interpretation generated by a speech interpretation engine, the method comprising:
revising the preliminary interpretation, wherein the revising includes generating a plurality of candidate interpretations of the verbalization;
assigning an interpretation score to each candidate interpretation; and
selecting a candidate interpretation with a highest interpretation score as a probable interpretation of the verbalization.

12. The method of claim 11, wherein revising the preliminary interpretation includes:
applying the preliminary interpretation against at least one domain agent;
identifying suspect words and/or phrases in the preliminary interpretation;
identifying a closest phonetic match for the suspect words and/or phrases based on a relative weighting of parameters in at least one domain associated with the at least one domain agent; and
substituting the closest phonetic match for the suspect words and/or phrases to generate a candidate interpretation.
13. The method of claim 12, wherein the closest phonetic match is stored in an M-Tree, and wherein identifying the closest phonetic match includes using a closest-distance metric associated with the M-Tree.
14. The method of claim 12, wherein the parameters include at least one of a context of the verbalization, a verbalization criteria, a history of user verbalizations, a user profile, or domain specific information.
15. The method of claim 12, further comprising adjusting the relative weighting of parameters in response to the selection of a probable interpretation of the verbalization.
16. A system for interpreting speech, the system comprising:
a device that receives a user verbalization and generates an electronic signal corresponding to the user verbalization; and
a speech interpretation engine that receives the electronic signal corresponding to the user verbalization, wherein the speech interpretation engine parses the signal into a plurality of phonemes and generates at least one interpretation of the verbalization based on the plurality of phonemes.

17. The system of claim 16, wherein generating the at least one preliminary interpretation includes traversing an acoustic grammar based on the plurality of phonemes.

18. The system of claim 17, wherein the acoustic grammar is a phonemic representation of a speech signal.

19. The system of claim 18, wherein the acoustic grammar includes a linking element between segments, the linking element being an acoustic element in the speech signal.

20. The system of claim 19, wherein the acoustic element is a phoneme representing an unstressed vowel.

21. The system of claim 16, further comprising a speech sharpening engine configured to:

- revise the at least one interpretation by generating a plurality of candidate interpretations of the verbalization;

- assign an interpretation score to each candidate interpretation; and

- select a candidate interpretation with a highest interpretation score as a probable interpretation of the verbalization.

22. The system of claim 21, wherein the speech sharpening engine is configured to revise the at least one interpretation by:

- applying the at least one interpretation against at least one domain agent;

- identifying suspect words and/or phrases in the at least one interpretation;

- identifying a closest phonetic match for the suspect words and/or phrases based on a relative weighting of parameters in at least one domain associated with the at least one domain agent; and

- substituting the closest phonetic match for the suspect words and/or phrases to generate a candidate interpretation.

23. The system of claim 22, wherein the closest phonetic match is stored in an M-Tree, and wherein identifying the closest phonetic match includes using a closest-distance metric associated with the M-Tree.

24. The system of claim 22, wherein the parameters include at least one of a context of the verbalization, a verbalization criteria, a history of user verbalizations, a user profile, or domain specific information.

25. The system of claim 22, wherein the speech sharpening engine is further configured to adjust the relative weighting of parameters in response to the selection of a probable interpretation of the verbalization.

26. A system for sharpening a preliminary interpretation of a user verbalization received by an electronic capture device, the preliminary interpretation generated by a speech interpretation engine, the system comprising a speech sharpening engine containing at least one processor configured to:

- revise the preliminary interpretation by generating a plurality of candidate interpretations of the verbalization;

- assign an interpretation score to each candidate interpretation; and

- select a candidate interpretation with a highest interpretation score as a probable interpretation of the verbalization.

27. The system of claim 26, wherein the speech sharpening engine is further configured to revise the preliminary interpretation by:

- applying the preliminary interpretation against at least one domain agent;

- identifying suspect words and/or phrases in the preliminary interpretation;

- identifying a closest phonetic match for the suspect words and/or phrases based on a relative weighting of parameters in at least one domain associated with the at least one domain agent; and

substituting the closest phonetic match for the suspect words and/or phrases to generate a candidate interpretation.

28. The system of claim 27, wherein the closest phonetic match is stored in an M-Tree, and wherein identifying the closest phonetic match includes using a closest-distance metric associated with the M-Tree.

29. The system of claim 27, wherein the parameters include at least one of a context of the verbalization, a verbalization criteria, a history of user verbalizations, a user profile, or domain specific information.

30. The system of claim 27, wherein the speech sharpening engine is further configured to adjust the relative weighting of parameters in response to the selection of a probable interpretation of the verbalization.

31. A computer-readable medium containing computer-executable instructions for interpreting speech, the computer-executable instructions configured to:
receive a user verbalization;
parse the verbalization into a plurality of phonemes; and
generate at least one interpretation of the verbalization based on the plurality of phonemes.

32. The computer-readable medium of claim 31, wherein the computer-executable instructions are configured to generate the at least one preliminary interpretation by traversing an acoustic grammar based on the plurality of phonemes.

33. The computer-readable medium of claim 32, wherein the acoustic grammar is a phonemic representation of a speech signal.

34. The computer-readable medium of claim 33, wherein the acoustic grammar includes a linking element between segments, the linking element being an acoustic element in the speech signal.

35. The computer-readable medium of claim 34, wherein the acoustic element is a phoneme representing an unstressed vowel.

36. The computer-readable medium of claim 31, wherein the computer-executable instructions are further configured to:

- revise the at least one interpretation by generating a plurality of candidate interpretations of the verbalization;

- assign an interpretation score to each candidate interpretation; and

- select a candidate interpretation with a highest interpretation score as a probable interpretation of the verbalization.

37. The computer-readable medium of claim 36, wherein the computer-executable instructions are configured to revise the at least one interpretation by:

- applying the at least one interpretation against at least one domain agent;

- identifying suspect words and/or phrases in the at least one interpretation;

- identifying a closest phonetic match for the suspect words and/or phrases based on a relative weighting of parameters in at least one domain associated with the at least one domain agent; and

- substituting the closest phonetic match for the suspect words and/or phrases to generate a candidate interpretation.

38. The computer-readable medium of claim 37, wherein the closest phonetic match is stored in an M-Tree, and wherein identifying the closest phonetic match includes using a closest-distance metric associated with the M-Tree.

39. The computer-readable medium of claim 37, wherein the parameters include at least one of a context of the verbalization, a verbalization criteria, a history of user verbalizations, a user profile, or domain specific information.

40. The computer-readable medium of claim 37, wherein the computer-executable instructions are further configured to adjust the relative weighting of parameters in response to the selection of a probable interpretation of the verbalization.

41. A computer-readable medium containing computer-executable instructions for sharpening a preliminary interpretation of a user verbalization, the preliminary interpretation generated by a speech interpretation engine, the computer-executable instructions configured to:

- revise the preliminary interpretation by generating a plurality of candidate interpretations of the verbalization;

- assign an interpretation score to each candidate interpretation; and

- select a candidate interpretation with a highest interpretation score as a probable interpretation of the verbalization.

42. The computer-readable medium of claim 41, wherein the computer-executable instructions are configured to revise the preliminary interpretation by:

- applying the preliminary interpretation against at least one domain agent;

- identifying suspect words and/or phrases in the preliminary interpretation;

- identifying a closest phonetic match for the suspect words and/or phrases based on a relative weighting of parameters in at least one domain associated with the at least one domain agent; and

- substituting the closest phonetic match for the suspect words and/or phrases to generate a candidate interpretation.

43. The computer-readable medium of claim 42, wherein the closest phonetic match is stored in an M-Tree, and wherein identifying the closest phonetic match includes using a closest-distance metric associated with the M-Tree.

44. The computer-readable medium of claim 42, wherein the parameters include at least one of a context of the verbalization, a verbalization criteria, a history of user verbalizations, a user profile, or domain specific information.

45. The computer-readable medium of claim 42, wherein the computer-executable instructions are further configured to adjust the relative weighting of parameters in response to the selection of a probable interpretation of the verbalization.

ABSTRACT

An enhanced system for speech interpretation is provided. The system may include receiving a user verbalization and generating one or more preliminary interpretations of the verbalization by identifying one or more phonemes in the verbalization. An acoustic grammar may be used to map the phonemes to syllables or words, and the acoustic grammar may include one or more linking elements to reduce a search space associated with the grammar. The preliminary interpretations may be subject to various post-processing techniques to sharpen accuracy of the preliminary interpretation. A heuristic model may assign weights to various parameters based on a context, a user profile, or other domain knowledge. A probable interpretation may be identified based on a confidence score for each of a set of candidate interpretations generated by the heuristic model. The model may be augmented or updated based on various information associated with the interpretation of the verbalization.

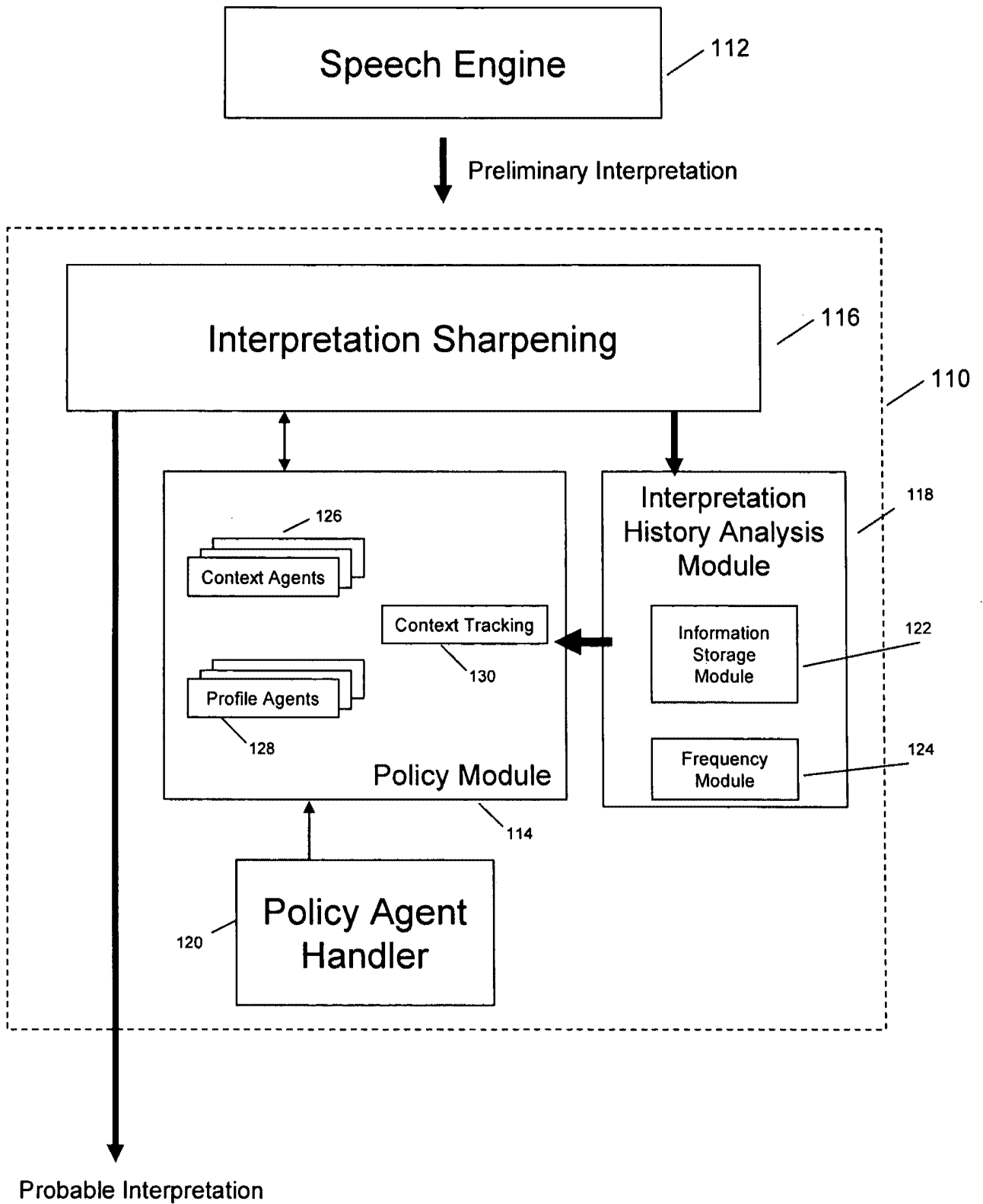
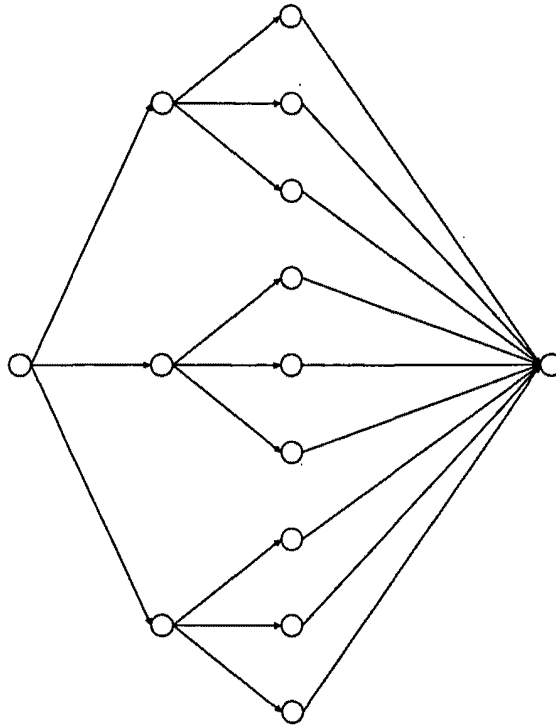


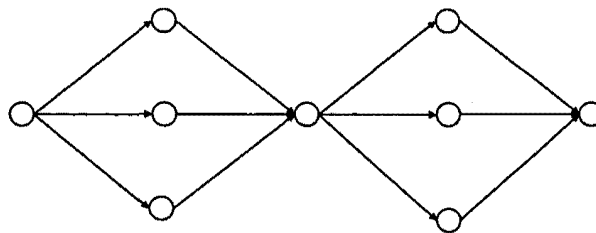
Fig. 1

Traditional Grammar Tree



210

Grammar Tree with Linking Element



220

Figure 2

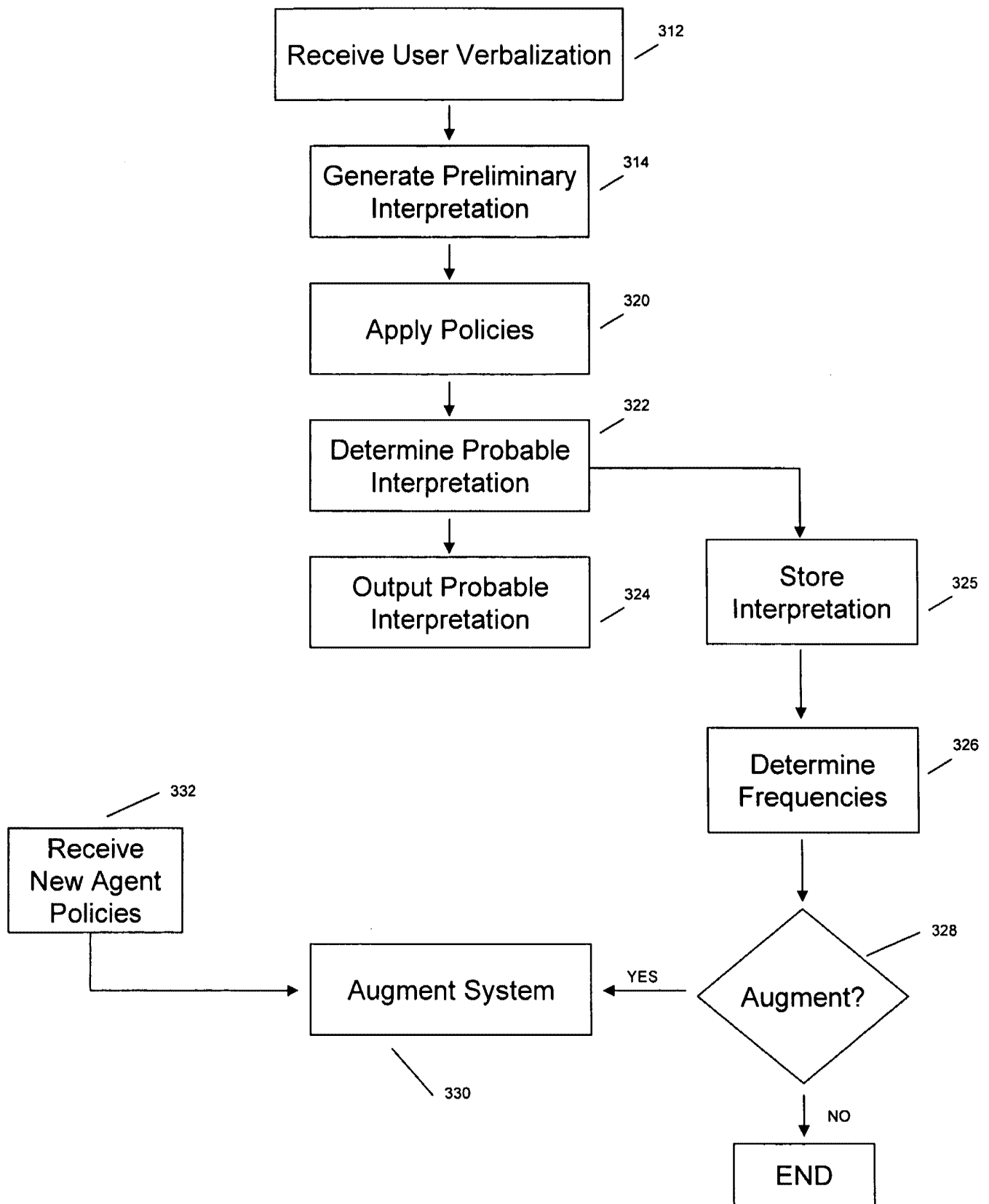


Fig. 3

PATENT APPLICATION SERIAL NO. _____

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

09/01/2006 SSITHIB1 00000058 033975 11513269
01 FC:2011 150.00 DA
02 FC:2111 250.00 DA
03 FC:2311 100.00 DA
04 FC:2201 300.00 DA
05 FC:2202 625.00 DA

PTO-1556
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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

11513209

APPLICATION AS FILED - PART I

(Column 1)

(Column 2)

SMALL ENTITY

OR

OTHER THAN
SMALL ENTITY

FOR	NUMBER FILED	NUMBER EXTRA
BASIC FEE (37 CFR 1.16(a), (b), or (c))	N/A	N/A
SEARCH FEE (37 CFR 1.16(d), (f), or (m))	N/A	N/A
EXAMINATION FEE (37 CFR 1.16(e), (g), or (h))	N/A	N/A
TOTAL CLAIMS (37 CFR 1.16(i))	45 minus 20 =	25
INDEPENDENT CLAIMS (37 CFR 1.16(h))	6 minus 3 =	3
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))		

RATE (\$)	FEE (\$)
N/A	150.00
N/A	\$250
N/A	\$100
X\$ 25 =	300
X100 =	300
+180=	
TOTAL	1425

RATE (\$)	FEE (\$)
N/A	300.00
N/A	\$500
N/A	\$200
X\$50 =	
X200 =	
+360=	
TOTAL	

* If the difference in column 1 is less than zero, enter "0" in column 2.

APPLICATION AS AMENDED - PART II

(Column 1)

(Column 2)

(Column 3)

SMALL ENTITY

OR

OTHER THAN
SMALL ENTITY

AMENDMENT A	CLAIMS REMAINING AFTER AMENDMENT		HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA	
	Total (37 CFR 1.16(i))	•	Minus	**	=
	Independent (37 CFR 1.16(h))	•	Minus	***	=
	Application Size Fee (37 CFR 1.16(s))				
FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))					

RATE (\$)	ADDITIONAL FEE (\$)
X\$ 25 =	
X100 =	
+180=	
TOTAL ADD'L FEE	

RATE (\$)	ADDITIONAL FEE (\$)
X\$50 =	
X200 =	
+360=	
TOTAL ADD'L FEE	

AMENDMENT B	CLAIMS REMAINING AFTER AMENDMENT		HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA	
	Total (37 CFR 1.16(i))	•	Minus	**	=
	Independent (37 CFR 1.16(h))	•	Minus	***	=
	Application Size Fee (37 CFR 1.16(s))				
FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))					

RATE (\$)	ADDITIONAL FEE (\$)
X\$ 25 =	
X100 =	
+180=	
TOTAL ADD'L FEE	

RATE (\$)	ADDITIONAL FEE (\$)
X\$50 =	
X200 =	
+360=	
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.

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of: ROBERT A. KENNEWICK *et al.*

Application No.: TBD

Filed: August 31, 2006

For: DYNAMIC SPEECH SHARPENING

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

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

BIBLIOGRAPHIC DATA

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3. Application information

Title of Invention: DYNAMIC SPEECH SHARPENING

Docket number assigned to this application: 090611-0356510

Total number of drawing sheets: 3

Type of application: Utility

Application is to be published.

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. Domestic Priority information

Domestic priority for this application is claimed as follows:

35 U.S.C. § 119(e):

Application No.: 60/712,412

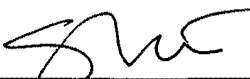
Filed: August 31, 2005

Status: Pending

Relationship: Provisional

Date: August 31, 2006

Customer No. 00909



Syed Ali

Registration No. 58,780

PILLSBURY WINTHROP SHAW PITTMAN LLP

P.O. Box 10500

McLean, VA 22102

703.770.7541

17712 U.S. PTO
083106

PTO/SB/05 (07-06)

Approved for use through 01/31/2007. 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.

UTILITY PATENT APPLICATION TRANSMITTAL

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

Attorney Docket No.	090611-0356510
First Inventor	ROBERT A. KENNEWICK
Title	DYNAMIC SPEECH SHARPENING
Express Mail Label No.	

112935 U.S. PTO
11/513269

083106

APPLICATION ELEMENTS

See MPEP chapter 600 concerning utility patent application contents.

1. ☒ **Fee Transmittal Form** (e.g., PTO/SB/17)
(Submit an original and a duplicate for fee processing)
2. ☒ **Applicant claims small entity status.**
See 37 CFR 1.27.
3. ☒ **Specification** [Total Pages 27]
Both the claims and abstract must start on a new page
(For information on the preferred arrangement, see MPEP 608.01(a))
4. ☒ **Drawing(s)** (35 U.S.C. 113) [Total Sheets 3]
5. **Oath or Declaration** [Total Sheets _____]
a. ☐ Newly executed (original or copy)
b. ☐ A 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. ☒ **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, items a. - c. are required)
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. ☐ **Assignment Papers** (cover sheet & document(s))
Name of Assignee _____
10. ☐ **37 CFR 3.73(b) Statement** ☐ **Power of Attorney**
(when there is an assignee)
11. ☐ **English Translation Document** (if applicable)
12. ☐ **Information Disclosure Statement** (PTO/SB/08 or PTO-1449)
☐ Copies of foreign patent documents,
publications, & other information
13. ☐ **Preliminary Amendment**
14. ☒ **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:** _____

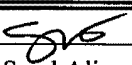
18. If a CONTINUING APPLICATION, check appropriate box, and supply the requisite information below and in the first sentence of the specification following the title, or in an Application Data Sheet under 37 CFR 1.76:

☐ Continuation ☐ Divisional ☐ Continuation-in-part (CIP) of prior application No.: _____
Prior application information: Examiner _____ Art Unit: _____

19. CORRESPONDENCE ADDRESS

☒ The address associated with Customer Number: 00909 OR ☐ Correspondence address below

Name					
Address					
City	State	Zip Code			
Country	Telephone	Email			

Signature		Date	August 31, 2006
Name (Print/Type)	Syed Ali	Registration No. (Attorney/Agent)	58,780

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.

