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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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
14/691,445	04/20/2015	Larry BALDWIN	62KC-218492	8351

133759 7590 07/08/2019

Sheppard Mullin Richter & Hampton LLP
650 Town Center Drive, 10th Floor
Costa Mesa, CA 92626

EXAMINER	
YEN, ERIC L	

ART UNIT	PAPER NUMBER
2658	

NOTIFICATION DATE	DELIVERY MODE
07/08/2019	ELECTRONIC

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

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

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

SheppardMullin_Pair@firsttofile.com
dmipdocketing@sheppardmullin.com

UNITED STATES PATENT AND TRADEMARK OFFICE

Commissioner for Patents
United States Patent and Trademark Office
P.O. Box 1450
Alexandria, VA 22313-1450
www.uspto.gov

In re Application of	:	
BALDWIN et al.	:	
Application No. 14/691,445	:	
Filed: 20 Apr 2015	:	DECISION ON PETITION
For: SYSTEM AND METHOD FOR A	:	
COOPERATIVE CONVERSATIONAL	:	
VOICE USER INTERFACE	:	

This is a decision in response to the petition under 37 CFR 1.182, filed June 5, 2019 to expedite consideration of a simultaneously filed petition, for acceptance of a fee deficiency submission under 37 CFR 1.28(c).

The file does not indicate a change of address has been submitted, although the address given on the petition differs from the address of record. If appropriate, a change of address should be filed in accordance with MPEP 601.03. A courtesy copy of this decision is being mailed to the address given on the petition; however, the Office will mail all future correspondence solely to the address of record.

The Office no longer investigates or rejects original or reissue applications under 37 CFR 1.56. **1098 Off. Gaz. Pat. Office 502 (January 3, 1989)**. Therefore, nothing in this Notice is intended to imply that an investigation was done.

The petition under 37 CFR 1.182 is **GRANTED**. A decision on the request for acceptance of a fee deficiency under 37 CFR 1.28(c) follows.

Your fee deficiency submission under 37 CFR 1.28(c) is hereby **ACCEPTED**.

Applicant is reminded that 37 CFR 1.28(c)(2)(i) requires that "the deficiency owed for each previous fee erroneously paid as a small entity is the difference between the current fee amount (for other than a small entity) on the date the deficiency is paid in full and the amount of the previous erroneous (small entity) fee payment…Where a fee paid in error as a small entity was subject to a fee decrease between the time the fee was paid in error and the time the deficiency is paid in full, the deficiency owed is equal to the amount (previously) paid in error;" Emphasis added.

If the itemization submitted with the present request does not comply with 37 CFR 1.28(c)(2)(i) because a fee has decreased, applicant should, within ONE MONTH of the date of this Notice, submit a renewed request for acceptance of a fee deficiency under 37 CFR 1.28(c) along with balance of the correct fee deficiency in compliance with 37 CFR 1.28(c)(2)(i) and a replacement itemized listing of each fee erroneously paid as a small entity in compliance with 37 CFR 1.28(c)(2)(ii). **NO EXTENSION OF TIME UNDER 37 CFR 1.136 IS PERMITTED.**

Status a small entity has been removed. Accordingly, all future fees paid in this patent must be paid at the undiscounted entity rate.

Inquiries related to this communication should be directed to the undersigned at (571) 272-1058.

/Angela Walker/
Angela Walker
Paralegal Specialist
Office of Petitions

cc: Mark A. Patrick
2099 Pennsylvania Ave., NW
Suite 100
Washington, DC 20006-6801

Transmittal Communication on Petition	Application/Control No. 14/691,445	Applicant(s)/Patent Under Reexamination BALDWIN et al.	
	Deciding Official YEN, ERIC L	Office of Petitions OPET