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

Fees pursuant to the Consolidated Appropriations Act, 2005 (H.R. 4818).

FEE TRANSMITTAL
For FY 2006☒ Applicant claims small entity status. See 37 CFR 1.27**TOTAL AMOUNT OF PAYMENT** (\$) 1,425.00**Complete if Known**

Application Number	TBD
Filing Date	August 31, 2006
First Named Inventor	ROBERT A. KENNEWICK
Examiner Name	
Art Unit	
Attorney Docket No.	090611-0356510

METHOD OF PAYMENT (check all that apply)

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

☒ 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)

☒ Charge fee(s) indicated below ☐ Charge fee(s) indicated below, **except for the filing fee**

☒ Charge any additional fee(s) or underpayments of fee(s) under 37 CFR 1.16 and 1.17 ☒ Credit any overpayments

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.**FEE CALCULATION** (All the fees below are due upon filing or may be subject to a surcharge.)**1. BASIC FILING, SEARCH, AND EXAMINATION FEES**

Application Type	FILING FEES		SEARCH FEES		EXAMINATION FEES		Fees Paid (\$)
	Fee (\$)	Small Entity Fee (\$)	Fee (\$)	Small Entity Fee (\$)	Fee (\$)	Small Entity Fee (\$)	
Utility	300	150	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**

Each claim over 20 (including Reissues)

Fee (\$)	Small Entity Fee (\$)
50	25
200	100
360	180

Each independent claim over 3 (including Reissues)

Multiple dependent claims

Total Claims 45 - 20 or HP = 25 x 25.00 = 625.00

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

Indep. Claims 6 - 3 or HP = 3 x 100.00 = 300.00

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

Multiple Dependent Claims

Fee (\$) Fee Paid (\$)

3. APPLICATION SIZE FEE

If the specification and drawings exceed 100 sheets of paper (excluding electronically filed sequence or computer listings under 37 CFR 1.52(e)), 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 30 - 100 = -70 / 50 = 1 (round up to a whole number) x 125.00 = 0.00

4. OTHER FEE(S)

Non-English Specification, \$130 fee (no small entity discount)

Other (e.g., late filing surcharge): _____

Fees Paid (\$)**SUBMITTED BY**

Signature		Registration No. (Attorney/Agent)	58,780	Telephone	703.770.7541
Name (Print/Type)	Syed Ali	Date	August 31, 2006		

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.



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	ATTORNEY DOCKET NUMBER
11/513,269	08/31/2006	Robert A. Kennewick	090611-0356510

CONFIRMATION NO. 2993

FORMALITIES
 LETTER

00909
 PILLSBURY WINTHROP SHAW PITTMAN, LLP
 P.O. BOX 10500
 MCLEAN, VA 22102

Date Mailed: 09/19/2006

NOTICE TO FILE MISSING PARTS OF NONPROVISIONAL APPLICATION

FILED UNDER 37 CFR 1.53(b)

*Filing Date Granted***Items Required To Avoid Abandonment:**

An application number and filing date have been accorded to this application. The item(s) indicated below, however, are missing. Applicant is given **TWO MONTHS** from the date of this Notice within which to file all required items and pay any fees required below to avoid abandonment. Extensions of time may be obtained by filing a petition accompanied by the extension fee under the provisions of 37 CFR 1.136(a).

- The oath or declaration is missing. *A properly signed oath or declaration in compliance with 37 CFR 1.63, identifying the application by the above Application Number and Filing Date, is required.*
Note: If a petition under 37 CFR 1.47 is being filed, an oath or declaration in compliance with 37 CFR 1.63 signed by all available joint inventors, or if no inventor is available by a party with sufficient proprietary interest, is required.

The applicant needs to satisfy supplemental fees problems indicated below.

The required item(s) identified below must be timely submitted to avoid abandonment:

- To avoid abandonment, a surcharge (for late submission of filing fee, search fee, examination fee or oath or declaration) as set forth in 37 CFR 1.16(f) of \$65 for a small entity in compliance with 37 CFR 1.27, must be submitted with the missing items identified in this letter.

SUMMARY OF FEES DUE:

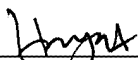
Total additional fee(s) required for this application is **\$65** for a small entity

- **\$65** Surcharge.

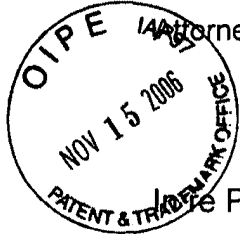
Replies should be mailed to: Mail Stop Missing Parts
 Commissioner for Patents

P.O. Box 1450
Alexandria VA 22313-1450

*A copy of this notice **MUST** be returned with the reply.*



Office of Initial Patent Examination (571) 272-4000, or 1-800-PTO-9199, or 1-800-972-6382
PART 3 - OFFICE COPY



Attorney Docket: 090611-0356510

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

IN RE PATENT APPLICATION of: Robert A. KENNEWICK *et al.*

Application No.: 11/513,269

Confirmation No: 2993

Filed: August 31, 2006

Group Art Unit: 2626

Title: DYNAMIC SPEECH SHARPENING

RESPONSE TO NOTICE TO FILE MISSING PARTS

**Mail Stop Missing Parts
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450**

Sir:

In response to the Notice to File Missing Parts of Application mailed September 19, 2006, a copy of which is enclosed, Applicants herewith submit the following:

Executed Combined Declaration and Power of Attorney of Inventors
Assignment and Recordation Cover Sheet

Please see attached PTO/SB/17 for payment of fees.

Applicant is entitled to claim small entity status.

Date: November 15, 2006

Respectfully submitted,

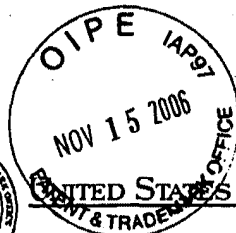
PILLSBURY WINTHROP SHAW PITTMAN LLP

By


Syed Jafar Ali
Registration No. 58780
Telephone: 703.770.7541

P.O. Box 10500
McLean, VA 22102

Customer No.: 00909



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
 United States Patent and Trademark Office
 Address: COMMISSIONER FOR PATENTS
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 Alexandria, Virginia 22313-1450
 www.uspto.gov

APPLICATION NUMBER	FILING OR 371 (c) DATE	FIRST NAMED APPLICANT	ATTORNEY DOCKET NUMBER
11/513,269	08/31/2006	Robert A. Kennewick	090611-0356510

00909
 PILLSBURY WINTHROP SHAW PITTMAN, LLP
 P.O. BOX 10500
 MCLEAN, VA 22102

CONFIRMATION NO. 2993
 FORMALITIES
 LETTER

Date Mailed: 09/19/2006

NOTICE TO FILE MISSING PARTS OF NONPROVISIONAL APPLICATION

FILED UNDER 37 CFR 1.53(b)

Filing Date Granted

Items Required To Avoid Abandonment:

An application number and filing date have been accorded to this application. The item(s) indicated below, however, are missing. Applicant is given **TWO MONTHS** from the date of this Notice within which to file all required items and pay any fees required below to avoid abandonment. Extensions of time may be obtained by filing a petition accompanied by the extension fee under the provisions of 37 CFR 1.136(a).

- The oath or declaration is missing. *A properly signed oath or declaration in compliance with 37 CFR 1.63, identifying the application by the above Application Number and Filing Date, is required.*
Note: If a petition under 37 CFR 1.47 is being filed, an oath or declaration in compliance with 37 CFR 1.63 signed by all available joint inventors, or if no inventor is available by a party with sufficient proprietary interest, is required.

The applicant needs to satisfy supplemental fees problems indicated below.

The required item(s) identified below must be timely submitted to avoid abandonment:

- To avoid abandonment, a surcharge (for late submission of filing fee, search fee, examination fee or oath or declaration) as set forth in 37 CFR 1.16(f) of \$65 for a small entity in compliance with 37 CFR 1.27, must be submitted with the missing items identified in this letter.

SUMMARY OF FEES DUE:

Total additional fee(s) required for this application is **\$65** for a small entity

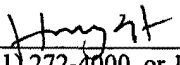
- \$65 Surcharge.**

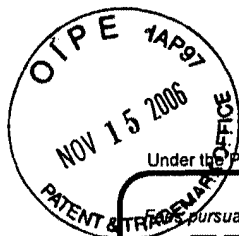
Replies should be mailed to: Mail Stop Missing Parts
 Commissioner for Patents

11/16/2006 SZENDIE1 00000156 033975 11513269
 01 FC:2051 65.00 DA

P.O. Box 1450
Alexandria VA 22313-1450

A copy of this notice MUST be returned with the reply.


Office of Initial Patent Examination (571) 272-4000, or 1-800-PTO-9199, or 1-800-972-6382
PART 2 - COPY TO BE RETURNED WITH RESPONSE



PTO/SB/17 (01-06)

Approved for use through 07/31/2006. 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

Pursuant to the Consolidated Appropriations Act, 2005 (H.R. 4818).

FEE TRANSMITTAL

For FY 2006

☒ Applicant claims small entity status. See 37 CFR 1.27

TOTAL AMOUNT OF PAYMENT (\$) 65.00

Complete if Known

Application Number	11/513,269
Filing Date	August 31, 2006
First Named Inventor	ROBERT A. KENNEWICK
Examiner Name	
Art Unit	2626
Attorney Docket No.	090611-0356510

METHOD OF PAYMENT (check all that apply)

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

☒ 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)

☒ Charge fee(s) indicated below ☐ Charge fee(s) indicated below, except for the filing fee

☒ Charge any additional fee(s) or underpayments of fee(s) under 37 CFR 1.16 and 1.17 ☒ Credit any overpayments

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.

FEE CALCULATION (All the fees below are due upon filing or may be subject to a surcharge.)**1. BASIC FILING, SEARCH, AND EXAMINATION FEES**

Application Type	FILING FEES		SEARCH FEES		EXAMINATION FEES		Fees Paid (\$)
	Fee (\$)	Small Entity Fee (\$)	Fee (\$)	Small Entity Fee (\$)	Fee (\$)	Small Entity Fee (\$)	
Utility	300	150	500	250	200	100	
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 (including Reissues)	50	25
Each independent claim over 3 (including Reissues)	200	100
Multiple dependent claims	360	180

Total Claims	Extra Claims	Fee (\$)	Fee Paid (\$)	Multiple Dependent Claims
- 20 or HP =	x	=		Fee (\$)

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

Indep. Claims	Extra Claims	Fee (\$)	Fee Paid (\$)
- 3 or HP =	x	=	

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 (excluding electronically filed sequence or computer listings under 37 CFR 1.52(e)), 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 (\$)
- 100 =	/ 50 =	(round up to a whole number) x	125.00	0.00

4. OTHER FEE(S)

Non-English Specification, \$130 fee (no small entity discount)

Other (e.g., late filing surcharge): Surcharge for late filing of Declaration 65.00

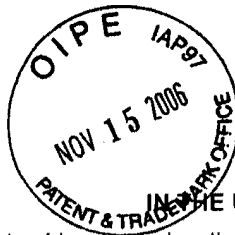
SUBMITTED BY

Signature		Registration No. 58,780 (Attorney/Agent)	Telephone 703.770.7541
Name (Print/Type)	Syed Jafar Ali	Date	November 15, 2006

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.

FOR UTILITY
ORIGINAL
DECLARATION



RULE 63 (37 C.F.R. 1.63)
DECLARATION AND POWER OF ATTORNEY
FOR PATENT APPLICATION
IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

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 **DYNAMIC SPEECH SHARPENING**, the specification of which was filed on August 31, 2006 as U.S. Application No. 11/513,269.

I hereby state that I have reviewed and understand the contents of the above identified specification, including the claims, as amended by any amendment referred to above. 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(a)-(d) or 365(b) of any foreign application(s) for patent or inventor's certificate, or 365(a) of any PCT International Application which designated at least one other country than the United States, listed below and have also identified below any foreign application for patent or inventor's certificate, or PCT International Application, 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 pending, abandoned, patented	Priority Claimed
60/712,412	August 31, 2005	expired	Yes

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.

And I hereby appoint Pillsbury Winthrop Shaw Pittman LLP, Intellectual Property Group, (to whom all communications are to be directed), and persons of that firm who are associated with USPTO Customer No. 00909 individually and collectively my attorneys to prosecute this application and to transact all business in the Patent and Trademark Office connected therewith and with the resulting patent, and I hereby authorize them to delete from that Customer No. names of persons no longer with their firm, to add new persons of their Firm to that Customer No., and to act and rely on instructions from and communicate directly with the person/assignee/attorney/firm/organization who/which first sends/sent this case to them and by whom/which I hereby declare that I have consented after full disclosure to be represented unless/until I instruct the above Firm and/or an attorney of that Firm in writing to the contrary.

Power of Attorney to Customer Number

00909

INVENTOR'S SIGNATURE:

Date:

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		

INVENTOR'S SIGNATURE:

Date:

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		



INVENTOR'S SIGNATURE:

Date:

Name	MICHAEL		TJALVE
	First	Middle Initial	Family Name
Residence	Bellevue	WA	Denmark
	City	State/Foreign Country	Country of Citizenship
Mailing Address	14904 SE 4th Court, Bellevue, WA 98006		

INVENTOR'S SIGNATURE:

Date:

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		

Atty. Dkt. No. 090611-0356510



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	GRP ART UNIT	FIL FEE REC'D	ATTY. DOCKET NO	DRAWINGS	TOT CLAIMS	IND CLAIMS
11/513,269	08/31/2006	2626	1490	090611-0356510	3	45	6

CONFIRMATION NO. 2993

00909
PILLSBURY WINTHROP SHAW PITTMAN, LLP
P.O. BOX 10500
MCLEAN, VA 22102

UPDATED FILING RECEIPT

Date Mailed: 11/28/2006

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)

Robert A. Kennewick, Seattle, WA;
Min Ke, Bothell, WA;
Michael Tjalve, Bellevue, WA;
Philippe Di Cristo, Bellevue, WA;

Power of Attorney: The patent practitioners associated with Customer Number 00909

Domestic Priority data as claimed by applicant

This appln claims benefit of 60/712,412 08/31/2005

Foreign Applications

If Required, Foreign Filing License Granted: 09/19/2006

The country code and number of your priority application, to be used for filing abroad under the Paris Convention, is
US11/513,269

Projected Publication Date: 03/08/2007

Non-Publication Request: No

Early Publication Request: No

**** SMALL ENTITY ****

Title

Dynamic speech sharpening

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.

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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>.

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Title 35, United States Code, Section 184

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APPLICATION NUMBER	FILING OR 371(c) DATE	FIRST NAMED APPLICANT	ATTY. DOCKET NO./TITLE
11/513,269	08/31/2006	Robert A. Kennewick	090611-0356510

CONFIRMATION NO. 2993

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

Title: Dynamic speech sharpening

Publication No. US-2007-0055525-A1

Publication Date: 03/08/2007

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 publicly 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

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICANTS : Robert A. KENNEWICK *et al.* CONFIRMATION No.: 2993
SERIAL NUMBER : 11/513,269 EXAMINER: Richemond Dorvil
FILING DATE : August 31, 2006 ART UNIT: 2626
FOR : DYNAMIC SPEECH SHARPENING

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. 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.

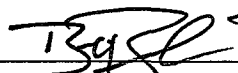
This Information Disclosure Statement is being filed within three months of the filing date of a national application other than a continued prosecution application under 37 C.F.R. §1.53(d), or within three months of the date of entry of the national stage as set forth in 37 C.F.R. §1.491 in an international 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,

PILLSBURY WINTHROP SHAW PITTMAN LLP

By



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Dated: August 23, 2007

INFORMATION DISCLOSURE CITATION IN AN APPLICATION Form PTO-1449	Docket Number	Application Number
	090611-0356510	11/513,269
	Applicant(s)	
	Robert A. KENNEWICK <i>et al.</i>	
	Filing Date	Group Art Unit
	August 31, 2006	2626

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	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.
	1Z	LIN, Bor-shen, <i>et al.</i> , "A Distributed Architecture for Cooperative Spoken Dialogue Agents with Coherent Dialogue State and History", ASRU'99, 1999, 4 pages.
	1AA	KUHN, Thomas, <i>et al.</i> , "Hybrid In-Car Speech Recognition for Mobile Multimedia Applications", Vehicular Technology Conference, IEEE, July 1999, pages 2009-2013.

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 Form PTO-1449	Docket Number	Application Number
	090611-0356510	11/513,269
	Applicant(s)	
	Robert A. KENNEWICK <i>et al.</i>	
	Filing Date	Group Art Unit
	August 31, 2006	2626

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	

FOREIGN PATENT DOCUMENTS

	REF	DOCUMENT NO.	DATE	COUNTRY	CLASS	SUBCLASS	Translations	
							YES	NO

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

	2X	BELVIN, Robert, <i>et al.</i> , "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.
	2Y	LIND, R., <i>et al.</i> , "The Network Vehicle—A Glimpse into the Future of Mobile Multi-Media", <u>IEEE Aerosp. Electron. Systems Magazine</u> , Volume 14, No. 9, September 1999, pages 27-32.

EXAMINER

DATE CONSIDERED

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INFORMATION DISCLOSURE CITATION IN AN APPLICATION Form PTO-1449	Docket Number	Application Number
	090611-0356510	11/513,269
	Applicant(s)	
	Robert A. KENNEWICK <i>et al.</i>	
	Filing Date	Group Art Unit
	August 31, 2006	2626

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 <i>et al.</i>	370	352	
	3B	6,144,667	11/07/2000	Doshi <i>et al.</i>	370	401	
	3C	6,160,883	12/12/2000	Jackson <i>et al.</i>	379	230	
	3D	6,173,279	01/09/2001	Levin <i>et al.</i>	707	5	
	3E	6,175,858	01/16/2001	Bulfer <i>et al.</i>	709	206	
	3F	6,185,535	02/06/2001	Hedin <i>et al.</i>	704	270	
	3G	6,192,110	02/20/2001	Abella <i>et al.</i>	379	88.01	
	3H	6,192,338	02/20/2001	Haszto <i>et al.</i>	704	257	
	3I	6,195,651	02/27/2001	Handel <i>et al.</i>	707	2	
	3J	6,208,972	03/27/2001	Grant <i>et al.</i>	704	275	
	3K	6,219,346	04/17/2001	Maxemchuk	370	338	
	3L	6,219,643	04/17/2001	Cohen <i>et al.</i>	704	257	
	3M	6,233,556	05/15/2001	Teunen <i>et al.</i>	704	250	
	3N	6,233,559	05/15/2001	Balakrishnan	704	275	
	3O	6,246,981	06/12/2001	Papineni <i>et al.</i>	704	235	
	3P	6,272,455	08/07/2001	Hoshen <i>et al.</i>	704	1	
	3Q	6,292,767	09/18/2001	Jackson <i>et al.</i>	704	1	
	3R	6,314,402	11/06/2001	Monaco <i>et al.</i>	704	275	
	3S	6,366,886	04/02/2002	Dragosh <i>et al.</i>	704	270.1	
	3T	6,385,646	05/07/2002	Brown <i>et al.</i>	709	217	
	3U	6,393,428	05/21/2002	Miller <i>et al.</i>	707	102	
	3V	6,404,878	06/11/2002	Jackson <i>et al.</i>	379	221.01	
	3W	6,408,272	06/18/2002	White <i>et al.</i>	704	270.1	

FOREIGN PATENT DOCUMENTS

	REF	DOCUMENT NO.	DATE	COUNTRY	CLASS	SUBCLASS	Translations	
							YES	NO

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

	3X	ZHAO, Yilin, "Telematics: Safe and Fun Driving", <u>IEEE Intelligent Systems</u> , 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.	

INFORMATION DISCLOSURE CITATION IN AN APPLICATION				Docket Number		Application Number		
				090611-0356510		11/513,269		
				Applicant(s)				
				Robert A. KENNEWICK <i>et al.</i>				
				Filing Date		Group Art Unit		
Form PTO-1449				August 31, 2006		2626		
U.S. PATENT DOCUMENTS								
*EXAMINER INITIAL	REF	DOCUMENT NO.	DATE	NAME	CLASS	SUBCLASS	FILING DATE IF APPROPRIATE	
	4A	6,411,810	06/25/2002	Maxemchuk	455	453		
	4B	6,418,210	07/09/2002	Sayko	379	142.15		
	4C	6,420,975	07/16/2002	DeLine <i>et al.</i>	340	815.4		
	4D	6,430,285	08/06/2002	Bauer <i>et al.</i>	379	265.01		
	4E	6,434,523	08/13/2002	Monaco	704	257		
	4F	6,434,524	08/13/2002	Weber	704	257		
	4G	6,442,522	08/27/2002	Carberry <i>et al.</i>	704	257		
	4H	6,446,114	09/03/2002	Bulfer <i>et al.</i>	709	206		
	4I	6,453,153	09/17/2002	Bowker <i>et al.</i>	455	67.4		
	4J	6,453,292	09/17/2002	Ramaswamy <i>et al.</i>	704	235		
	4K	6,456,711	09/24/2002	Cheung <i>et al.</i>	379	265.09		
	4L	6,498,797	12/24/2002	Anerousis <i>et al.</i>	370	522		
	4M	6,499,013	12/24/2002	Weber	704	257		
	4N	6,501,834	12/31/2002	Milewski <i>et al.</i>	379	93.24		
	4O	6,523,061	02/18/2003	Halverson <i>et al.</i>	709	202		
	4P	6,532,444	03/11/2003	Weber	704	257		
	4Q	6,539,348	03/25/2003	Bond <i>et al.</i>	704	9		
	4R	6,553,372	04/22/2003	Brassell <i>et al.</i>	707	5		
	4S	6,560,576	05/06/2003	Cohen <i>et al.</i>	704	270		
	4T	6,567,778	05/20/2003	Chao Chang <i>et al.</i>	704	257		
	4U	6,570,964	05/27/2003	Murveit <i>et al.</i>	379	67.1		
	4V	6,574,624	06/03/2003	Johnson <i>et al.</i>	707	5		
	4W	6,594,257	07/15/2003	Doshi <i>et al.</i>	370	352		
FOREIGN PATENT DOCUMENTS								
	REF	DOCUMENT NO.	DATE	COUNTRY	CLASS	SUBCLASS	Translations	
							YES	NO
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INFORMATION DISCLOSURE CITATION IN AN APPLICATION Form PTO-1449	Docket Number	Application Number
	090611-0356510	11/513,269
	Applicant(s)	
	Robert A. KENNEWICK <i>et al.</i>	
	Filing Date	Group Art Unit
	August 31, 2006	2626

U.S. PATENT DOCUMENTS

*EXAMINER INITIAL	REF	DOCUMENT NO.	DATE	NAME	CLASS	SUBCLASS	FILING DATE IF APPROPRIATE
	5A	6,604,077	08/05/2003	Dragosh <i>et al.</i>	704	270.1	
	5B	6,611,692	08/26/2003	Raffel <i>et al.</i>	455	552	
	5C	6,614,773	09/02/2003	Maxemchuk	370	337	
	5D	6,615,172	09/02/2003	Bennett <i>et al.</i>	704	257	
	5E	6,629,066	09/30/2003	Jackson <i>et al.</i>	704	9	
	5F	6,650,747	11/18/2003	Bala <i>et al.</i>	379	265.06	
	5G	6,691,151	02/10/2004	Cheyre <i>et al.</i>	709	202	
	5H	6,741,931	05/25/2004	Kohut <i>et al.</i>	701	209	
	5I	6,937,977	08/30/2005	Gerson	704	201	
	5J	6,980,092	12/27/2005	Turnbull <i>et al.</i>	340	425.5	
	5K	7,062,488	06/13/2006	Reisman	707	8	
	5L	2002/0143535	10/03/2002	Kist <i>et al.</i>	704	251	
	5M	2003/0182132	09/25/2003	Niemoeller	704	275	
	5N	2004/0193420	09/30/2004	Kennewick <i>et al.</i>	704	257	
	5O	2005/0021826	01/27/2005	Kumar	709	232	

FOREIGN PATENT DOCUMENTS

	REF	DOCUMENT NO.	DATE	COUNTRY	CLASS	SUBCLASS	Translations	
							YES	NO

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

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(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property Organization
International Bureau



(43) International Publication Date
18 October 2001 (18.10.2001)

PCT

(10) International Publication Number
WO 01/78065 A1

- (51) International Patent Classification⁷: **G10L 15/22**, 15/26
- (74) Agents: **SZE, James, Y.** et al.; Pillsbury Winthrop LLP, P.O. Box 7880, 50 Fremont Street, San Francisco, CA 94120-7880 (US).
- (21) International Application Number: PCT/US01/11138
- (22) International Filing Date: 6 April 2001 (06.04.2001)
- (25) Filing Language: English
- (26) Publication Language: English
- (30) Priority Data:
09/543,790 6 April 2000 (06.04.2000) US
- (81) Designated States (*national*): AE, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, EE, ES, FI, GB, GD, GE, GH, GM, IIR, IU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZW.
- (63) Related by continuation (CON) or continuation-in-part (CIP) to earlier application:
US 09/543,790 (CON)
Filed on 6 April 2000 (06.04.2000)
- (84) Designated States (*regional*): ARIPO patent (GI, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG).
- (71) Applicant (*for all designated States except US*): **ONE VOICE TECHNOLOGIES, INC.** [US/US]; Suite 240, 6333 Greenwich Drive, San Diego, CA 92122 (US).
- (72) Inventor; and
- (75) Inventor/Applicant (*for US only*): **WEBER, Dean, C.** [US/US]; 11422 Cypress Terrace Place, San Diego, CA 92131 (US).
- Published:**
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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

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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.

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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.

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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

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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;

5 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);

10 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;

15 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.

20 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
5 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.

10 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.

15 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
20 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

5 **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

10 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.

15 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

20 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**.

5 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.

10 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.

15 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
20 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
5 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
10 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
15 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
20 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
5 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
10 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-
15 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
20 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
5 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
10 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,
15 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
20 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
5 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
10 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
15 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
20 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
5 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**,
10 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
15 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
20 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**.

10 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-540n** 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.

5 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
10 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
15 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
20 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,”
5 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
10 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
15 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
20 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
5 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
10 **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
15 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
20 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
5 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
10 will be represented by a row 540A-540n 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,
15 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
20 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 1. A method for interacting with an object via a computer using utterances, the method
2 comprising:
3 retrieving an object table associated with the object;
4 searching the object table for a matching entry for the object;
5 locating an action associated with the matching entry, if the matching entry is found in the
6 object table;
7 determining whether the action associated with the matching entry is appropriate;
8 performing the action associated with the matching entry, if the action is deemed
9 appropriate.
- 1 2. The method of claim 1 wherein the action associated with the matching entry is voicing a
2 text statement.
- 1 3. The method of claim 2 wherein the process of determining whether the action associated
2 with the matching entry is appropriate further comprises:
3 identifying a context of the voiced text statement associated with the matching entry;
4 searching a log containing log entries with context and timestamp information to locate
5 matching log entries with the same context as the voiced text statement;
6 determining whether the voiced text statement is appropriate based on the timestamp of the
7 matching log entries.
- 1 4. The method of claim 2 wherein the process of determining whether the action associated
2 with the matching entry is appropriate further comprises:

3 searching a log containing log entries with statement and timestamp information to locate
4 matching log entries with the same voiced text statement;
5 determining whether the voiced text statement is appropriate based on the timestamp of the
6 matching log entries.

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

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

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

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

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

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

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

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

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

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

1 9. The method of claim 8 further comprising:

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

- 1 10. The method of claim 9 wherein the replacing the at least one word comprises substituting a
2 wildcard for the at least one word.
- 1 11. The method of claim 10 wherein the replacing at least one word comprises substituting a
2 proper name for the at least one word.
- 1 12. The method of claim 11 further comprising:
2 text formatting the matching phrase prior to the searching of the database.
- 1 13. The method of claim 12 further comprising:
2 weighting individual words in the matching phrase according to a relative significance of
3 the individual words prior to the searching of the database.
- 1 14. The method of claim 13 further comprising:
2 updating a global user registry entry with the dialogue generation log with utterances
3 spoken by a user.
- 1 15. The method of claim 13 further comprising:
2 updating the global user registry entry with at least one of the database, the context-specific
3 grammar file and the general grammar file with the matching phrase if the matching entry is not
4 found in the database.
- 1 16. The method of claim 15 further comprising:
2 generating a confidence values for the matching entry;
3 comparing the confidence value with a threshold value;
4 determining whether a required number of words from the matching phrase are present in
5 the matching entry;
6 determining the utterance has been spoken before by examining the dialogue generation

7 log; and

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

1 17. The method of claim 16 further comprising:

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

1 18. The method of claim 17 further comprising:

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

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

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

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

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

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

2 retrieving an object table associated with the object;
3 searching the object table for a matching entry for the object;
4 locating an action associated with the matching entry, if the matching entry is found in the
5 object table;
6 determining whether the action associated with the matching entry is appropriate;
7 performing the action associated with the matching entry, if the action is deemed
8 appropriate.

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

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

3 identifying a context of the voiced text statement associated with the matching entry;
4 searching a log containing log entries with context and timestamp information to locate
5 matching log entries with the same context as the voiced text statement;
6 determining whether the voiced text statement is appropriate based on the timestamp of the
7 matching log entries.

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

3 searching a log containing log entries with statement and timestamp information to locate
4 matching log entries with the same voiced text statement;
5 determining whether the voiced text statement is appropriate based on the timestamp of the
6 matching log entries.

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

2 generating a confidence values for the matching entry;

3 comparing the confidence value with a threshold value;

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

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

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

10 present in the dialogue generation log.

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

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

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

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

100

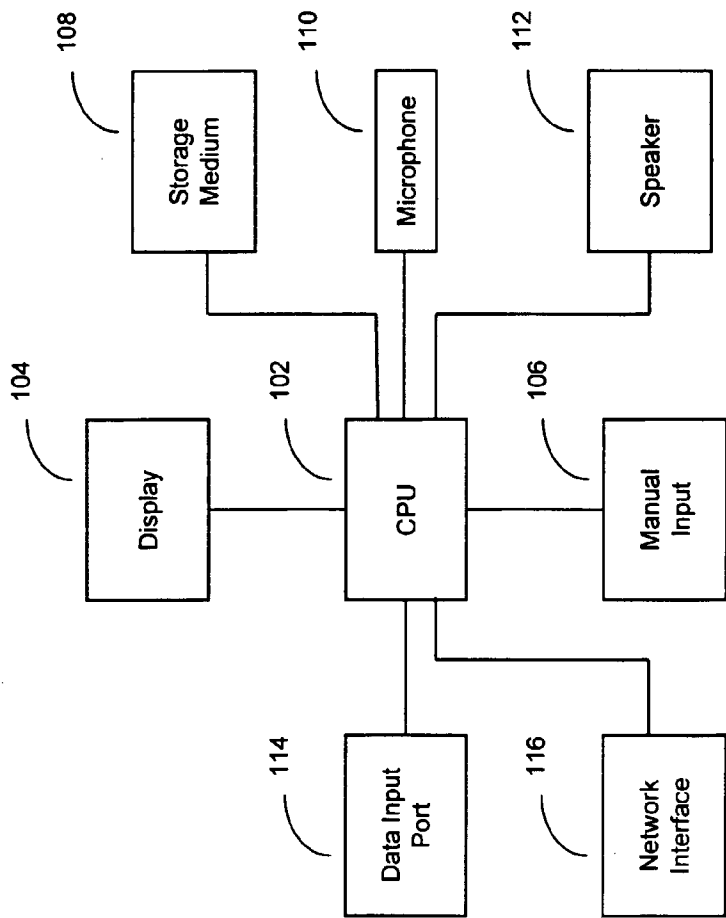


FIG. 1

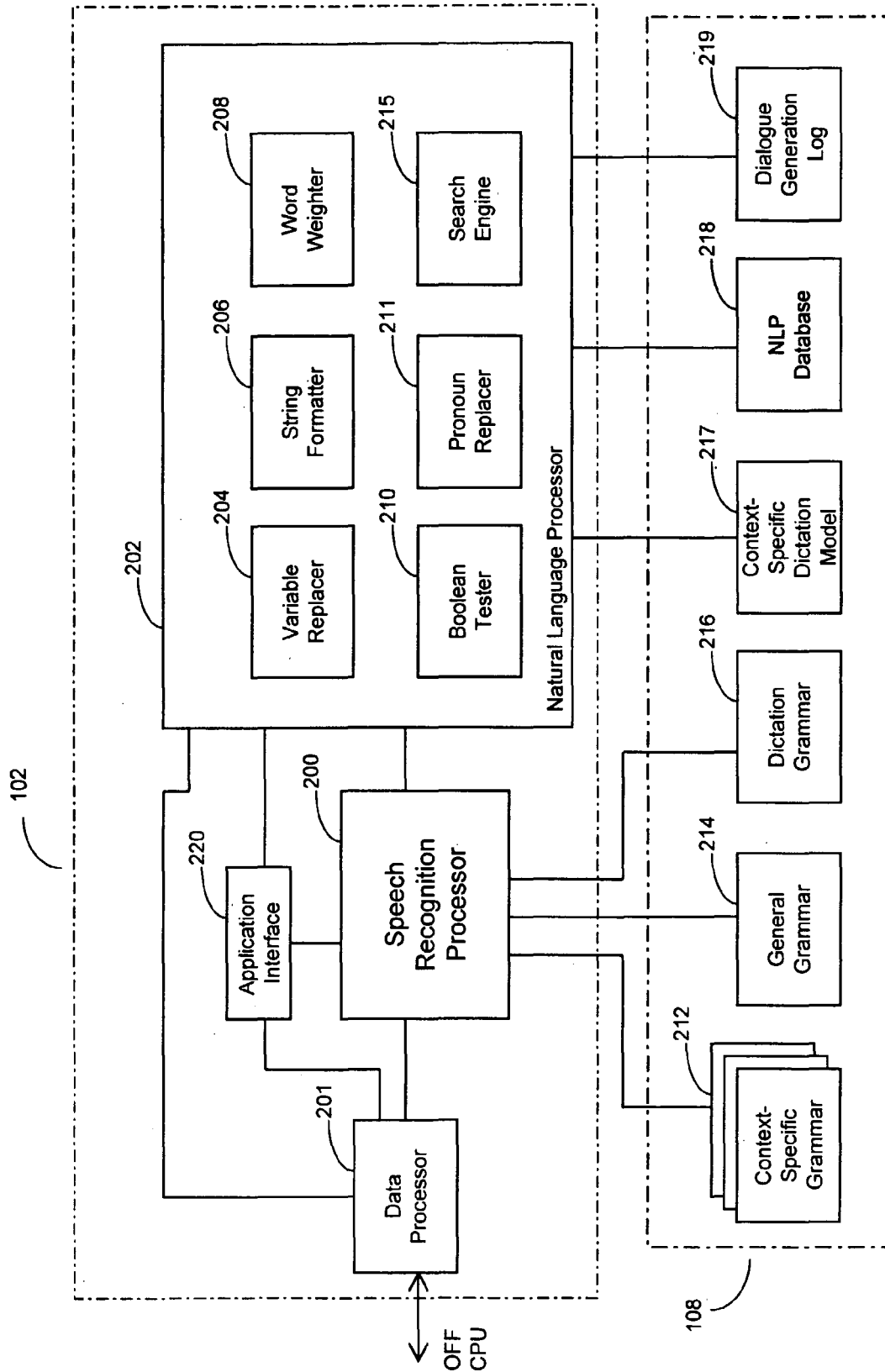


FIG. 2

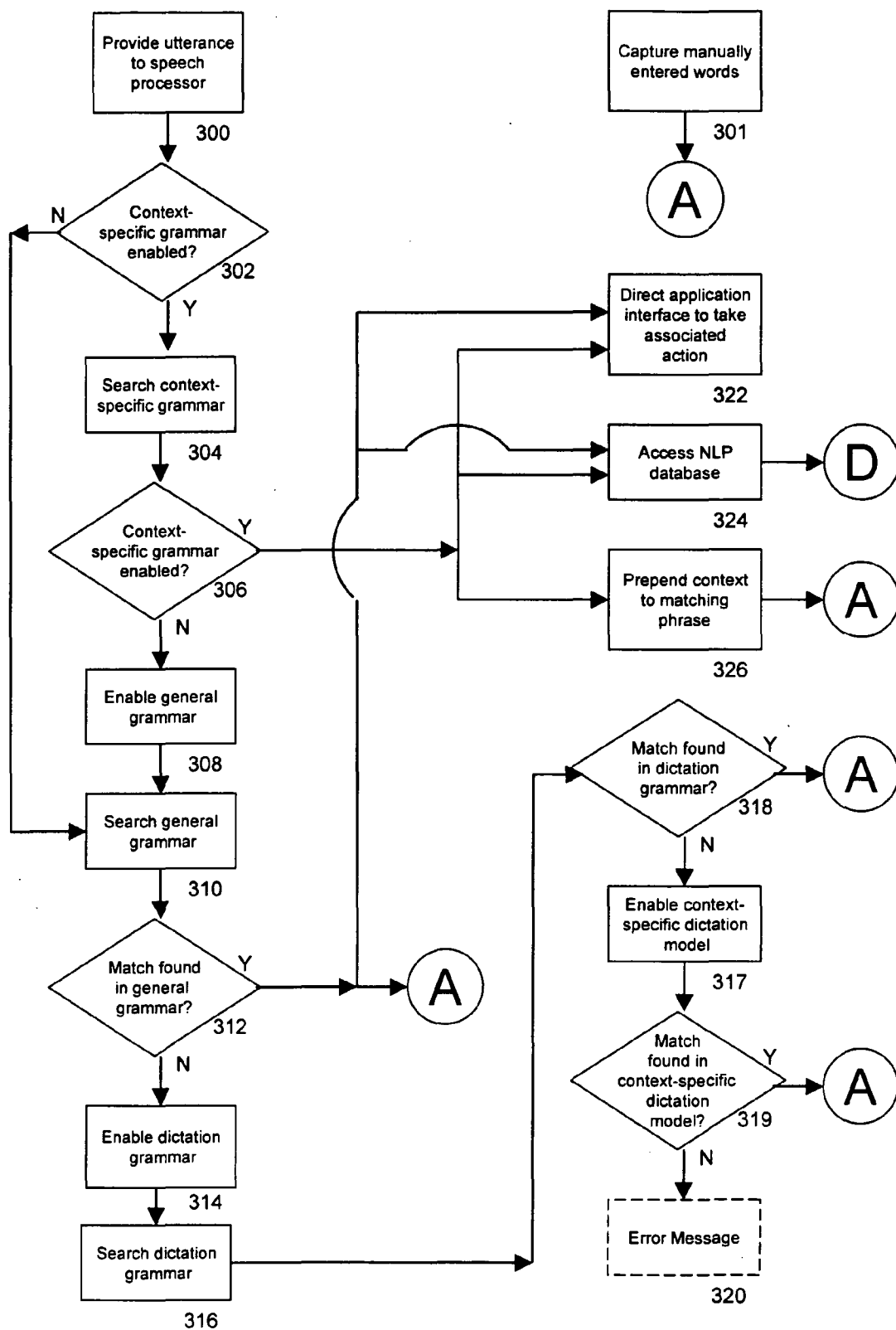


FIG. 3A

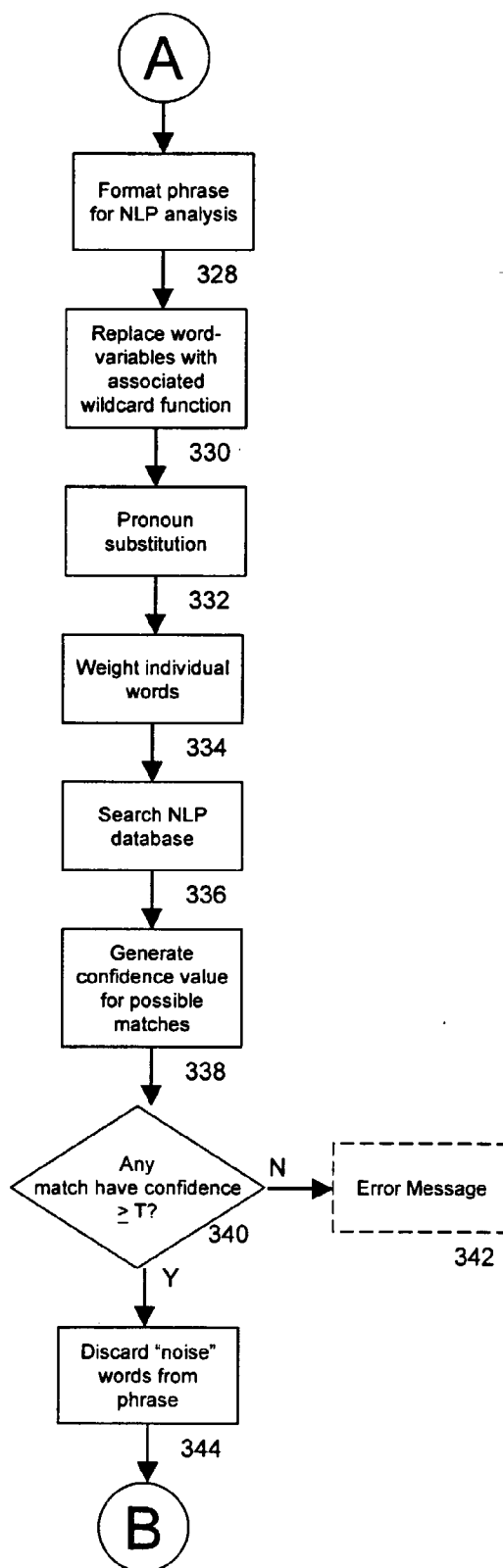


FIG. 3B

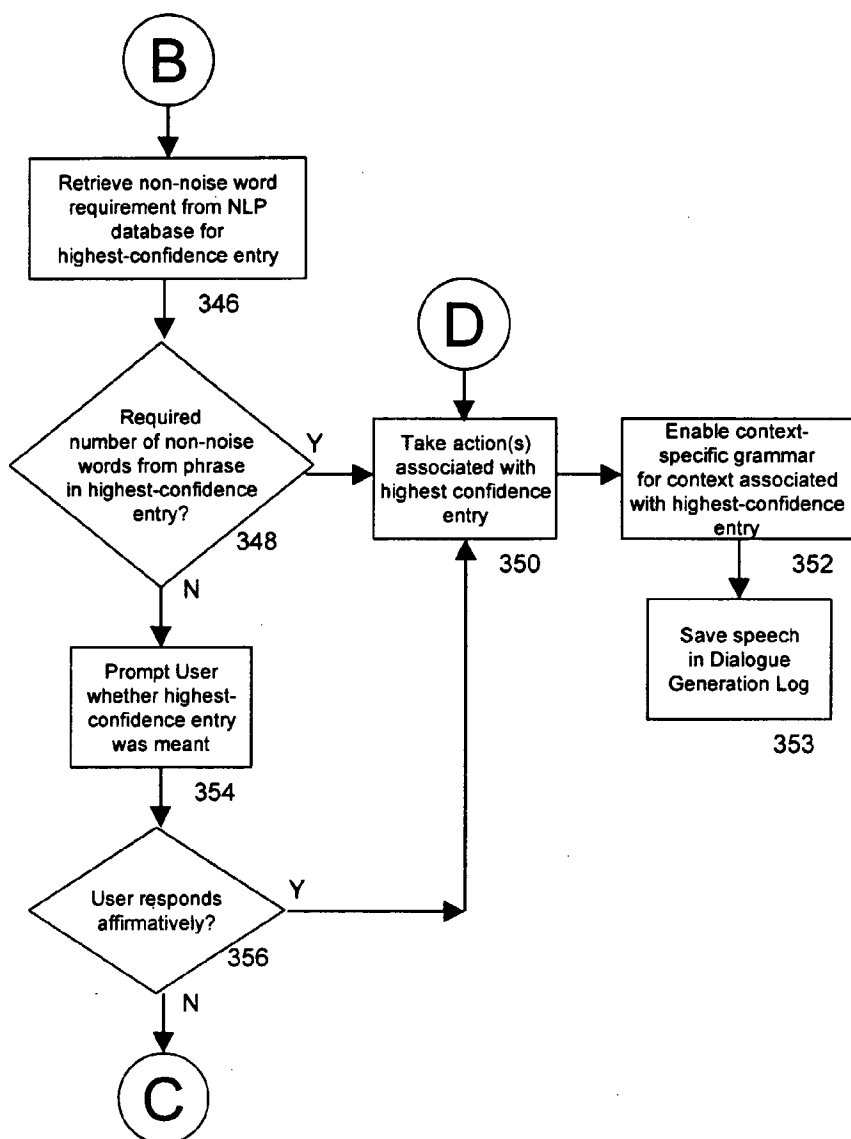


FIG. 3C

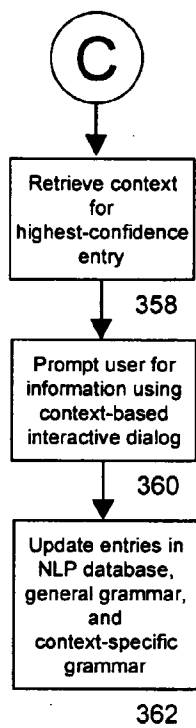


FIG. 3D

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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

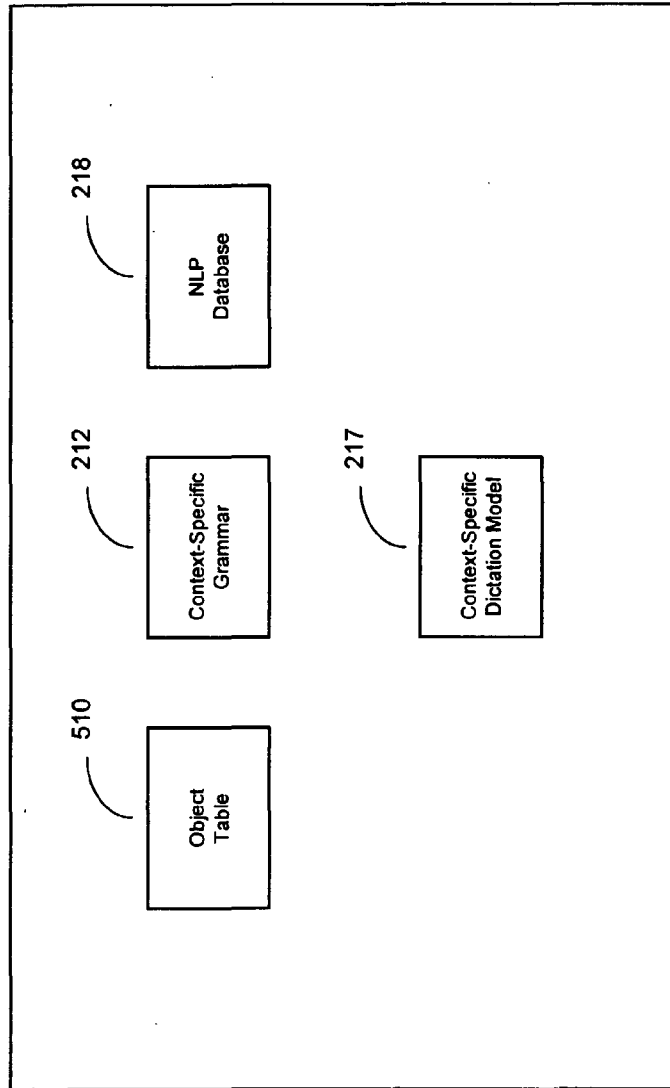
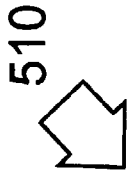



FIG. 5



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	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
WP:Help:Format:Paragraph	x	"To format paragraphs..."					
...							
Spreadsheet:Help:Insert:Table	x	"Inserting Tables is easy..."					

FIG. 6

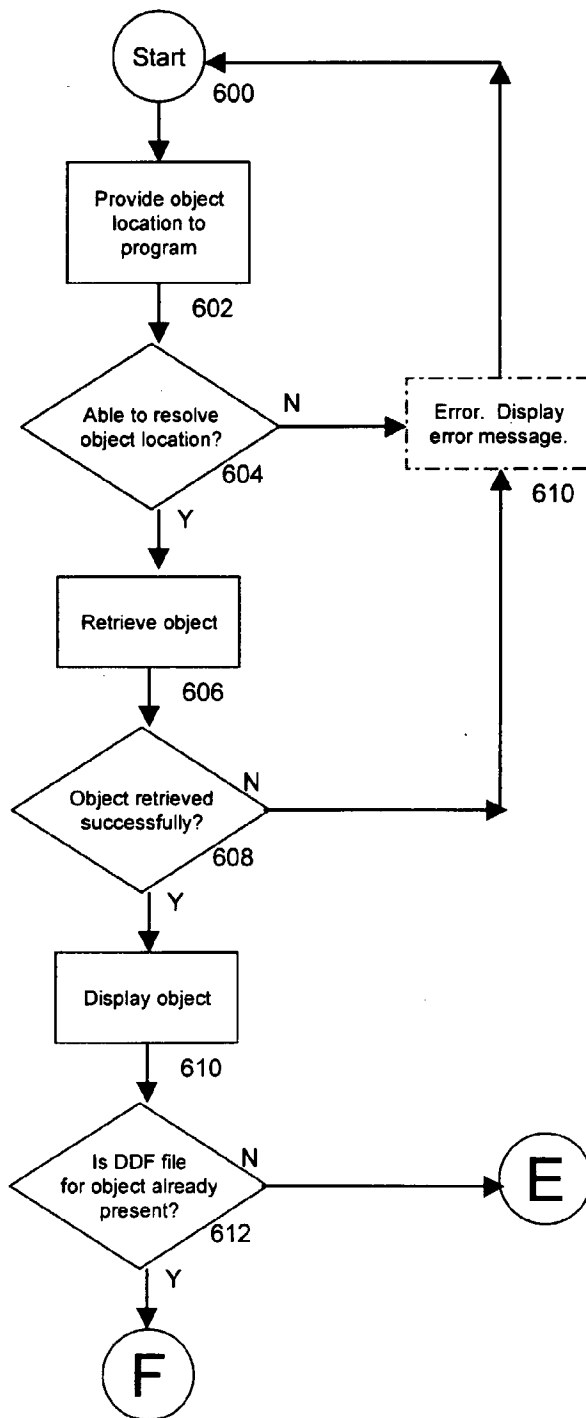


FIG. 7A

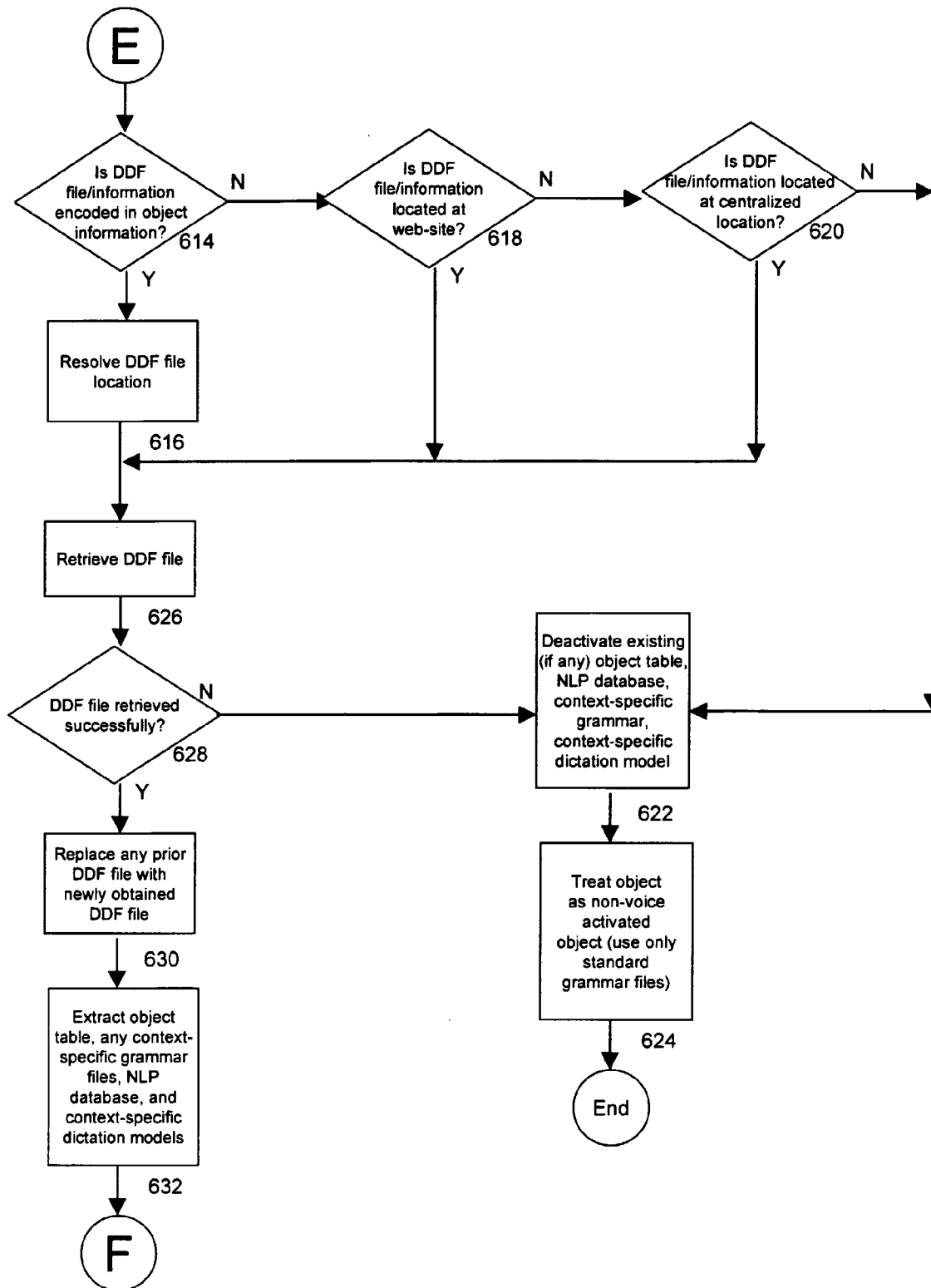


FIG. 7B

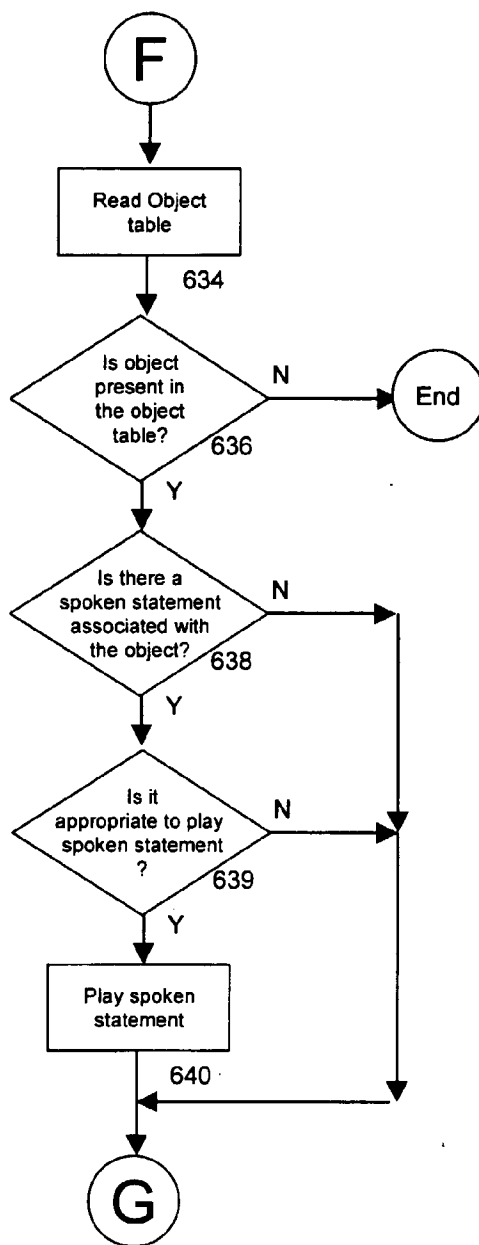


FIG. 7C

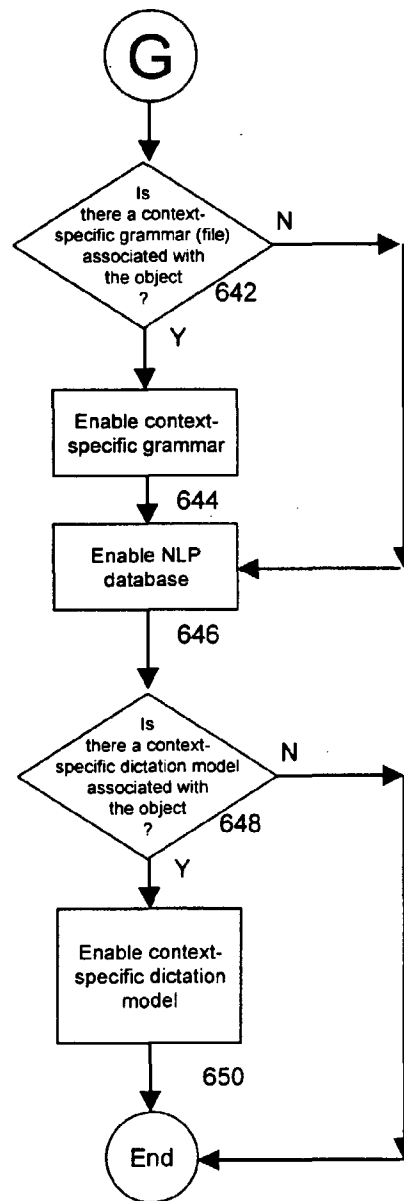


FIG. 7D

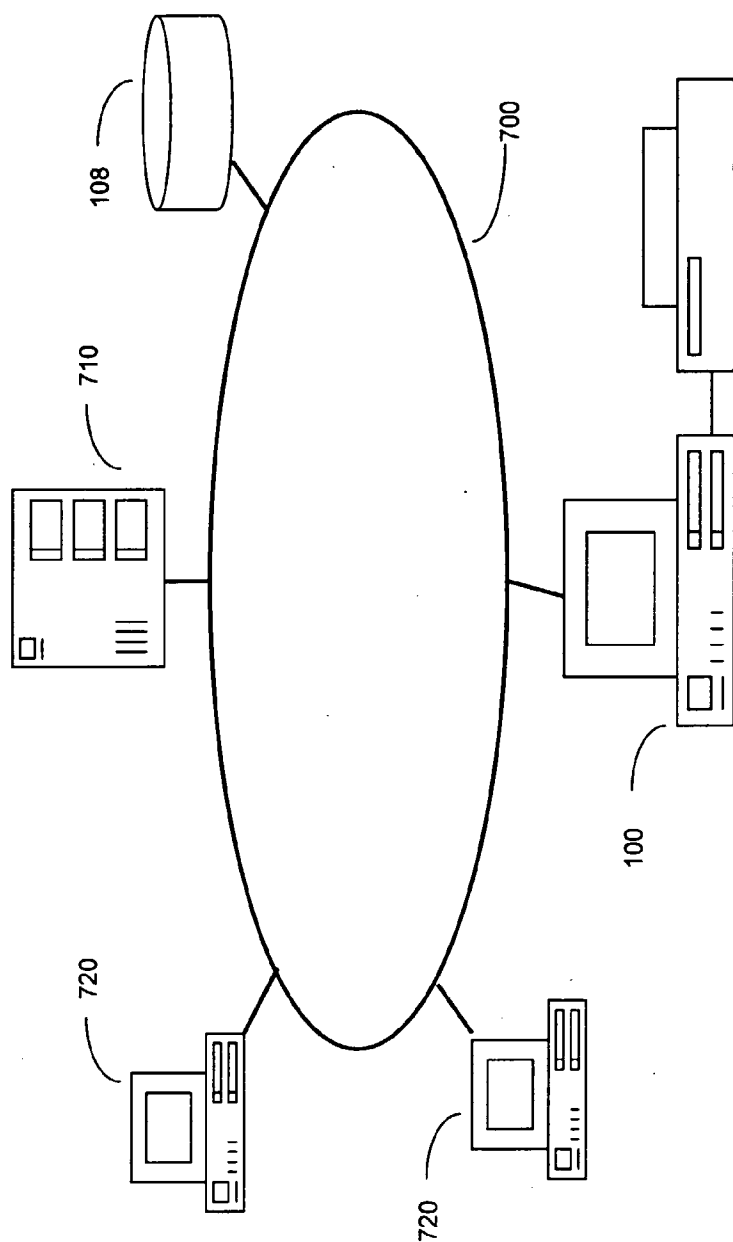


FIG. 8

800

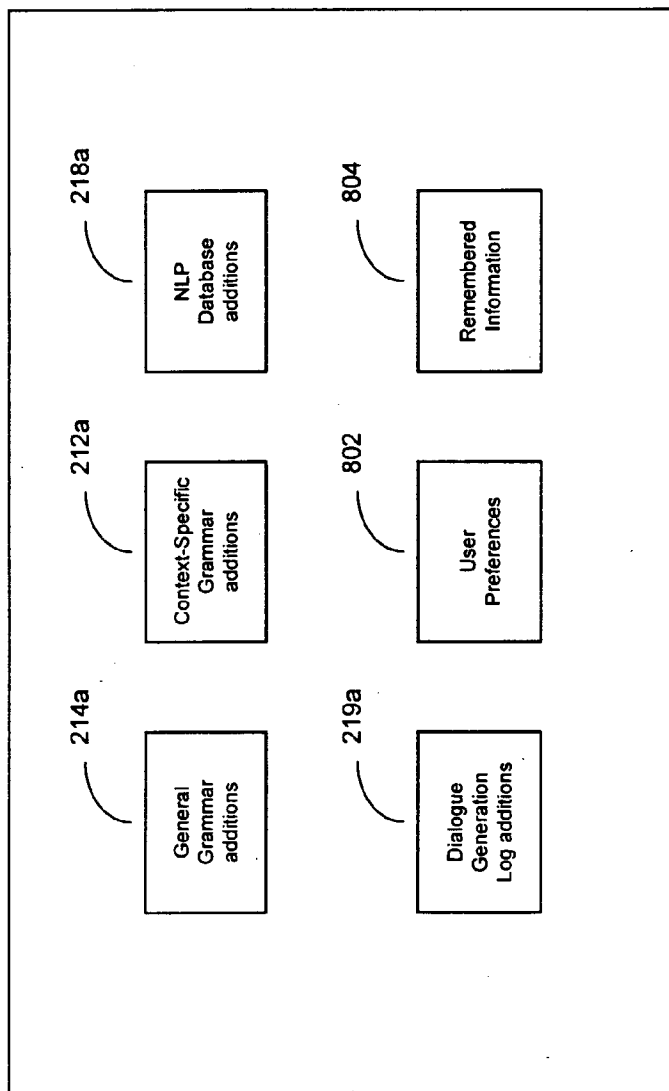



FIG. 9

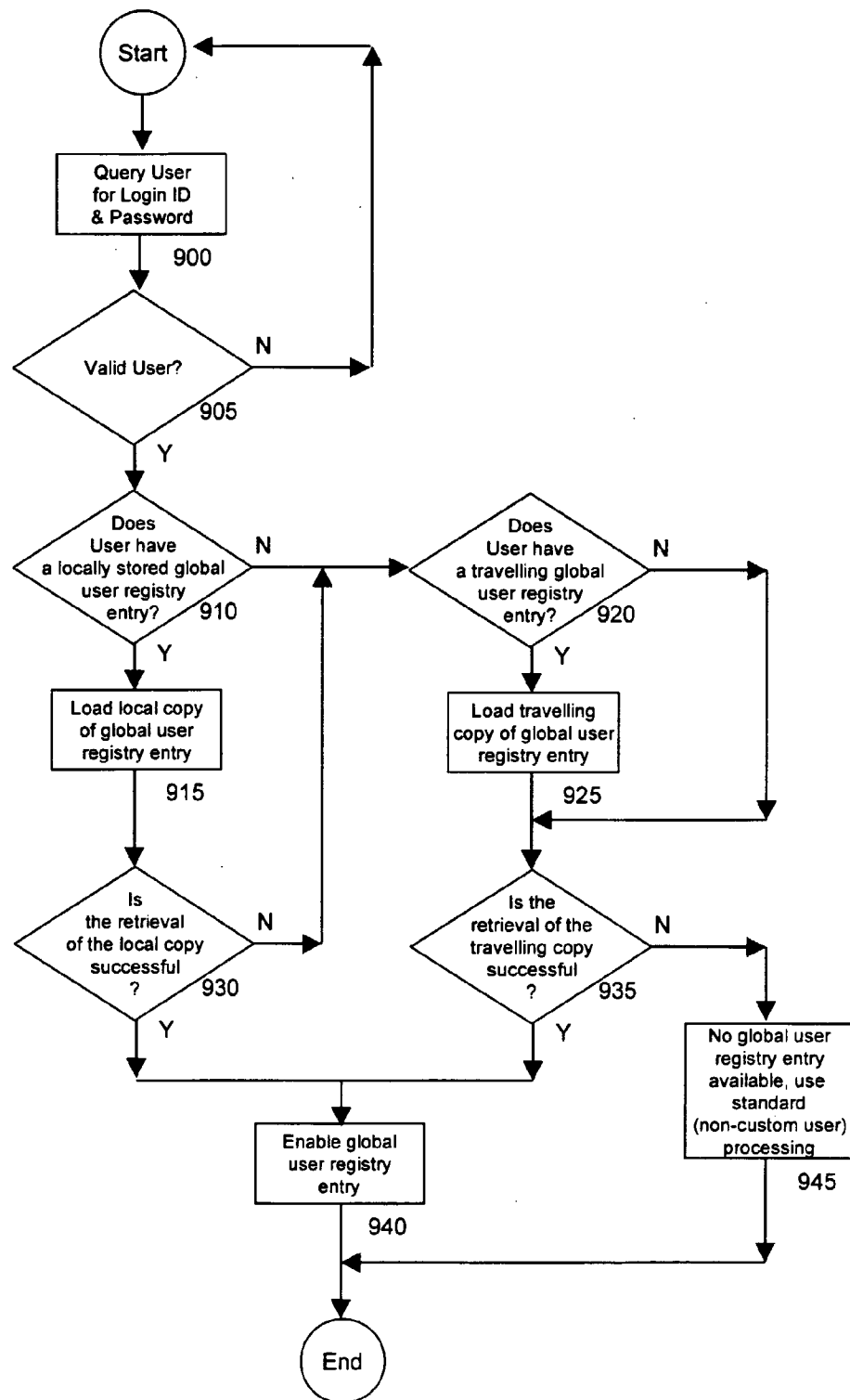


FIG. 10A

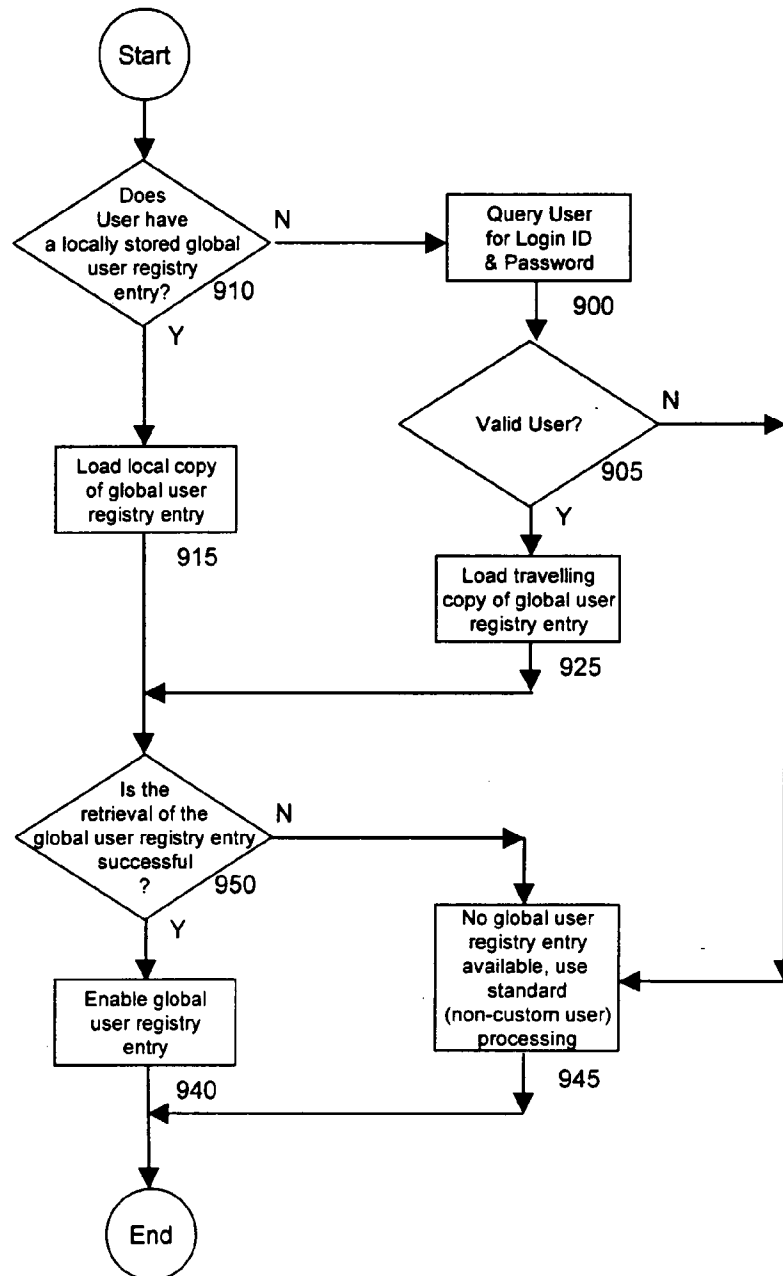


FIG. 10B

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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
		:		
		:		

FIG. 11

INTERNATIONAL SEARCH REPORT

In national 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



Further documents are listed in the continuation of box C.



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.

G document member of the same patent family

Date of the actual completion of the international search

29 August 2001

Date of mailing of the international search report

06/09/2001

Name and mailing address of the ISA

European Patent Office, P.B. 5818 Patentlaan 2
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Authorized officer

Quélavoine, R

INTERNATIONAL SEARCH REPORT

In International Application No

PCT/US 01/11138

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

International 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

Electronic Acknowledgement Receipt

EFS ID:	2116358
Application Number:	11513269
International Application Number:	
Confirmation Number:	2993
Title of Invention:	Dynamic speech sharpening
First Named Inventor/Applicant Name:	Robert A. Kennewick
Customer Number:	909
Filer:	Bradford C. Blaise/Susan Trader
Filer Authorized By:	Bradford C. Blaise
Attorney Docket Number:	090611-0356510
Receipt Date:	23-AUG-2007
Filing Date:	31-AUG-2006
Time Stamp:	13:43:25
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	no
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File Listing:

Document Number	Document Description	File Name	File Size(Bytes) /Message Digest	Multi Part /.zip	Pages (if appl.)
1		11-513269_IDS.pdf	297414 <small>fd238f27a2955e5863c548fba3eb86e32b27a3dc</small>	yes	7

	Multipart Description/PDF files in .zip description				
	Document Description		Start	End	
	Information Disclosure Statement Letter		1	2	
	Information Disclosure Statement (IDS) Filed		3	7	
Warnings:					
Information:					
2	Foreign Reference	WO-2001-078065.pdf	2063508	no	63
			1c653ab3699c991502c976154234a4a0dfbb7203		
Warnings:					
Information:					
3	NPL Documents	REUTERS.pdf	79394	no	1
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Warnings:					
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4	NPL Documents	LIN.pdf	546736	no	4
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5	NPL Documents	KUHN.pdf	438455	no	5
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6	NPL Documents	BELVIN.pdf	468673	no	5
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7	NPL Documents	LIND.pdf	729916	no	6
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Information:					
Total Files Size (in bytes):			6141674		

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 :	Robert A. KENNEWICK <i>et al.</i>	CONFIRMATION No.:	2993
SERIAL NUMBER :	11/513,269	EXAMINER:	Richemond Dorvil
FILING DATE :	August 31, 2006	ART UNIT:	2626
FOR :	DYNAMIC SPEECH SHARPENING		

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).

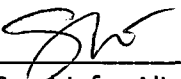
Documents A, C, E-H, O, P, R, and S were cited in search reports by a foreign patent office in counterpart foreign applications. Submission of an English language version of each search report that indicates the degree of relevance found by the foreign office is provided.

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

Respectfully submitted,

PILLSBURY WINTHROP SHAW PITTMAN LLP

Customer No.
00909

By 
Syed Jafar Ali
Registration No.: 58,780

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

Dated: January 9, 2008

INFORMATION DISCLOSURE CITATION IN AN APPLICATION Form PTO-1449	Docket Number	Application Number
	090611-0356510	11/513,269
	Applicant(s)	
	Robert A. KENNEWICK <i>et al.</i>	
	Filing Date	Group Art Unit
	August 31, 2006	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 <i>et al.</i>	704	251	
	B	5,918,222	06/29/1999	Fukui <i>et al.</i>	707	1	
	C	6,501,833	12/31/2002	Phillips <i>et al.</i>	379	88.07	
	D	6,556,973	04/29/2003	Lewin	704	277	
	E	6,567,797	05/20/2003	Schuetze <i>et al.</i>	707	2	
	F	6,570,555	05/27/2003	Prevost <i>et al.</i>	345	156	
	G	6,735,592	05/11/2004	Neumann <i>et al.</i>	707	101	
	H	6,757,718	06/29/2004	Halverson <i>et al.</i>	709	218	
	I	6,996,531	02/07/2006	Korall <i>et al.</i>	704	270	
	J	7,020,609	03/28/2003	Thrift <i>et al.</i>	704	270.1	
	K	7,027,975	04/11/2006	Pazandak <i>et al.</i>	704	9	
	L	7,092,928	08/15/2006	Elad <i>et al.</i>	706	60	
	M	7,137,126	11/14/2006	Coffman <i>et al.</i>	719	328	
	N	7,289,606	10/30/2007	Sibal <i>et al.</i>	379	52	
	O	2002/0188602	12/12/2002	Stubler <i>et al.</i>	707	3	
	P	2003/0112267	06/19/2003	Belrose	345	728	
	Q	2004/0044516	03/04/2004	Kennewick <i>et al.</i>	704	5	

FOREIGN PATENT DOCUMENTS

	REF	DOCUMENT NO.	DATE	COUNTRY	CLASS	SUBCLASS	Translations	
							YES	NO

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

	R	CHAI <i>et al.</i> , "MIND: A Semantics-Based Multimodal Interpretation Framework for Conversational System", <u>Proceedings of the International CLASS Workshop on Natural, Intelligent and Effective Interaction in Multimodal Dialogue Systems</u> , June 2002, pages 37-46.						
	S	CHEYER <i>et al.</i> , "Multimodal Maps: An Agent-Based Approach", <u>International Conference on Cooperative Multimodal Communication (CMC/95)</u> , May 24-26, 1995, pages 111-121.						
	T	ELIO <i>et al.</i> , "On Abstract Task Models and Conversation Policies" in <u>Workshop on Specifying and Implementing Conversation Policies, Autonomous Agents '99</u> , Seattle, 1999, 10 pages.						
	U	TURUNEN, "Adaptive Interaction Methods in Speech User Interfaces", <u>Conference on Human Factors in Computing Systems</u> , 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:	2692749
Application Number:	11513269
International Application Number:	
Confirmation Number:	2993
Title of Invention:	Dynamic speech sharpening
First Named Inventor/Applicant Name:	Robert A. Kennewick
Customer Number:	909
Filer:	Syed Jafar Ali/Susan Trader
Filer Authorized By:	Syed Jafar Ali
Attorney Docket Number:	090611-0356510
Receipt Date:	09-JAN-2008
Filing Date:	31-AUG-2006
Time Stamp:	16:04:03
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	no
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File Listing:

Document Number	Document Description	File Name	File Size(Bytes) /Message Digest	Multi Part /.zip	Pages (if appl.)
1		0356510_SIDS.pdf	404035 2ee5d9038068a780ecda6bc74a4434fa5263d149	yes	12

	Multipart Description/PDF files in .zip description				
	Document Description		Start	End	
	Information Disclosure Statement Letter		1	11	
	Information Disclosure Statement (IDS) Filed		12	12	
Warnings:					
Information:					
2	NPL Documents	CHAI.pdf	1036235	no	10
			82e5c44d0c4460a84b5763f6ca9858e2072a4f38		
Warnings:					
Information:					
3	NPL Documents	CHEYER.pdf	136285	no	11
			5e49cb5ed1eb7cad08bed8e144f0d4292d0d5744		
Warnings:					
Information:					
4	NPL Documents	ELIO.pdf	934896	no	10
			d46aa8144b37e3a1d338415605eb1066ae6fc010		
Warnings:					
Information:					
5	NPL Documents	TURUNEN.pdf	179163	no	2
			b47bbd1deaa06420e04206c4216ccee446a68755		
Warnings:					
Information:					
Total Files Size (in bytes):			2690614		

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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 : Robert A. KENNEWICK et al. CONFIRMATION No.: 2993
SERIAL NUMBER : 11/513,269 EXAMINER: Richemond Dorvil
FILING DATE : August 31, 2006 ART UNIT: 2626
FOR : DYNAMIC SPEECH SHARPENING

PRELIMINARY AMENDMENT

Mail Stop Amendment

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

Dear Sir:

Prior to examination on the merits, please amend the above-identified application as follows:

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

Remarks begin on page 7 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. 090611-0356510).

AMENDMENT

Amendments to the Claims: Please replace all prior versions and listings of claims with the following listing of claims.

LISTING OF CLAIMS:

1-45. (Cancelled)

46. (New) A method for providing out-of-vocabulary interpretation capabilities and for tolerating noise when interpreting natural language speech utterances, the method comprising:

receiving an utterance from a user;

recognizing a stream of phonemes contained in the utterance;

mapping the recognized stream of phonemes to an acoustic grammar that phonemically represents one or more syllables, the recognized stream of phonemes mapped to a series of one or more of the phonemically represented syllables; and

generating at least one interpretation of the utterance, wherein the generated interpretation includes the series of syllables mapped to the recognized stream of phonemes.

47. (New) The method of claim 46, the acoustic grammar phonemically representing the one or more syllables in accordance with acoustic elements of an acoustic speech model, wherein each syllable is represented by acoustic elements for an onset, a nucleus, and a coda.

48. (New) The method of claim 47, the acoustic grammar including transitions between the acoustic elements, wherein the transitions are constrained according to phonotactic rules of the acoustic speech model.

49. (New) The method of claim 48, the acoustic elements including at least an unstressed central vowel and a plurality of phonemic elements associated with the acoustic speech model,

wherein the acoustic grammar uses the unstressed central vowel as a linking element between sequential phonemic elements.

50. (New) The method of claim 49, the unstressed central vowel including a schwa acoustic element.

51. (New) The method of claim 46, further comprising:

generating a plurality of candidate interpretations of the utterance, wherein each candidate interpretation includes a series of words or phrases corresponding to the series of syllables mapped to the recognized stream of phonemes;

assigning a score to each of the plurality of candidate interpretations; and

selecting a candidate interpretation having a highest assigned score as being a probable interpretation of the utterance.

52. (New) The method of claim 51, wherein generating the plurality of candidate interpretations of the utterance includes:

identifying a series of words or phrases possibly corresponding to the series of syllables mapped to the recognized stream of phonemes; and

providing the identified series of words or phrases to a plurality of domain agents, each of the plurality of domain agents generating a candidate interpretation by:

identifying any suspect words or phrases among the identified series of words or phrases;

identifying one or more closest phonetic matches for the identified suspect words or phrases using a closest-distance metric associated with an M-Tree; and

substituting the identified closest phonetic matches for the identified suspect words or phrases to generate the candidate interpretation.

53. (New) The method of claim 52, wherein identifying the series of words or phrases possibly corresponding to the series of syllables includes using one or more of a context

associated the utterance, criteria identified in the utterance, a history of previous utterances, user profile information, or domain specific information.

54. **(New)** A system for providing out-of-vocabulary interpretation capabilities and for tolerating noise when interpreting natural language speech utterances, the system comprising:

at least one input device that receives an utterance from a user and generates an electronic signal corresponding to the utterance; and

a speech interpretation engine that receives the electronic signal corresponding to the utterance, the speech interpretation engine operable to:

recognize a stream of phonemes contained in the utterance;

map the recognized stream of phonemes to an acoustic grammar that phonemically represents one or more syllables, the recognized stream of phonemes mapped to a series of one or more of the phonemically represented syllables; and

generate at least one interpretation of the utterance, wherein the generated interpretation includes the series of syllables mapped to the recognized stream of phonemes.

55. **(New)** The system of claim 54, the acoustic grammar phonemically representing the one or more syllables in accordance with acoustic elements of an acoustic speech model, wherein each syllable is represented by acoustic elements for an onset, a nucleus, and a coda.

56. **(New)** The system of claim 55, the acoustic grammar including transitions between the acoustic elements, wherein the transitions are constrained according to phonotactic rules of the acoustic speech model.

57. **(New)** The system of claim 56, the acoustic elements including at least an unstressed central vowel and a plurality of phonemic elements associated with the acoustic speech model, wherein the acoustic grammar uses the unstressed central vowel as a linking element between sequential phonemic elements.

58. (New) The system of claim 57, the unstressed central vowel including a schwa acoustic element.

59. (New) The system of claim 54, further comprising a sharpening engine that receives the generated interpretation of the utterance from the speech interpretation engine, the sharpening engine operable to:

- generate a plurality of candidate interpretations of the utterance, wherein each candidate interpretation includes a series of words or phrases corresponding to the series of syllables mapped to the recognized stream of phonemes;

- assign a score to each of the plurality of candidate interpretations; and

- select a candidate interpretation having a highest assigned score as being a probable interpretation of the utterance.

60. (New) The system of claim 59, the sharpening engine operable to generate the plurality of candidate interpretations of the utterance by:

- identifying a series of words or phrases possibly corresponding to the series of syllables mapped to the recognized stream of phonemes; and

- providing the identified series of words or phrases to a plurality of domain agents, each of the plurality of domain agents generating a candidate interpretation by:

- identifying any suspect words or phrases among the identified series of words or phrases;

- identifying one or more closest phonetic matches for the identified suspect words or phrases using a closest-distance metric associated with an M-Tree; and

- substituting the identified closest phonetic matches for the identified suspect words or phrases to generate the candidate interpretation.

61. (New) The system of claim 60, the sharpening engine operable to identify the series of words or phrases possibly corresponding to the series of syllables using one or more of a

context associated the utterance, criteria identified in the utterance, a history of previous utterances, user profile information, or domain specific information.

62. **(New)** A method for reducing a search space for a recognition grammar used when interpreting natural language speech utterances, the method comprising:

creating a phonemic representation of acoustic elements associated with an acoustic speech model, the acoustic elements including at least an unstressed central vowel and plurality of phonemic elements;

representing syllables associated with the acoustic speech model using the phonemic representation, each of the represented syllables including a series of acoustic elements;

constructing an acoustic grammar that contains transitions between the acoustic elements of the represented syllables, the transitions constrained according to phonotactic rules of the acoustic speech model; and

using the unstressed central vowel as a linking element between sequential phonemic elements contained in the constructed acoustic grammar.

63. **(New)** The method of claim 62, the series of acoustic elements defining an onset, a nucleus, and a coda for a given one of the represented syllables.

64. **(New)** The method of claim 63, the unstressed central vowel including a schwa acoustic element.

REMARKS

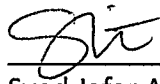
Upon entry of the foregoing Amendment, claims 46-64 are pending in the application. Claims 1-45 have been cancelled without prejudice or disclaimer, and claims 46-64 have been newly added. Prompt and favorable examination on the merits is respectfully requested.

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: January 23, 2008

Respectfully submitted,

By:



Syed Jafar Ali

Registration No. 58,780

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Electronic Acknowledgement Receipt

EFS ID:	2754659
Application Number:	11513269
International Application Number:	
Confirmation Number:	2993
Title of Invention:	Dynamic speech sharpening
First Named Inventor/Applicant Name:	Robert A. Kennewick
Customer Number:	909
Filer:	Syed Jafar Ali/Kathy Oliver
Filer Authorized By:	Syed Jafar Ali
Attorney Docket Number:	090611-0356510
Receipt Date:	23-JAN-2008
Filing Date:	31-AUG-2006
Time Stamp:	13:52:00
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	no
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File Listing:

Document Number	Document Description	File Name	File Size(Bytes) /Message Digest	Multi Part /.zip	Pages (if appl.)
1		0356510PA.pdf	227112	yes	7
			e6716160947616869a914444eb21d45 a7bca9e43		

	Multipart Description/PDF files in .zip description		
	Document Description	Start	End
	Preliminary Amendment	1	1
	Claims	2	6
	Applicant Arguments/Remarks Made in an Amendment	7	7
Warnings:			
Information:			
Total Files Size (in bytes):		227112	
<p>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.</p> <p><u>New Applications Under 35 U.S.C. 111</u> 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.</p> <p><u>National Stage of an International Application under 35 U.S.C. 371</u> 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.</p> <p><u>New International Application Filed with the USPTO as a Receiving Office</u> 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.</p>			

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PATENT APPLICATION FEE DETERMINATION RECORD Substitute for Form PTO-875					Application or Docket Number 11/513,269		Filing Date 08/31/2006		☐ To be Mailed	
APPLICATION AS FILED – PART I										
(Column 1)			(Column 2)			SMALL ENTITY ☒ OR		OTHER THAN SMALL ENTITY		
FOR	NUMBER FILED	NUMBER EXTRA	RATE (\$)	FEE (\$)	OR	RATE (\$)	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), (l), 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 \$	=		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										
(Column 1)			(Column 2)			SMALL ENTITY OR		OTHER THAN SMALL ENTITY		
AMENDMENT	01/23/2008	CLAIMS REMAINING AFTER AMENDMENT	HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA	RATE (\$)	ADDITIONAL FEE (\$)	OR	RATE (\$)	ADDITIONAL FEE (\$)	
	Total (37 CFR 1.16(i))	* 19	Minus	** 45	= 0	X \$25 =	0	OR	X \$ =	
	Independent (37 CFR 1.16(h))	* 3	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))									
					TOTAL ADD'L FEE	0	OR	TOTAL ADD'L FEE		
AMENDMENT	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))									
					TOTAL ADD'L FEE		OR	TOTAL ADD'L FEE		
<p>* If the entry in column 1 is less than the entry in column 2, write "0" in column 3.</p> <p>** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 20, enter "20".</p> <p>*** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 3, enter "3".</p> <p>The "Highest Number Previously Paid For" (Total or Independent) is the highest number found in the appropriate box in column 1.</p>										

Legal Instrument Examiner:
/MONIQUE BRUNSON/

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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PATENT APPLICATION FEE DETERMINATION RECORD Substitute for Form PTO-875					Application or Docket Number 11/513,269		Filing Date 08/31/2006		☐ To be Mailed	
APPLICATION AS FILED – PART I										
(Column 1)			(Column 2)			SMALL ENTITY ☒ OR		OTHER THAN SMALL ENTITY		
FOR	NUMBER FILED	NUMBER EXTRA	RATE (\$)	FEE (\$)		RATE (\$)	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), (l), 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 \$	=		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										
(Column 1)			(Column 2)			SMALL ENTITY OR		OTHER THAN SMALL ENTITY		
AMENDMENT	06/18/2009	CLAIMS REMAINING AFTER AMENDMENT		HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA	RATE (\$)	ADDITIONAL FEE (\$)		RATE (\$)	ADDITIONAL FEE (\$)
	Total (37 CFR 1.16(i))	* 16	Minus	** 45	= 0	X \$26 =	0		X \$ =	
	Independent (37 CFR 1.16(h))	* 2	Minus	***6	= 0	X \$110 =	0		X \$ =	
	☐ Application Size Fee (37 CFR 1.16(s))									
	☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))									
						TOTAL ADD'L FEE	0		TOTAL ADD'L FEE	
AMENDMENT		CLAIMS REMAINING AFTER AMENDMENT		HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA	RATE (\$)	ADDITIONAL FEE (\$)		RATE (\$)	ADDITIONAL FEE (\$)
	Total (37 CFR 1.16(i))	*	Minus	**	=	X \$ =			X \$ =	
	Independent (37 CFR 1.16(h))	*	Minus	***	=	X \$ =			X \$ =	
	☐ Application Size Fee (37 CFR 1.16(s))									
	☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))									
						TOTAL ADD'L FEE			TOTAL ADD'L FEE	
<p>* If the entry in column 1 is less than the entry in column 2, write "0" in column 3.</p> <p>** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 20, enter "20".</p> <p>*** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 3, enter "3".</p> <p>The "Highest Number Previously Paid For" (Total or Independent) is the highest number found in the appropriate box in column 1.</p>										

Legal Instrument Examiner:
/DAVINA G. BUTLER/

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NOTICE OF ALLOWANCE AND FEE(S) DUE

909 7590 06/22/2009

PILLSBURY WINTHROP SHAW PITTMAN, LLP
P.O. BOX 10500
MCLEAN, VA 22102

EXAMINER

VO, HUYEN X

ART UNIT

PAPER NUMBER

2626

DATE MAILED: 06/22/2009

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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11/513,269

08/31/2006

Robert A. Kennewick

090611-0356510

2993

TITLE OF INVENTION: DYNAMIC SPEECH SHARPENING

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	09/22/2009

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.

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**Complete and send this form, together with applicable fee(s), to: Mail Mail Stop ISSUE FEE
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or Fax (571)-273-2885**

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CURRENT CORRESPONDENCE ADDRESS (Note: Use Block 1 for any change of address)

909 7590 06/22/2009

PILLSBURY WINTHROP SHAW PITTMAN, LLP
P.O. BOX 10500
MCLEAN, VA 22102

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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.
11/513,269	08/31/2006	Robert A. Kennewick	090611-0356510	2993

TITLE OF INVENTION: DYNAMIC SPEECH SHARPENING

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	09/22/2009

EXAMINER	ART UNIT	CLASS-SUBCLASS
VO, HUYEN X	2626	704-257000

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)
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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.

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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
11/513,269	08/31/2006	Robert A. Kennewick	090611-0356510	2993
909	7590	06/22/2009	EXAMINER	
PILLSBURY WINTHROP SHAW PITTMAN, LLP P.O. BOX 10500 MCLEAN, VA 22102			VO, HUYEN X	
			ART UNIT	PAPER NUMBER
			2626	
DATE MAILED: 06/22/2009				

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 600 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 600 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)	
	11/513,269	KENNEWICK ET AL.	
	Examiner	Art Unit	
	HUYEN X. VO	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 1/23/2008.
2. ☒ The allowed claim(s) is/are 46-61.
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)

- | | |
|--|---|
| <ol style="list-style-type: none"> 1. ☒ Notice of References Cited (PTO-892) 2. ☐ Notice of Draftsperson'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 | <ol style="list-style-type: none"> 5. ☐ Notice of Informal Patent Application 6. ☒ Interview Summary (PTO-413),
Paper No./Mail Date <u>6/3/2009</u>. 7. ☒ Examiner's Amendment/Comment 8. ☒ Examiner's Statement of Reasons for Allowance 9. ☐ Other ____. |
|--|---|

Interview Summary	Application No. 11/513,269	Applicant(s) KENNEWICK ET AL.	
	Examiner HUYEN X. VO	Art Unit 2626	

All participants (applicant, applicant's representative, PTO personnel):

(1) HUYEN X. VO. (3) _____.

(2) Mr. Syed Jafar Ali. (4) _____.

Date of Interview: 03 June 2009.

Type: a) ☒ Telephonic b) ☐ Video Conference
c) ☐ Personal [copy given to: 1) ☐ applicant 2) ☐ applicant's representative]

Exhibit shown or demonstration conducted: d) ☐ Yes e) ☐ No.
If Yes, brief description: _____.

Claim(s) discussed: 46 and 62-64.

Identification of prior art discussed: _____.

Agreement with respect to the claims f) ☒ was reached. g) ☐ was not reached. h) ☐ N/A.

Substance of Interview including description of the general nature of what was agreed to if an agreement was reached, or any other comments: cancel claims 62-64. Amend claim 46 to perform speech recognition on an electronic device.

(A fuller description, if necessary, and a copy of the amendments which the examiner agreed would render the claims allowable, if available, must be attached. Also, where no copy of the amendments that would render the claims allowable is available, a summary thereof must be attached.)

THE FORMAL WRITTEN REPLY TO THE LAST OFFICE ACTION MUST INCLUDE THE SUBSTANCE OF THE INTERVIEW. (See MPEP Section 713.04). If a reply to the last Office action has already been filed, APPLICANT IS GIVEN A NON-EXTENDABLE PERIOD OF THE LONGER OF ONE MONTH OR THIRTY DAYS FROM THIS INTERVIEW DATE, OR THE MAILING DATE OF THIS INTERVIEW SUMMARY FORM, WHICHEVER IS LATER, TO FILE A STATEMENT OF THE SUBSTANCE OF THE INTERVIEW. See Summary of Record of Interview requirements on reverse side or on attached sheet.

/Huyen X Vo/ Primary Examiner, Art Unit 2626	
---	--

DETAILED ACTION

Election/Restrictions

1. During a telephone conversation with Mr. Syed Jafar Ali on 6/3/2009 a provisional election was made without traverse to prosecute the invention of claims 46-61. Affirmation of this election must be made by applicant in replying to this Office action. Claims 62-64 are withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected invention.

EXAMINER'S AMENDMENT

2. An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone interview with Mr. Syed Jafar Ali on 6/3/2009. The application has been amended as follows:

Cancel claims 62-64.

In line 5 of claim 46, "utterance" should read – utterance on an electronic device –.

Allowable Subject Matter

3. Claims 46-61 are allowed over the prior art of record. The following is an examiner's statement of reasons for allowance: Hunt (USPN 7146319) discloses a

Art Unit: 2626

method for providing out-of-vocabulary interpretation capabilities and for tolerating noise when interpreting natural language speech utterances, the method comprising: receiving an utterance from a user (*referring to figures 1-3*); recognizing a stream of phonemes contained in the utterance (*referring to figures 1-3*; *producing a sequence of phonemes*); and generating at least one interpretation of the utterance (*referring to figures 1-3*). Hunt fails to specifically disclose mapping the recognized stream of phonemes to an acoustic grammar that phonemically represents one or more syllables, the recognized stream of phonemes mapped to a series of one or more of the phonemically represented syllables; and wherein the generated interpretation includes the series of syllables mapped to the recognized stream of phonemes. In other words, Hunt fails to teach matching phonemes against syllable grammars. Furthermore, it would have not been obvious to one of ordinary skill in the art at the time of invention to modify Hunt in order to derive the claimed invention. Therefore, claims 46-61 are allowed over the prior art of record.

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

Art Unit: 2626

Any inquiry concerning this communication or earlier communications from the examiner should be directed to HUYEN X. VO whose telephone number is (571)272-7631. The examiner can normally be reached on M-F, 9-5:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Patrick Edouard can be reached on 571-272-7603. 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.

/Huyen X Vo/
Primary Examiner, Art Unit 2626

6/6/2009

Notice of References Cited	Application/Control No. 11/513,269		Applicant(s)/Patent Under Reexamination KENNEWICK ET AL.	
	Examiner HUYEN X. VO		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-7,146,319	12-2006	Hunt, Melvyn J.	704/254
	B	US-			
	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	
	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.

EAST Search History

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
L13	23	"5799276" and phoneme and syllable	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2009/05/30 10:36
L14	867	(speech near3 recogni\$) and (phoneme with syllable)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2009/05/30 10:46
L15	96	(speech near3 recogni\$) and (phoneme with syllable) and (acoustic\$ near3 syllable)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2009/05/30 10:47
L16	89	"704"/\$.ccls. and (speech near3 recogni\$) and (phoneme with syllable) and (acoustic\$ near3 syllable)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2009/05/30 10:47
L17	68	"704"/\$.ccls. and (speech near3 recogni\$) and (phoneme with syllable) and (acoustic\$ near3 syllable) and @ad<"20050831"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2009/05/30 10:48
L18	23	"704"/\$.ccls. and (speech near3 recogni\$) and (phoneme with (compar\$ match\$) with syllable) and (acoustic\$ near3 syllable) and @ad<"20050831"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2009/05/30 10:49
L19	0	"704"/\$.ccls. and (speech near3 recogni\$) and (phoneme with (compar\$ match\$) with syllable) and (grammar\$ near3 syllable) and @ad<"20050831"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2009/05/30 10:59

L20	0	"704"/\$.ccls. and (speech near3 recogni\$) and (phoneme with (compar\$ match\$ map\$4) with syllable) and (grammar\$ near3 syllable) and @ad< "20050831"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2009/05/30 10:59
L21	23	"704"/\$.ccls. and (speech near3 recogni\$) and (phoneme with (compar\$ match\$ map\$4) with syllable) and (acoustic near3 syllable) and @ad< "20050831"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2009/05/30 11:00
L22	2	"I23" and ((recogn\$ or conver\$4) near3 (phoneme or phonetic\$))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2009/05/30 11:01
L23	24	"704"/\$.ccls. and (speech near3 recogni\$) and (phoneme with (compar\$ match\$ map\$4) with syllable) and ((phoneme or phonetic) near3 sequence\$1) and @ad< "20050831"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2009/05/30 11:09

5/30/09 11:10:15 AM

INFORMATION DISCLOSURE CITATION IN AN APPLICATION Form PTO-1449	Docket Number	Application Number
	090611-0356510	11/513,269
	Applicant(s)	
	Robert A. KENNEWICK <i>et al.</i>	
	Filing Date	Group Art Unit
	August 31, 2006	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 <i>et al.</i>	704	251	
	B	5,918,222	06/29/1999	Fukui <i>et al.</i>	707	1	
	C	6,501,833	12/31/2002	Phillips <i>et al.</i>	379	88.07	
	D	6,556,973	04/29/2003	Lewin	704	277	
	E	6,567,797	05/20/2003	Schuetze <i>et al.</i>	707	2	
	F	6,570,555	05/27/2003	Prevost <i>et al.</i>	345	156	
	G	6,735,592	05/11/2004	Neumann <i>et al.</i>	707	101	
	H	6,757,718	06/29/2004	Halverson <i>et al.</i>	709	218	
	I	6,996,531	02/07/2006	Korall <i>et al.</i>	704	270	
	J	7,020,609	03/28/2003	Thrift <i>et al.</i>	704	270.1	
	K	7,027,975	04/11/2006	Pazandak <i>et al.</i>	704	9	
	L	7,092,928	08/15/2006	Elad <i>et al.</i>	706	60	
	M	7,137,126	11/14/2006	Coffman <i>et al.</i>	719	328	
	N	7,289,606	10/30/2007	Sibal <i>et al.</i>	379	52	
	O	2002/0188602	12/12/2002	Stubler <i>et al.</i>	707	3	
	P	2003/0112267	06/19/2003	Belrose	345	728	
	Q	2004/0044516	03/04/2004	Kennewick <i>et al.</i>	704	5	

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	REF	DOCUMENT NO.	DATE	COUNTRY	CLASS	SUBCLASS	Translations	
							YES	NO

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

	R	CHAI <i>et al.</i> , "MIND: A Semantics-Based Multimodal Interpretation Framework for Conversational System", <u>Proceedings of the International CLASS Workshop on Natural, Intelligent and Effective Interaction in Multimodal Dialogue Systems</u> , June 2002, pages 37-46.
	S	CHEYER <i>et al.</i> , "Multimodal Maps: An Agent-Based Approach", <u>International Conference on Cooperative Multimodal Communication (CMC/95)</u> , May 24-26, 1995, pages 111-121.
	T	ELIO <i>et al.</i> , "On Abstract Task Models and Conversation Policies" in <u>Workshop on Specifying and Implementing Conversation Policies, Autonomous Agents '99</u> , Seattle, 1999, 10 pages.
	U	TURUNEN, "Adaptive Interaction Methods in Speech User Interfaces", <u>Conference on Human Factors in Computing Systems</u> , Seattle, Washington, 2001, pages 91-92.

EXAMINER	/Huyen Vo/	DATE CONSIDERED	06/06/2009
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.			



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BIB DATA SHEET

CONFIRMATION NO. 2993

SERIAL NUMBER 11/513,269	FILING or 371(c) DATE 08/31/2006 RULE	CLASS 704	GROUP ART UNIT 2626	ATTORNEY DOCKET NO. 090611-0356510		
APPLICANTS Robert A. Kennewick, Seattle, WA; Min Ke, Bothell, WA; Michael Tjalve, Bellevue, WA; Philippe Di Cristo, Bellevue, WA; ** CONTINUING DATA ***** This appln claims benefit of 60/712,412 08/31/2005 ** FOREIGN APPLICATIONS ***** ** IF REQUIRED, FOREIGN FILING LICENSE GRANTED ** ** SMALL ENTITY ** 09/19/2006						
Foreign Priority claimed ☐ Yes ☒ No 35 USC 119(a-d) conditions met ☐ Yes ☐ No Verified and /HUYEN X VO/ Acknowledged Examiner's Signature		☐ Met after Allowance HV Initials	STATE OR COUNTRY WA	SHEETS DRAWINGS 3	TOTAL CLAIMS 45	INDEPENDENT CLAIMS 6
ADDRESS PILLSBURY WINTHROP SHAW PITTMAN, LLP P.O. BOX 10500 MCLEAN, VA 22102 UNITED STATES						
TITLE DYNAMIC SPEECH SHARPENING						
FILING FEE RECEIVED 1490	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		

INFORMATION DISCLOSURE CITATION IN AN APPLICATION Form PTO-1449	Docket Number	Application Number
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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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							YES	NO
	1X	WO 01/78065	10/18/2001	International				

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	1Y	REUTERS, "IBM to Enable Honda Drivers to Talk to Cars", Charles Schwab & Co., Inc., July 28, 2002, 1 page.
	1Z	LIN, Bor-shen, <i>et al.</i> , "A Distributed Architecture for Cooperative Spoken Dialogue Agents with Coherent Dialogue State and History", ASRU'99, 1999, 4 pages.
	1AA	KUHN, Thomas, <i>et al.</i> , "Hybrid In-Car Speech Recognition for Mobile Multimedia Applications", Vehicular Technology Conference, IEEE, July 1999, pages 2009-2013.

EXAMINER	/Huyen Vo/	DATE CONSIDERED	06/06/2009
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.			

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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	

FOREIGN PATENT DOCUMENTS

	REF	DOCUMENT NO.	DATE	COUNTRY	CLASS	SUBCLASS	Translations	
							YES	NO

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

	2X	BELVIN, Robert, <i>et al.</i> , "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.
	2Y	LIND, R., <i>et al.</i> , "The Network Vehicle—A Glimpse into the Future of Mobile Multi-Media", <u>IEEE Aerosp. Electron. Systems Magazine</u> , Volume 14, No. 9, September 1999, pages 27-32.

EXAMINER	DATE CONSIDERED
/Huyen Vo/	06/06/2009
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.	

INFORMATION DISCLOSURE CITATION IN AN APPLICATION				Docket Number		Application Number		
				090611-0356510		11/513,269		
				Applicant(s)				
				Robert A. KENNEWICK <i>et al.</i>				
Form PTO-1449				Filing Date		Group Art Unit		
				August 31, 2006		2626		
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 <i>et al.</i>	370	352		
	3B	6,144,667	11/07/2000	Doshi <i>et al.</i>	370	401		
	3C	6,160,883	12/12/2000	Jackson <i>et al.</i>	379	230		
	3D	6,173,279	01/09/2001	Levin <i>et al.</i>	707	5		
	3E	6,175,858	01/16/2001	Bulfer <i>et al.</i>	709	206		
	3F	6,185,535	02/06/2001	Hedin <i>et al.</i>	704	270		
	3G	6,192,110	02/20/2001	Abella <i>et al.</i>	379	88.01		
	3H	6,192,338	02/20/2001	Haszto <i>et al.</i>	704	257		
	3I	6,195,651	02/27/2001	Handel <i>et al.</i>	707	2		
	3J	6,208,972	03/27/2001	Grant <i>et al.</i>	704	275		
	3K	6,219,346	04/17/2001	Maxemchuk	370	338		
	3L	6,219,643	04/17/2001	Cohen <i>et al.</i>	704	257		
	3M	6,233,556	05/15/2001	Teunen <i>et al.</i>	704	250		
	3N	6,233,559	05/15/2001	Balakrishnan	704	275		
	3O	6,246,981	06/12/2001	Papineni <i>et al.</i>	704	235		
	3P	6,272,455	08/07/2001	Hoshen <i>et al.</i>	704	1		
	3Q	6,292,767	09/18/2001	Jackson <i>et al.</i>	704	1		
	3R	6,314,402	11/06/2001	Monaco <i>et al.</i>	704	275		
	3S	6,366,886	04/02/2002	Dragosh <i>et al.</i>	704	270.1		
	3T	6,385,646	05/07/2002	Brown <i>et al.</i>	709	217		
	3U	6,393,428	05/21/2002	Miller <i>et al.</i>	707	102		
	3V	6,404,878	06/11/2002	Jackson <i>et al.</i>	379	221.01		
	3W	6,408,272	06/18/2002	White <i>et al.</i>	704	270.1		
FOREIGN PATENT DOCUMENTS								
	REF	DOCUMENT NO.	DATE	COUNTRY	CLASS	SUBCLASS	Translations	
							YES	NO
OTHER DOCUMENTS (Including Author, Title, Date, Pertinent Pages, Etc.)								
	3X	ZHAO, Yilin, "Telematics: Safe and Fun Driving", <u>IEEE Intelligent Systems</u> , Volume 17, Issue 1, 2002, pages 10-14.						

EXAMINER	DATE CONSIDERED
/Huyen Vo/	06/06/2009
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.	

INFORMATION DISCLOSURE CITATION IN AN APPLICATION				Docket Number		Application Number		
				090611-0356510		11/513,269		
				Applicant(s)				
				Robert A. KENNEWICK <i>et al.</i>				
				Filing Date		Group Art Unit		
Form PTO-1449				August 31, 2006		2626		
U.S. PATENT DOCUMENTS								
*EXAMINER INITIAL	REF	DOCUMENT NO.	DATE	NAME	CLASS	SUBCLASS	FILING DATE IF APPROPRIATE	
	4A	6,411,810	06/25/2002	Maxemchuk	455	453		
	4B	6,418,210	07/09/2002	Sayko	379	142.15		
	4C	6,420,975	07/16/2002	DeLine <i>et al.</i>	340	815.4		
	4D	6,430,285	08/06/2002	Bauer <i>et al.</i>	379	265.01		
	4E	6,434,523	08/13/2002	Monaco	704	257		
	4F	6,434,524	08/13/2002	Weber	704	257		
	4G	6,442,522	08/27/2002	Carberry <i>et al.</i>	704	257		
	4H	6,446,114	09/03/2002	Bulfer <i>et al.</i>	709	206		
	4I	6,453,153	09/17/2002	Bowker <i>et al.</i>	455	67.4		
	4J	6,453,292	09/17/2002	Ramaswamy <i>et al.</i>	704	235		
	4K	6,456,711	09/24/2002	Cheung <i>et al.</i>	379	265.09		
	4L	6,498,797	12/24/2002	Anerousis <i>et al.</i>	370	522		
	4M	6,499,013	12/24/2002	Weber	704	257		
	4N	6,501,834	12/31/2002	Milewski <i>et al.</i>	379	93.24		
	4O	6,523,061	02/18/2003	Halverson <i>et al.</i>	709	202		
	4P	6,532,444	03/11/2003	Weber	704	257		
	4Q	6,539,348	03/25/2003	Bond <i>et al.</i>	704	9		
	4R	6,553,372	04/22/2003	Brassell <i>et al.</i>	707	5		
	4S	6,560,576	05/06/2003	Cohen <i>et al.</i>	704	270		
	4T	6,567,778	05/20/2003	Chao Chang <i>et al.</i>	704	257		
	4U	6,570,964	05/27/2003	Murveit <i>et al.</i>	379	67.1		
	4V	6,574,624	06/03/2003	Johnson <i>et al.</i>	707	5		
	4W	6,594,257	07/15/2003	Doshi <i>et al.</i>	370	352		
FOREIGN PATENT DOCUMENTS								
	REF	DOCUMENT NO.	DATE	COUNTRY	CLASS	SUBCLASS	Translations	
							YES	NO
OTHER DOCUMENTS (Including Author, Title, Date, Pertinent Pages, Etc.)								

EXAMINER	DATE CONSIDERED
/Huyen Vo/	06/06/2009
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.	

Form PTO-1449[illegible][illegible]

EXAMINER

/Huyen Vo/

DATE CONSIDERED

06/06/2009

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	
	11/513,269	KENNEWICK ET AL.	
	Examiner	Art Unit	
	HUYEN X. VO	2626	

ISSUE CLASSIFICATION										
ORIGINAL					CROSS REFERENCE(S)					
CLASS		SUBCLASS			CLASS	SUBCLASS (ONE SUBCLASS PER BLOCK)				
704		257			704	235	231			
INTERNATIONAL CLASSIFICATION										
G	1	0	L	15/00						
				/						
				/						
				/						
				/						

----- (Assistant Examiner) (Date)		/Huyen X. Vo/ 6/6/2009 (Primary Examiner) (Date)		Total Claims Allowed: 16	
(Legal Instruments Examiner) (Date)				O.G. Print Claim(s) 46	O.G. Print Fig. 1

☐ 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		31	16	61		91		121		151		181		210
	2		32		62		92		122		152		182		
	3		33		63		93		123		153		183		
	4		34		64		94		124		154		184		
	5		35		65		95		125		155		185		
	6		36		66		96		126		156		186		
	7		37		67		97		127		157		187		
	8		38		68		98		128		158		188		
	9		39		69		99		129		159		189		
	10		40		70		100		130		160		190		
	11		41		71		101		131		161		191		
	12		42		72		102		132		162		192		
	13		43		73		103		133		163		193		
	14		44		74		104		134		164		194		
	15		45		75		105		135		165		195		
	16	1	46		76		106		136		166		196		
	17	2	47		77		107		137		167		197		
	18	3	48		78		108		138		168		198		
	19	4	49		79		109		139		169		199		
	20	5	50		80		110		140		170		200		
	21	6	51		81		111		141		171		201		
	22	7	52		82		112		142		172		202		
	23	8	53		83		113		143		173		203		
	24	9	54		84		114		144		174		204		
	25	10	55		85		115		145		175		205		
	26	11	56		86		116		146		176		206		
	27	12	57		87		117		147		177		207		
	28	13	58		88		118		148		178		208		
	29	14	59		89		119		149		179		209		
	30	15	60		90		120		150		180				

EAST Search History

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
L15	96	(speech near3 recogni\$) and (phoneme with syllable) and (acoustic\$ near3 syllable)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2009/05/30 10:47
L16	89	"704"/\$.ccls. and (speech near3 recogni\$) and (phoneme with syllable) and (acoustic\$ near3 syllable)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2009/05/30 10:47
L17	68	"704"/\$.ccls. and (speech near3 recogni\$) and (phoneme with syllable) and (acoustic\$ near3 syllable) and @ad< "20050831"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2009/05/30 10:48
L18	23	"704"/\$.ccls. and (speech near3 recogni\$) and (phoneme with (compar\$ match\$) with syllable) and (acoustic\$ near3 syllable) and @ad< "20050831"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2009/05/30 10:49
L21	23	"704"/\$.ccls. and (speech near3 recogni\$) and (phoneme with (compar\$ match\$ map\$4) with syllable) and (acoustic near3 syllable) and @ad< "20050831"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2009/05/30 11:00
L23	24	"704"/\$.ccls. and (speech near3 recogni\$) and (phoneme with (compar\$ match\$ map\$4) with syllable) and ((phoneme or phonetic) near3 sequence\$1) and @ad< "20050831"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2009/05/30 11:09
L24	267	"704"/\$.ccls. and (speech near3 recogni\$) and (phoneme and syllable) and ((phoneme or phonetic) near3 sequence \$1) and @ad< "20050831"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2009/05/30 11:21

L25	237	"704"/\$.ccls. and (speech near3 recogni\$) and ((phoneme phonetic\$) same syllable) and ((phoneme or phonetic) near3 sequence\$1) and @ad<"20050831"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2009/05/30 11:22
L26	201	"704"/\$.ccls. and (speech near3 recogni\$) and ((phoneme phonetic\$) with syllable) and ((phoneme or phonetic) near3 sequence\$1) and @ad<"20050831"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2009/05/30 11:22
L27	29	"704"/\$.ccls. and (speech near3 recogni\$) and ((phoneme phonetic\$) with (compar\$ or match\$ or map\$4) with syllable) and ((phoneme or phonetic) near3 sequence \$1) and @ad<"20050831"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2009/05/30 11:23
L28	29	"704"/\$.ccls. and (speech near3 recogni\$) and ((phoneme phonetic\$) with (compar\$ or match\$ or map\$4) with syllable) and ((phoneme or phonetic) near3 sequence \$1) and @ad<"20050831" and syllable\$	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2009/05/30 11:30
L29	89	"704"/\$.ccls. and (speech near3 recogni\$) and ((phoneme phonetic\$) with (compar\$ or match\$ or map\$4) with syllable) and @ad<"20050831" and syllable\$	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2009/05/30 11:45
L30	33	"704"/\$.ccls. and (speech near3 recogni\$) and ((phoneme phonetic\$) near4 (compar\$ or match \$ or map\$4) near4 syllable) and @ad<"20050831" and syllable\$	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2009/05/30 11:46

L31	37	(speech near3 recogni\$) and ((phoneme phonetic \$) near4 (compar\$ or match\$ or map\$4) near4 syllable) and @ad<"20050831" and syllable\$	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2009/05/30 11:52
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5/ 30/ 09 11:58:22 AM

EAST Search History

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
L1	2	"7146319"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2009/06/06 08:09
L2	1	"7146319" and syllable	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2009/06/06 08:09
L3	1	"7146319" and grammar	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2009/06/06 08:13
L4	71	((phonetic\$ or phoneme \$1) near4 syllable\$1 near4 (match\$ or compar \$5))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2009/06/06 08:32
L5	37	"704"/\$.ccls. and ((phonetic\$ or phoneme \$1) near4 syllable\$1 near4 (match\$ or compar \$5)) and @ad<"20050831"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2009/06/06 08:32

6/ 6/ 09 8:55:14 AM

Search Notes

Application/Control No.

11/513,269

Examiner

HUYEN X. VO

Applicant(s)/Patent under
Reexamination

KENNEWICK ET AL.

Art Unit

2626

SEARCHED

Class	Subclass	Date	Examiner
704	257; 231; 235; 236; 247; 250	6/6/2009	HV
704	252; 255	6/6/2009	HV

INTERFERENCE SEARCHED

Class	Subclass	Date	Examiner
704	231; 235	6/6/2009	HV
704	236; 247	6/6/2009	HV
704	250; 252	6/6/2009	HV

**SEARCH NOTES
(INCLUDING SEARCH STRATEGY)**

	DATE	EXMR
EAST search included; google; ieeexplore	6/6/2009	HV

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	11/513,269
Filing Date	August 31, 2006
First Named Inventor	ROBERT A. KENNEWICK
Art Unit	2626
Examiner Name	Huyen X. Vo
Attorney Docket Number	090611-0356510

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

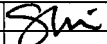
- a. ☐ Suspension of action on the above-identified application is requested under 37 CFR 1.103(c) for a period of _____ months. (Period of suspension shall not exceed 3 months; Fee under 37 CFR 1.17(i) required)
- b. ☐ Other _____

3. Fees

- The RCE fee under 37 CFR 1.17(e) is required by 37 CFR 1.114 when the RCE is filed.
- The Director is hereby authorized to charge the following fees, any underpayment of fees, or credit any overpayments, to
- a. ☒ 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	July 2, 2009
Name (Print/Type)	Syed 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		Date	
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 : Robert A. KENNEWICK *et al.* CONFIRMATION No.: 2993
SERIAL NUMBER : 11/513,269 EXAMINER: Huyen X. Vo
FILING DATE : August 31, 2006 ART UNIT: 2626
FOR : DYNAMIC SPEECH SHARPENING

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.

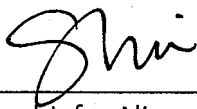
This Supplemental Information Disclosure Statement is being filed within three months of the filing date of a national application other than a continued prosecution application under 37 C.F.R. §1.53(d), or within three months of the date of entry of the national stage as set forth in 37 C.F.R. §1.491 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).

Some of these documents 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: July 2, 2009

PATENT COOPERATION TREATY

PCT

INTERNATIONAL SEARCH REPORT

(PCT Article 18 and Rules 43 and 44)

Applicant's or agent's file reference 90611-368071	FOR FURTHER ACTION	see Form PCT/ISA/220 as well as, where applicable, item 5 below.
International application No. PCT/US 08/53157	International filing date (day/month/year) 06 February 2008 (06.02.2008)	(Earliest) Priority Date (day/month/year) 06 February 2007 (06.02.2007)
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 43.6bis(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.

INTERNATIONAL SEARCH REPORT

International application No.

PCT/US 08/53157

A. CLASSIFICATION OF SUBJECT MATTER

IPC(8) - G06Q 30/00

USPC - 705/14

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(8) - G06Q 30/00 (2008.04)

USPC - 705/14

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched
705/1, 7, 8; 725/37, 38, 42

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

PubWEST(USPT,PGPB,EPAB,JPAB); Google Scholar; Google

Search Terms Used: method to provide/select/display advertisement, advertisement, voice input, knowledge source, database, track, profile, user profile, advertisement database/source

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 5,696,965 A (DEDRICK) 09 December 1997 (09.12.1997) entire document, especially col 4, ln 60-66, col 5, ln 10-20, col 6, ln 12-30 and col 8, ln 24 - col 9, ln 10.	1-20

☐ 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

24 April 2008 (24.04.2008)

Date of mailing of the international search report

22 MAY 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

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 43.6bis(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.

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: 704/4Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched
704/1-4;709/204,205,207Electronic 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:	"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
"A" document defining the general state of the art which is not considered to be of particular relevance	"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
"E" earlier application or patent but published on or after the international filing date	"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
"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)	"&" document member of the same patent family
"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	

Date of the actual completion of the international search

24 September 2008 (24.09.2008)

Date of mailing of the international search report

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

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 43.6bis(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.

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 - 704/9Documentation 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	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
Y		43-44
Y	US 5,902,347 A (BACKMAN et al.) 11 May 1999 (11.05.1999), entire document, especially col 1 in 32-34, col 4 in 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

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"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

25 September 2008 (25.09.2008)

Date of mailing of the international search report

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

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 (<i>day/month/year</i>) 09 July 2008 (09.07.2008)	(Earliest) Priority Date (<i>day/month/year</i>) 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 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 43.6bis(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,

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6. With regard to the drawings,

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☒ 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.

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 7,376,645 B2 (BERNARD) 20 May 2008 (20.05.2008), Abstract, FIGS.1-3; and Col 1, In 19-30; Col 1, In 35 to Col 2, In 2; Col 2, In 21 to Col 4, In 16; Col 4, In 21-56, 60; Col 5, In 10; Col 6, In 1-5, 7, 22-23; Col 6, In 37 to Col 7, In 4; Col 7, In 13-26; Col 7, In 52 to Col 10, In 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

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"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)

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

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"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

04 October 2008 (04.10.2008)

Date of mailing of the international search report

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 Form PTO-1449	Docket Number	Application Number
	090611-0356510	11/513,269
	Applicant(s)	
	Robert A. KENNEWICK <i>et al.</i>	
	Filing Date	Group Art Unit
	August 31, 2006	2626

U.S. PATENT DOCUMENTS

*EXAMINER INITIAL	REF	DOCUMENT NO.	DATE	NAME	CLASS	SUBCLASS	FILING DATE IF APPROPRIATE
	1A	4,430,669	02/07/1984	Cheung	358	122	
	1B	5,274,560	12/28/1993	LaRue	364	444	
	1C	5,377,350	12/27/1994	Skinner	395	600	
	1D	5,500,920	03/19/1996	Kupiec	395	2.79	
	1E	5,696,965	12/09/1997	Dedrick	395	610	
	1F	5,774,859	06/30/1998	Houser <i>et al.</i>	704	275	
	1G	5,878,385	03/02/1999	Bralich <i>et al.</i>	704	9	
	1H	5,902,347	05/11/1999	Backman <i>et al.</i>	701	200	
	1I	6,195,634	02/27/2001	Dudemaine <i>et al.</i>	704	231	
	1J	6,415,257	07/02/2002	Junqua <i>et al.</i>	704	275	
	1K	6,466,654	10/15/2002	Cooper <i>et al.</i>	379	88.01	
	1L	6,513,006	01/28/2003	Howard <i>et al.</i>	704	257	
	1M	6,574,597	06/03/2003	Mohri <i>et al.</i>	704	251	
	1N	6,598,018	07/22/2003	Junqua	704	251	
	1O	6,631,346	10/07/2003	Karaorman <i>et al.</i>	704	9	
	1P	6,643,620	11/04/2003	Contolini <i>et al.</i>	704	270	
	1Q	6,721,706	04/13/2004	Strubbe <i>et al.</i>	704	275	
	1R	6,795,808	09/21/2004	Strubbe <i>et al.</i>	704	275	
	1S	6,901,366	05/31/2005	Kuhn <i>et al.</i>	704	275	
	1T	6,944,594	09/13/2005	Busayapongchai <i>et al.</i>	704	275	
	1U	7,127,400	10/24/2006	Koch	704	270.1	
	1V	7,376,645	05/20/2008	Bernard	707	3	
	1W	7,398,209	07/08/2008	Kennewick <i>et al.</i>	704	255	

FOREIGN PATENT DOCUMENTS

REF	DOCUMENT NO.	DATE	COUNTRY	CLASS	SUBCLASS	Translations	
						YES	NO

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

1X	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.
1Y	VANHOUCKE, Vincent, "Confidence Scoring and Rejection Using Multi-Pass Speech Recognition", Nuance Communications, Menlo Park, CA, [no date], 4 pages.
1Z	WENG, Fuliang, <i>et al.</i> , "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.	

INFORMATION DISCLOSURE CITATION IN AN APPLICATION Form PTO-1449	Docket Number	Application Number
	090611-0356510	11/513,269
	Applicant(s)	
	Robert A. KENNEWICK <i>et al.</i>	
	Filing Date	Group Art Unit
	August 31, 2006	2626

U.S. PATENT DOCUMENTS

*EXAMINER INITIAL	REF	DOCUMENT NO.	DATE	NAME	CLASS	SUBCLASS	FILING DATE IF APPROPRIATE
	2A	7,424,431	09/09/2008	Greene <i>et al.</i>	704	270	
	2B	2001/0041980	11/15/2001	Howard <i>et al.</i>	704	270	
	2C	2002/0049805	04/25/2002	Yamada <i>et al.</i>	709	202	
	2D	2002/0065568	05/30/2002	Silfvast <i>et al.</i>	700	94	
	2E	2002/0082911	06/27/2002	Dunn <i>et al.</i>	705	14	
	2F	2002/0120609	08/29/2002	Lang <i>et al.</i>	707	1	
	2G	2002/0124050	09/05/2002	Middeljans	709	203	
	2H	2002/0198714	12/26/2002	Zhou	704	252	
	2I	2003/0014261	01/16/2003	Kageyama	704	275	
	2J	2004/0025115	02/05/2004	Sienel <i>et al.</i>	715	513	
	2K	2004/0166832	08/26/2004	Portman <i>et al.</i>	455	412.1	
	2L	2004/0199375	10/07/2004	Ehsani <i>et al.</i>	704	4	
	2M	2005/0021334	01/27/2005	Iwahashi	704	240	
	2N	2005/0114116	05/26/2005	Fiedler	704	201	
	2O	2007/0033005	02/08/2007	Cristo <i>et al.</i>	704	9	
	2P	2007/0038436	02/15/2007	Cristo <i>et al.</i>	704	9	
	2Q	2007/0050191	03/01/2007	Weider <i>et al.</i>	704	275	
	2R	2008/0091406	04/17/2008	Baldwin <i>et al.</i>	704	4	

FOREIGN PATENT DOCUMENTS

	REF	DOCUMENT NO.	DATE	COUNTRY	CLASS	SUBCLASS	Translations	
							YES	NO

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

	2S	EL MELIANI <i>et al.</i> , "A Syllabic-Filler-Based Continuous Speech Recognizer for Unlimited Vocabulary", Canadian Conference on Electrical and Computer Engineering, Volume 2, September 5-8, 1995, pages 1007-1010.						

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:		11513269		
Filing Date:		31-Aug-2006		
Title of Invention:		DYNAMIC SPEECH SHARPENING		
First Named Inventor/Applicant Name:		Robert A. Kennewick		
Filer:		Syed Jafar Ali/Diane Bogusz		
Attorney Docket Number:		090611-0356510		
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:				
Request for continued examination	1801	1	810	810
Total in USD (\$)				810

Electronic Acknowledgement Receipt

EFS ID:	5636165
Application Number:	11513269
International Application Number:	
Confirmation Number:	2993
Title of Invention:	DYNAMIC SPEECH SHARPENING
First Named Inventor/Applicant Name:	Robert A. Kennewick
Customer Number:	00909
Filer:	Syed Jafar Ali/Diane Bogusz
Filer Authorized By:	Syed Jafar Ali
Attorney Docket Number:	090611-0356510
Receipt Date:	02-JUL-2009
Filing Date:	31-AUG-2006
Time Stamp:	14:55:08
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	Deposit Account
Payment was successfully received in RAM	\$810
RAM confirmation Number	1234
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)

Charge any Additional Fees required under 37 C.F.R. Section 1.19 (Document supply fees)

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1		0356510.PDF	674274 fc7b0814fc92e216ee45a187824bbb1dee8667bf	yes	13

Multipart Description/PDF files in .zip description

Document Description	Start	End
Request for Continued Examination (RCE)	1	1
Transmittal Letter	2	11
Information Disclosure Statement (IDS) Filed (SB/08)	12	13

Warnings:**Information:**

2	Fee Worksheet (PTO-875)	fee-info.pdf	30602 84f64228734fa57200d9f6d76e4e7802bc0d bef4	no	2
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Warnings:**Information:**

Total Files Size (in bytes):	704876
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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 Acknowledgement Receipt

EFS ID:	5636661
Application Number:	11513269
International Application Number:	
Confirmation Number:	2993
Title of Invention:	DYNAMIC SPEECH SHARPENING
First Named Inventor/Applicant Name:	Robert A. Kennewick
Customer Number:	00909
Filer:	Syed Jafar Ali/Susan Trader
Filer Authorized By:	Syed Jafar Ali
Attorney Docket Number:	090611-0356510
Receipt Date:	02-JUL-2009
Filing Date:	31-AUG-2006
Time Stamp:	15:18:29
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	NPL Documents	MAO.pdf	87562 1b3ffe999a30b15eea176ac4951c57362d0c3bbb	no	4

Warnings:

Information:

2	NPL Documents	VANHOUCKE.pdf	258100 095933ea064f85a3705750030dec1a9690d3ae6d	no	4
Warnings:					
Information:					
3	NPL Documents	WENG.pdf	345795 ab3fae98c6cdea032dd636d4c37094120b0def8c	no	4
Warnings:					
Information:					
4	NPL Documents	EL_MELIANI.pdf	294901 b1c4510f36ba51ee85f20457fdd383145f4e918a	no	4
Warnings:					
Information:					
Total Files Size (in bytes):			986358		
<p>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.</p> <p><u>New Applications Under 35 U.S.C. 111</u> 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.</p> <p><u>National Stage of an International Application under 35 U.S.C. 371</u> 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.</p> <p><u>New International Application Filed with the USPTO as a Receiving Office</u> 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.</p>					

INFORMATION DISCLOSURE CITATION IN AN APPLICATION Form PTO-1449	Docket Number	Application Number
	090611-0356510	11/513,269
	Applicant(s)	
	Robert A. KENNEWICK <i>et al.</i>	
	Filing Date	Group Art Unit
	August 31, 2006	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 <i>et al.</i>	704	251	
	B	5,918,222	06/29/1999	Fukui <i>et al.</i>	707	1	
	C	6,501,833	12/31/2002	Phillips <i>et al.</i>	379	88.07	
	D	6,556,973	04/29/2003	Lewin	704	277	
	E	6,567,797	05/20/2003	Schuetze <i>et al.</i>	707	2	
	F	6,570,555	05/27/2003	Prevost <i>et al.</i>	345	156	
	G	6,735,592	05/11/2004	Neumann <i>et al.</i>	707	101	
	H	6,757,718	06/29/2004	Halverson <i>et al.</i>	709	218	
	I	6,996,531	02/07/2006	Korall <i>et al.</i>	704	270	
	J	7,020,609	03/28/2006	Thrift <i>et al.</i>	704	270.1	
	K	7,027,975	04/11/2006	Pazandak <i>et al.</i>	704	9	
	L	7,092,928	08/15/2006	Elad <i>et al.</i>	706	60	
	M	7,137,126	11/14/2006	Coffman <i>et al.</i>	719	328	
	N	7,289,606	10/30/2007	Sibal <i>et al.</i>	379	52	
	O	2002/0188602	12/12/2002	Stubler <i>et al.</i>	707	3	
	P	2003/0112267	06/19/2003	Belrose	345	728	
	Q	2004/0044516	03/04/2004	Kennewick <i>et al.</i>	704	5	

FOREIGN PATENT DOCUMENTS

REF	DOCUMENT NO.	DATE	COUNTRY	CLASS	SUBCLASS	Translations	
						YES	NO

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

R	CHAI <i>et al.</i> , "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.
S	CHEYER <i>et al.</i> , "Multimodal Maps: An Agent-Based Approach", International Conference on Cooperative Multimodal Communication (CMC/95), May 24-26, 1995, pages 111-121.
T	ELIO <i>et al.</i> , "On Abstract Task Models and Conversation Policies" in Workshop on Specifying and Implementing Conversation Policies, Autonomous Agents '99, Seattle, 1999, 10 pages.
U	TURUNEN, "Adaptive Interaction Methods in Speech User Interfaces", Conference on Human Factors in Computing Systems, Seattle, Washington, 2001, pages 91-92.

EXAMINER	/Huyen Vo/	DATE CONSIDERED	06/06/2009
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.			



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

NOTICE OF ALLOWANCE AND FEE(S) DUE

909 7590 08/24/2009

PILLSBURY WINTHROP SHAW PITTMAN, LLP
P.O. BOX 10500
MCLEAN, VA 22102

EXAMINER

VO, HUYEN X

ART UNIT

PAPER NUMBER

2626

DATE MAILED: 08/24/2009

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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11/513,269

08/31/2006

Robert A. Kennewick

090611-0356510

2993

TITLE OF INVENTION: DYNAMIC SPEECH SHARPENING

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	11/24/2009

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

08/24/2009

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.
11/513,269	08/31/2006	Robert A. Kennewick	090611-0356510	2993

TITLE OF INVENTION: DYNAMIC SPEECH SHARPENING

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	11/24/2009

EXAMINER	ART UNIT	CLASS-SUBCLASS
VO, HUYEN X	2626	704-257000

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 _____

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.



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.
11/513,269	08/31/2006	Robert A. Kennewick	090611-0356510	2993
909	7590	08/24/2009	EXAMINER	
PILLSBURY WINTHROP SHAW PITTMAN, LLP P.O. BOX 10500 MCLEAN, VA 22102			VO, HUYEN X	
			ART UNIT	PAPER NUMBER
			2626	
DATE MAILED: 08/24/2009				

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 600 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 600 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)	
	11/513,269	KENNEWICK ET AL.	
	Examiner	Art Unit	
	HUYEN X. VO	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 7/21/2009.
2. ☒ The allowed claim(s) is/are 46-61.
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)

- | | |
|--|--|
| <ol style="list-style-type: none"> 1. ☐ Notice of References Cited (PTO-892) 2. ☐ Notice of Draftsperson'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 | <ol style="list-style-type: none"> 5. ☐ Notice of Informal Patent Application 6. ☒ Interview Summary (PTO-413),
Paper No./Mail Date <u>8/20/2009</u> . 7. ☒ Examiner's Amendment/Comment 8. ☒ Examiner's Statement of Reasons for Allowance 9. ☐ Other _____. |
|--|--|

Interview Summary	Application No. 11/513,269	Applicant(s) KENNEWICK ET AL.	
	Examiner HUYEN X. VO	Art Unit 2626	

All participants (applicant, applicant's representative, PTO personnel):

(1) HUYEN X. VO. (3) _____.

(2) Mr. Syed Jafar Ali. (4) _____.

Date of Interview: 20 August 2009.

Type: a) ☒ Telephonic b) ☐ Video Conference
c) ☐ Personal [copy given to: 1) ☐ applicant 2) ☐ applicant's representative]

Exhibit shown or demonstration conducted: d) ☐ Yes e) ☐ No.
If Yes, brief description: _____.

Claim(s) discussed: 46.

Identification of prior art discussed: _____.

Agreement with respect to the claims f) ☒ was reached. g) ☐ was not reached. h) ☐ N/A.

Substance of Interview including description of the general nature of what was agreed to if an agreement was reached, or any other comments: see claim amendments.

(A fuller description, if necessary, and a copy of the amendments which the examiner agreed would render the claims allowable, if available, must be attached. Also, where no copy of the amendments that would render the claims allowable is available, a summary thereof must be attached.)

THE FORMAL WRITTEN REPLY TO THE LAST OFFICE ACTION MUST INCLUDE THE SUBSTANCE OF THE INTERVIEW. (See MPEP Section 713.04). If a reply to the last Office action has already been filed, APPLICANT IS GIVEN A NON-EXTENDABLE PERIOD OF THE LONGER OF ONE MONTH OR THIRTY DAYS FROM THIS INTERVIEW DATE, OR THE MAILING DATE OF THIS INTERVIEW SUMMARY FORM, WHICHEVER IS LATER, TO FILE A STATEMENT OF THE SUBSTANCE OF THE INTERVIEW. See Summary of Record of Interview requirements on reverse side or on attached sheet.

/Huyen X Vo/ Primary Examiner, Art Unit 2626	
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EXAMINER'S AMENDMENT

1. An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it **MUST** be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone interview with Mr. Syed Jafar Ali on 8/20/2009. The application has been amended as follows:

Cancel claims 62-64.

In line 4 of claim 46, insert – at an electronic device –.

In line 5 of claim 46, “utterance” should read – utterance on the electronic device –.

Allowable Subject Matter

2. Claims 46-61 are allowed over the prior art of record. The following is an examiner's statement of reasons for allowance: Hunt (USPN 7146319) discloses a method for providing out-of-vocabulary interpretation capabilities and for tolerating noise when interpreting natural language speech utterances, the method comprising: receiving an utterance from a user (*referring to figures 1-3*); recognizing a stream of phonemes contained in the utterance (*referring to figures 1-3; producing a sequence of phonemes*); and generating at least one interpretation of the utterance (*referring to figures 1-3*). Hunt fails to specifically disclose mapping the recognized stream of phonemes to an acoustic grammar that phonemically represents one or more syllables,

Art Unit: 2626

the recognized stream of phonemes mapped to a series of one or more of the phonemically represented syllables; and wherein the generated interpretation includes the series of syllables mapped to the recognized stream of phonemes. In other words, Hunt fails to teach matching phonemes against syllable grammars. Furthermore, it would have not been obvious to one of ordinary skill in the art at the time of invention to modify Hunt in order to derive the claimed invention. Therefore, claims 46-61 are allowed over the prior art of record.

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 HUYEN X. VO whose telephone number is (571)272-7631. The examiner can normally be reached on M-F, 9-5:30.

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.

Art Unit: 2626

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.

/Huyen X Vo/
Primary Examiner, Art Unit 2626

8/20/2009

Search Notes

Application/Control No.

11/513,269

Examiner

HUYEN X. VO

Applicant(s)/Patent under
Reexamination

KENNEWICK ET AL.

Art Unit

2626

SEARCHED

Class	Subclass	Date	Examiner
704	257; 231; 235; 242; 250; 270	8/20/2009	HV
704	270.1	8/20/2009	HV

INTERFERENCE SEARCHED

Class	Subclass	Date	Examiner
704	231; 235	8/20/2009	HV
704	242; 250	8/20/2009	HV
704	270;270.1	8/20/2009	HV

**SEARCH NOTES
(INCLUDING SEARCH STRATEGY)**

	DATE	EXMR
Update EAST search included; google; ieeexplore	8/20/2009	HV

INFORMATION DISCLOSURE CITATION IN AN APPLICATION Form PTO-1449	Docket Number	Application Number
	090811-0356610	11/513,269
	Applicant(s)	
	Robert A. KENNEWICK <i>et al.</i>	
	Filing Date	Group Art Unit
	August 31, 2006	2626

U.S. PATENT DOCUMENTS

*EXAMINER INITIAL	REF	DOCUMENT NO.	DATE	NAME	CLASS	SUBCLASS	FILING DATE IF APPLICABLE
HV	A	5,799,278	08/25/1998	Komissarchik <i>et al.</i>	704	251	
	B	5,918,222	06/28/1999	Fukui <i>et al.</i>	707	1	
	C	6,501,833	12/31/2002	Phillips <i>et al.</i>	379	88.07	
	D	6,556,973	04/29/2003	Lewin	704	277	
	E	6,567,797	05/20/2003	Schuetze <i>et al.</i>	707	2	
	F	6,570,556	05/27/2003	Prevost <i>et al.</i>	345	156	
	G	6,735,592	05/11/2004	Neumann <i>et al.</i>	707	101	
	H	6,757,718	06/29/2004	Halverson <i>et al.</i>	708	218	
	I	6,996,531	02/07/2006	Korali <i>et al.</i>	704	270	
2006	J	7,020,809	03/28/2006	Thrift <i>et al.</i>	704	270.1	
	K	7,027,875	04/11/2006	Pazandak <i>et al.</i>	704	9	
	L	7,082,928	08/15/2006	Elafi <i>et al.</i>	705	60	
	M	7,137,128	11/14/2006	Coffman <i>et al.</i>	719	328	
	N	7,288,686	10/30/2007	Sibal <i>et al.</i>	379	52	
	Q	2002/0158602	12/12/2002	Stubler <i>et al.</i>	707	3	
	P	2003/0112267	08/19/2003	Belrose	345	728	
HV	Q	2004/0044518	03/04/2004	Kennewick <i>et al.</i>	704	5	

FOREIGN PATENT DOCUMENTS

REF	DOCUMENT NO.	DATE	COUNTRY	CLASS	SUBCLASS	Translations YES NO

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

HV	R	CHAI <i>et al.</i> , "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.
I	S	CHEYER <i>et al.</i> , "Multimodal Maps: An Agent-Based Approach", International Conference on Cooperative Multimodal Communication (CMC/95), May 24-26, 1995, pages 111-121.
I	T	ELIC <i>et al.</i> , "On Abstract Task Models and Conversation Policies" in Workshop on Specifying and Implementing Conversation Policies, Autonomous Agents '99, Seattle, 1999, 10 pages.
HV	U	TUPUNEN, "Adaptive Interaction Methods in Speech User Interfaces", Conference on Human Factors in Computing Systems, Seattle, Washington, 2001, pages 91-92.

EXAMINER	DATE CONSIDERED
/Huyen Vo/	06/06/2009 8/20/09
EXAMINER: Initial if citation considered, whether or not citation is in conformance with MPEP Section 809. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to Applicant.	

400898564v1

ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /HV/

EAST Search History**EAST Search History (Prior Art)**

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
L1	145	"5696965"	USPAT	OR	OFF	2009/08/20 09:44
L2	0	"5696965" and (phoneme\$ or phonetic\$) and syllable\$	USPAT	OR	OFF	2009/08/20 09:44
L3	1	"5696965" and (phoneme\$ or phonetic\$)	USPAT	OR	OFF	2009/08/20 09:44
L4	13	"5696965" and (speech near3 recogni\$)	USPAT	OR	OFF	2009/08/20 09:45
L5	77	"5799276" and (speech near3 recogni\$)	USPAT	OR	OFF	2009/08/20 09:48
L6	25	"5799276" and (speech near3 recogni\$) and (phoneme\$ or phonetic\$) and syllable\$	USPAT	OR	OFF	2009/08/20 09:48
L7	0	((speech near3 recogni\$ near3 (muti\$pass)) and (phoneme\$ or phonetic\$) and syllable\$ and @ad<"20050831"	USPAT	OR	OFF	2009/08/20 09:52
L8	0	((speech near3 recogni\$ near3 (muti\$pass)) and @ad<"20050831"	USPAT	OR	OFF	2009/08/20 09:53
L9	3	((speech near3 recogni\$ near3 (multi\$pass)) and (phoneme\$ or phonetic\$) and syllable\$ and @ad<"20050831"	USPAT	OR	OFF	2009/08/20 09:53

8/ 20/ 09 9:56:41 AM

INFORMATION DISCLOSURE CITATION IN AN APPLICATION Form PTO-1449	Docket Number	Application Number
	090611-0356510	11/513,269
	Applicant(s)	
	Robert A. KENNEWICK <i>et al.</i>	
	Filing Date	Group Art Unit
	August 31, 2006	2626

U.S. PATENT DOCUMENTS

*EXAMINER INITIAL	REF	DOCUMENT NO.	DATE	NAME	CLASS	SUBCLASS	FILING DATE IF APPROPRIATE
	1A	4,430,669	02/07/1984	Cheung	358	122	
	1B	5,274,560	12/28/1993	LaRue	364	444	
	1C	5,377,350	12/27/1994	Skinner	395	600	
	1D	5,500,920	03/19/1996	Kupiec	395	2.79	
	1E	5,696,965	12/09/1997	Dedrick	395	610	
	1F	5,774,859	06/30/1998	Houser <i>et al.</i>	704	275	
	1G	5,878,385	03/02/1999	Bralich <i>et al.</i>	704	9	
	1H	5,902,347	05/11/1999	Backman <i>et al.</i>	701	200	
	1I	6,195,634	02/27/2001	Dudemaine <i>et al.</i>	704	231	
	1J	6,415,257	07/02/2002	Junqua <i>et al.</i>	704	275	
	1K	6,466,654	10/15/2002	Cooper <i>et al.</i>	379	88.01	
	1L	6,513,006	01/28/2003	Howard <i>et al.</i>	704	257	
	1M	6,574,597	06/03/2003	Mohri <i>et al.</i>	704	251	
	1N	6,598,018	07/22/2003	Junqua	704	251	
	1O	6,631,346	10/07/2003	Karaorman <i>et al.</i>	704	9	
	1P	6,643,620	11/04/2003	Contolini <i>et al.</i>	704	270	
	1Q	6,721,706	04/13/2004	Strubbe <i>et al.</i>	704	275	
	1R	6,795,808	09/21/2004	Strubbe <i>et al.</i>	704	275	
	1S	6,901,366	05/31/2005	Kuhn <i>et al.</i>	704	275	
	1T	6,944,594	09/13/2005	Busayapongchai <i>et al.</i>	704	275	
	1U	7,127,400	10/24/2006	Koch	704	270.1	
	1V	7,376,645	05/20/2008	Bernard	707	3	
	1W	7,398,209	07/08/2008	Kennewick <i>et al.</i>	704	255	

FOREIGN PATENT DOCUMENTS

REF	DOCUMENT NO.	DATE	COUNTRY	CLASS	SUBCLASS	Translations	
						YES	NO

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

1X	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.	
1Y	VANHOUCHE, Vincent, "Confidence Scoring and Rejection Using Multi-Pass Speech Recognition", Nuance Communications, Menlo Park, CA, [no date], 4 pages.	2005
1Z	WENG, Fuliang, <i>et al.</i> , "Efficient Lattice Representation and Generation", Speech Technology and Research Laboratory, SRI International, Menlo Park, CA, [no date], 4 pages.	1998

/HV/

EXAMINER	/Huyen Vo/	DATE CONSIDERED	08/20/2009
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.			

INFORMATION DISCLOSURE CITATION IN AN APPLICATION Form PTO-1449	Docket Number	Application Number
	090611-0356510	11/513,269
	Applicant(s)	
	Robert A. KENNEWICK <i>et al.</i>	
	Filing Date	Group Art Unit
	August 31, 2006	2626

U.S. PATENT DOCUMENTS

*EXAMINER INITIAL	REF	DOCUMENT NO.	DATE	NAME	CLASS	SUBCLASS	FILING DATE IF APPROPRIATE
	2A	7,424,431	09/09/2008	Greene <i>et al.</i>	704	270	
	2B	2001/0041980	11/15/2001	Howard <i>et al.</i>	704	270	
	2C	2002/0049805	04/25/2002	Yamada <i>et al.</i>	709	202	
	2D	2002/0065568	05/30/2002	Silfvast <i>et al.</i>	700	94	
	2E	2002/0082911	06/27/2002	Dunn <i>et al.</i>	705	14	
	2F	2002/0120609	08/29/2002	Lang <i>et al.</i>	707	1	
	2G	2002/0124050	09/05/2002	Middeljans	709	203	
	2H	2002/0198714	12/26/2002	Zhou	704	252	
	2I	2003/0014261	01/16/2003	Kageyama	704	275	
	2J	2004/0025115	02/05/2004	Sienel <i>et al.</i>	715	513	
	2K	2004/0166832	08/26/2004	Portman <i>et al.</i>	455	412.1	
	2L	2004/0199375	10/07/2004	Ehsani <i>et al.</i>	704	4	
	2M	2005/0021334	01/27/2005	Iwahashi	704	240	
	2N	2005/0114116	05/26/2005	Fiedler	704	201	
	2O	2007/0033005	02/08/2007	Cristo <i>et al.</i>	704	9	
	2P	2007/0038436	02/15/2007	Cristo <i>et al.</i>	704	9	
	2Q	2007/0050191	03/01/2007	Weider <i>et al.</i>	704	275	
	2R	2008/0091406	04/17/2008	Baldwin <i>et al.</i>	704	4	

FOREIGN PATENT DOCUMENTS

REF	DOCUMENT NO.	DATE	COUNTRY	CLASS	SUBCLASS	Translations	
						YES	NO

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

2S	EL MELIANI <i>et al.</i> , "A Syllabic-Filler-Based Continuous Speech Recognizer for Unlimited Vocabulary", Canadian Conference on Electrical and Computer Engineering, Volume 2, September 5-8, 1995, pages 1007-1010.

EXAMINER	/Huyen Vo/	DATE CONSIDERED	08/20/2009
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.			

Electronic Patent Application Fee Transmittal				
Application Number:		11513269		
Filing Date:		31-Aug-2006		
Title of Invention:		DYNAMIC SPEECH SHARPENING		
First Named Inventor/Applicant Name:		Robert A. Kennewick		
Filer:		Syed Jafar Ali/Miriam E. Nelsen		
Attorney Docket Number:		090611-0356510		
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:	6186644
Application Number:	11513269
International Application Number:	
Confirmation Number:	2993
Title of Invention:	DYNAMIC SPEECH SHARPENING
First Named Inventor/Applicant Name:	Robert A. Kennewick
Customer Number:	00909
Filer:	Syed Jafar Ali/Miriam E. Nelsen
Filer Authorized By:	Syed Jafar Ali
Attorney Docket Number:	090611-0356510
Receipt Date:	01-OCT-2009
Filing Date:	31-AUG-2006
Time Stamp:	15:37:55
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	1890
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		090611-0356510_SIDS.pdf	82047 ff0f692db931289804f4840e0fb41ac644721747	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	30262 90214566551dbb0dddf1ce0895c03aa1be17302c	no	2
Warnings:					
Information:					
Total Files Size (in bytes):			112309		
<p>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.</p> <p><u>New Applications Under 35 U.S.C. 111</u> 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.</p> <p><u>National Stage of an International Application under 35 U.S.C. 371</u> 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.</p> <p><u>New International Application Filed with the USPTO as a Receiving Office</u> 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.</p>					

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICANTS : Robert A. KENNEWICK *et al.* CONFIRMATION No.: 2993
SERIAL NUMBER : 11/513,269 EXAMINER: Huyen X. Vo
FILING DATE : August 31, 2006 ART UNIT: 2626
FOR : DYNAMIC SPEECH SHARPENING

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).

Documents B, D, and E 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 F was cited by the U.S. Patent Office in co-pending Application Serial No. 11/200,164, filed August 10, 2005, in a Notice of Allowability 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.

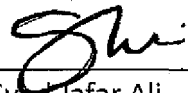
It is respectfully requested that the Examiner initial and return a copy of the enclosed

PTO-1449.

Respectfully submitted,

PILLSBURY WINTHROP SHAW PITTMAN LLP

Customer No.
00909

By 
Syed Jafar Ali
Registration No.: 58,780

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McLean, Virginia 22102
Telephone: (703) 770-7900
Telefax: (703) 770-7901

Dated: October 1, 2009



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Alexandria, Virginia 22313-1450
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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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11/513,269

08/31/2006

Robert A. Kennewick

090611-0356510

2993

909

7590

10/29/2009

PILLSBURY WINTHROP SHAW PITTMAN, LLP

P.O. BOX 10500

MCLEAN, VA 22102

EXAMINER

VO, HUYEN X

ART UNIT

PAPER NUMBER

2626

MAIL DATE

DELIVERY MODE

10/29/2009

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.



UNITED STATES DEPARTMENT OF COMMERCE

U.S. Patent and Trademark Office

Address : COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450

APPLICATION NO./ CONTROL NO.	FILING DATE	FIRST NAMED INVENTOR / PATENT IN REEXAMINATION	ATTORNEY DOCKET NO.
11513269	8/31/06	KENNEWICK ET AL.	090611-0356510

PILLSBURY WINTHROP SHAW PITTMAN, LLP
P.O. BOX 10500
MCLEAN, VA 22102

EXAMINER

HUYEN X. VO

ART UNIT	PAPER
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2626	20091023
------	----------

DATE MAILED:

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

Commissioner for Patents

IDS filed 10/1/2009 has been entered.

10/23/2009

/Huyen X Vo/
Primary Examiner, Art Unit 2626

INFORMATION DISCLOSURE CITATION IN AN APPLICATION Form PTO-1449	Docket Number	Application Number
	090611-0356510	11/513,269
	Applicant(s)	
	Robert A. KENNEWICK <i>et al.</i>	
	Filing Date	Group Art Unit
	August 31, 2006	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 <i>et al.</i>	379	88.01	
	B	6,721,001	04/13/2004	Berstis	348	231.3	
	C	6,742,021	05/25/2004	Halverson <i>et al.</i>	709	218	
	D	6,990,513	01/24/2006	Belfiore <i>et al.</i>	709	203	
	E	7,493,559	02/17/2009	Wolff <i>et al.</i>	715	727	
	F	2005/0033574	02/10/2005	Kim <i>et al.</i>	704	251	

FOREIGN PATENT DOCUMENTS

	REF	DOCUMENT NO.	DATE	COUNTRY	CLASS	SUBCLASS	Translations	
							YES	NO

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

EXAMINER	DATE CONSIDERED
/Huyen Vo/	10/23/2009
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.	

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 8/24/2009

PILLSBURY WINTHROP SHAW PITTMAN LLP
P. O. BOX 10500
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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.
11/513,269	August 31, 2006	Robert A. Kennewick	090611-0356510	2993

TITLE OF INVENTION:

DYNAMIC SPEECH SHARPENING

APPLN. TYPE	SMALL ENTITY	ISSUE FEE	PUBLICATION FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	YES	\$755.00	\$300.00	\$1055.00	November 24, 2009

EXAMINER	ART UNIT	CLASS-SUBCLASS
Huyen X. Vo	2626	704-257000

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

(B) RESIDENCE: (CITY and STATE OR COUNTRY)

VoiceBox Technologies, Inc.

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:

4b. Payment of Fee(s):

- ☒ Issue Fee
☒ Publication Fee (No small entity discount permitted)
☐ Advance Order - # of Copies

- ☐ 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

S. Jafar Ali

Date October 30, 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:		11513269		
Filing Date:		31-Aug-2006		
Title of Invention:		DYNAMIC SPEECH SHARPENING		
First Named Inventor/Applicant Name:		Robert A. Kennewick		
Filer:		Syed Jafar Ali/Miriam E. Nelsen		
Attorney Docket Number:		090611-0356510		
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:	6366522
Application Number:	11513269
International Application Number:	
Confirmation Number:	2993
Title of Invention:	DYNAMIC SPEECH SHARPENING
First Named Inventor/Applicant Name:	Robert A. Kennewick
Customer Number:	00909
Filer:	Syed Jafar Ali/Miriam E. Nelsen
Filer Authorized By:	Syed Jafar Ali
Attorney Docket Number:	090611-0356510
Receipt Date:	30-OCT-2009
Filing Date:	31-AUG-2006
Time Stamp:	16:41:46
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	2682
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)	090611-0356510_Issue_Publication_Fee_Transmittal.pdf	108378 ac84998d86eb82dc703c338fe42a409b7a317d23	no	1
Warnings:					
Information:					
2	Fee Worksheet (PTO-875)	fee-info.pdf	31756 3100913ecfe8ba7cc65520516189f995f0c40f11	no	2
Warnings:					
Information:					
Total Files Size (in bytes):			140134		
<p>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.</p> <p><u>New Applications Under 35 U.S.C. 111</u> 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.</p> <p><u>National Stage of an International Application under 35 U.S.C. 371</u> 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.</p> <p><u>New International Application Filed with the USPTO as a Receiving Office</u> 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.</p>					



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
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www.uspto.gov

APPLICATION NO.	ISSUE DATE	PATENT NO.	ATTORNEY DOCKET NO.	CONFIRMATION NO.
11/513,269	12/15/2009	7634409	090611-0356510	2993

909 7590 11/24/2009
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 571 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):

Robert A. Kennewick, Seattle, WA;
Min Ke, Bothell, WA;
Michael Tjalve, Bellevue, WA;
Philippe Di Cristo, Bellevue, WA;

PATENT
IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Current Date: June 13th, 2017

Application No.: 11/513269
Filed: 31.08.2006

Patent No.: 7634409
Issued: 15.12.2009

**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 Ouellette
TITLE: Senior IP Director

ipan

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Fax Message

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p +49 89 943 850 40
f +49 89 943 850 411

info@ipan.eu
www.ipan-services.com

To : USPTO

From : IPAN GmbH

Maintenance Fee Branch

Office of Finance

001-571-273-6500

Pages : 1 + 2

Date : 06/13/2017

Attached: Petition pursuant § 1.27

geschäftsführer: anton bory, anton wallner, christoph mann · münchen hrb 152740 · ust.-idnr. de 235827548
bank account: kreissparkasse münchen · iban de09702501500010508442 · swift/bic byladem1kms;
deutsche bank · de85700700100203901400 · swift/bic deutemmx33



we mind.

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;

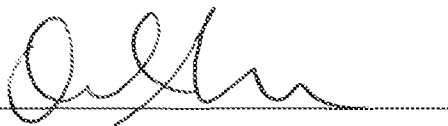
WHEREAS the parties desire to effectuate the assignment and transfer of the Assigned Patent Portfolio to Assignee such that Assignee shall acquire, and thus hereby acquires, all of Assignor's worldwide rights, title, and interests in and to the Assigned Patent Portfolio; and

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 be 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
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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

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 - POWER OF ATTORNEY OR REVOCATION OF POWER OF ATTORNEY WITH A NEW POWER OF ATTORNEY AND CHANGE OF CORRESPONDENCE ADDRESS	Patent Number	7634409
	Issue Date	12/15/09
	First Named Inventor	Kennewick, Robert A
	Title	Dynamic speech sharpening
	Attorney Docket No.	9032-0005

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.

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, LLCApplication No./Patent No.: 7634409Filed/Issue Date: 12/15/09Titled: Dynamic speech sharpeningDialect, 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: Kennewick, Robert A et al. To: VoiceBox Technologies, Inc.The document was recorded in the United States Patent and Trademark Office at
Reel 018600, Frame 0972, or for which a copy thereof is attached.2. From: VoiceBox Technologies, Inc. To: VoiceBox Technologies CorporationThe document was recorded in the United States Patent and Trademark Office at
Reel 032796, Frame 0671, or for which a copy thereof is attached.

[Page 1 of 2]

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 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.

4. 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.

5. 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.

6. From: _____ To: _____

The document was recorded in the United States Patent and Trademark Office at
 Reel _____, Frame _____, 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 RonaldiManager, Dialect, LLC

Printed or Typed Name

Title or Registration Number

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.
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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.

Electronic Acknowledgement Receipt

EFS ID:	47604697
Application Number:	11513269
International Application Number:	
Confirmation Number:	2993
Title of Invention:	DYNAMIC SPEECH SHARPENING
First Named Inventor/Applicant Name:	Robert A. Kennewick
Customer Number:	909
Filer:	David Alexander Gerasimow
Filer Authorized By:	
Attorney Docket Number:	090611-0356510
Receipt Date:	28-FEB-2023
Filing Date:	31-AUG-2006
Time Stamp:	14:29:20
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	no
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File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Power of Attorney	7634409.pdf	197746	no	2
			4e718e9230ff5491df58fc377b630295b2e49fa6		

Warnings:

Information:					
2	Assignee showing of ownership per 37 CFR 3.73	7634409-aia0096.pdf	197941	no	3
			26ae61ac64834f7b59b2a287d77d018c6970617f		
Warnings:					
Information:					
Total Files Size (in bytes):				395687	
<p>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.</p> <p><u>New Applications Under 35 U.S.C. 111</u> 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.</p> <p><u>National Stage of an International Application under 35 U.S.C. 371</u> 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.</p> <p><u>New International Application Filed with the USPTO as a Receiving Office</u> 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.</p>					



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
11/513,269	08/31/2006	Robert A. Kennewick	090611-0356510

CONFIRMATION NO. 2993
IMPROPER CPOA LETTER

909
Pillsbury Winthrop Shaw Pittman, LLP
PO Box 10500
McLean, VA 22102



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.

/s/torres/

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

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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	7634409
	Issue Date	12/15/09
	First Named Inventor	Kennewick, Robert A
	Title	Dynamic speech sharpening
	Attorney Docket No.	9032-0005

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

Country

Telephone

State

Zip

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.**

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

Privacy Act Statement

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ELECTRONIC ACKNOWLEDGEMENT RECEIPT

APPLICATION #
11/513,269

RECEIPT DATE / TIME
11/06/2023 10:50:15 AM Z ET

ATTORNEY DOCKET #
090611-0356510

Title of Invention

DYNAMIC SPEECH SHARPENING

Application Information

APPLICATION TYPE Utility - Nonprovisional Application
under 35 USC 111(a)

PATENT # 7634409

CONFIRMATION # 2993

FILED BY David Gerasimow

PATENT CENTER # 63165877

FILING DATE 08/31/2006

CUSTOMER # 909

FIRST NAMED INVENTOR Robert A. Kennewick

CORRESPONDENCE ADDRESS -

AUTHORIZED BY -

Documents

TOTAL DOCUMENTS: 1

DOCUMENT	PAGES	DESCRIPTION	SIZE (KB)
7634409.pdf	2	Power of Attorney	207 KB

Digest

DOCUMENT	MESSAGE DIGEST(SHA-512)
7634409.pdf	3F3A539D963D0D86F3DA9B7FC9451E0D871C88155878F68B5 E995BE1F3EBF1A3312AFC206381EDDC239C059A99FF9378CB 1D0AA26386CB00161EE0E204CE191E

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 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

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UNITED STATES DEPARTMENT OF COMMERCE
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
11/513,269	08/31/2006	Robert A. Kennewick	090611-0356510

909
Pillsbury Winthrop Shaw Pittman, LLP
PO Box 10500
McLean, VA 22102

CONFIRMATION NO. 2993
IMPROPER CPOA LETTER



OC000000064565053

Date Mailed: 11/16/2023

NOTICE REGARDING POWER OF ATTORNEY

This is in response to the power of attorney filed 11/06/2023. The power of attorney in this application is not accepted for the reason(s) listed below:

- The power of attorney you provided did not comply with the power of attorney rules that became effective on June 25, 2004. See 37 CFR 1.32 and 69 Fed. Reg. 29865.

The power of attorney filed 11/06/2023 has not been accepted because the power of attorney must be signed by the applicant for patent. See 37 CFR 1.32(b)(4).

- The request to change the applicant is not accepted because the Statement Under 37 CFR 3.73(c) ("3.73(c) Statement") does not provide a reel and frame or a complete chain of title from the inventors to the current assignee.

Because the request to change or update the applicant cannot be accepted, the power of attorney is not properly signed by the applicant and cannot be accepted. The change to applicant must be acceptable before the new applicant can appoint power of attorney.

/dmbaines/

Office of Data Management, Application Assistance Unit (571) 272-4000, or (571) 272-4200, or 1-888-786-0101

174899
The Law Offices of David A. Gerasimow, P.C.
211 W. Wacker Dr.
Ste. 1717
Chicago, IL 60606
UNITED STATES

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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	7634409
	Issue Date	12/15/09
	First Named Inventor	Kennewick, Robert A
	Title	Dynamic speech sharpening
	Attorney Docket No.	9032-0005

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

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Practitioner(s) Name	Registration Number

Please recognize or change the correspondence address for the above-identified patent to:

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OR

☐ Firm or Individual Name

Address

City

Country

Telephone

State

Zip

Email

I am the:

☐ Applicant.

OR

☒ Patent owner.

Statement under 37 CFR 3.73(c) (Form PTO/AIA/96) submitted herewith or filed on 11/21/2023.

SIGNATURE of Applicant or Patent Owner

Signature	/Jeff Ronaldi/	Date	11/21/2023
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.

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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)).
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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.



ELECTRONIC ACKNOWLEDGEMENT RECEIPT

APPLICATION #
11/513,269

RECEIPT DATE / TIME
11/21/2023 04:21:04 PM Z ET

ATTORNEY DOCKET #
090611-0356510

Title of Invention

DYNAMIC SPEECH SHARPENING

Application Information

APPLICATION TYPE Utility - Nonprovisional Application
 under 35 USC 111(a)

PATENT # 7634409

CONFIRMATION # 2993

FILED BY David Gerasimow

PATENT CENTER # 63344826

FILING DATE 08/31/2006

CUSTOMER # 909

FIRST NAMED
INVENTOR Robert A. Kennewick

CORRESPONDENCE
ADDRESS -

AUTHORIZED BY -

Documents

TOTAL DOCUMENTS: 2

DOCUMENT	PAGES	DESCRIPTION	SIZE (KB)
7634409-aia0096.pdf	3	Assignee showing of ownership per 37 CFR 3.73	198 KB
7634409.pdf	2	Power of Attorney	212 KB

Digest

DOCUMENT	MESSAGE DIGEST(SHA-512)
7634409-aia0096.pdf	2248BDB0F1674A911CEF1D760A16CD9B1A7768E84B393C521 5E5D139FCE6D6A628257A4F091E0C0B170AF87CE6D7572AC9 57D7090E1A6497360940CEC5ABB906

7634409.pdf

47DC10F4C6DF51C01787AA6942C79E84D22A6DDEB57A8B45
BD4F88A9FC92549296FE8CBA919A70383D09C260740D2E02B
DE9D290735524261F563095A295A7B8

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 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

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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, LLCApplication No./Patent No.: 7634409Filed/Issue Date: 12/15/09Titled: Dynamic speech sharpeningDialect, 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: Kennewick, Robert A et al. To: VoiceBox Technologies, Inc.The document was recorded in the United States Patent and Trademark Office at
Reel 018600, Frame 0972, or for which a copy thereof is attached.2. From: VoiceBox Technologies, Inc. To: VoiceBox Technologies CorporationThe document was recorded in the United States Patent and Trademark Office at
Reel 032796, Frame 0671, or for which a copy thereof is attached.

[Page 1 of 2]

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 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.4. From: Nuance Communications, Inc. To: Voice Inventions, LLCThe document was recorded in the United States Patent and Trademark Office at
Reel 056185, Frame 0742, or for which a copy thereof is attached.5. From: Voice Inventions, LLC To: Dialect, LLCThe document was recorded in the United States Patent and Trademark Office at
Reel 060820, Frame 0857, or for which a copy thereof is attached.

6. From: _____ To: _____

The document was recorded in the United States Patent and Trademark Office at
Reel _____, Frame _____, 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.

/J eff Ronaldi/

Signature

J eff Ronaldi

Printed or Typed Name

11/21/2023

Date

Manager, Dialect, LLC

Title or Registration Number

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.



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APPLICATION NUMBER	FILING OR 371(C) DATE	FIRST NAMED APPLICANT	ATTY. DOCKET NO./TITLE
11/513,269	08/31/2006	Robert A. Kennewick	090611-0356510

CONFIRMATION NO. 2993

POA ACCEPTANCE LETTER



OC000000065080272

174899

The Law Offices of David A. Gerasimow, P.C.

211 W. Wacker Dr.

Ste. 1717

Chicago, IL 60606

Date Mailed: 11/29/2023

NOTICE OF ACCEPTANCE OF POWER OF ATTORNEY

This is in response to the Power of Attorney filed 11/21/2023.

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.

/s/torres/



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CONFIRMATION NO. 2993

909
Pillsbury Winthrop Shaw Pittman, LLP
PO Box 10500
McLean, VA 22102

POWER OF ATTORNEY NOTICE



OC000000065080240

Date Mailed: 11/29/2023

NOTICE REGARDING CHANGE OF POWER OF ATTORNEY

This is in response to the Power of Attorney filed 11/21/2023.

- The Power of Attorney to you in this application has been revoked by the applicant. Future correspondence will be mailed to the new address of record(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.

/s/torres/

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The Law Offices of David A. Gerasimow, P.C.
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Date Mailed: 11/29/2023

NOTICE OF ACCEPTANCE OF POWER OF ATTORNEY

This is in response to the Power of Attorney filed 11/21/2023.

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.

/s/torres/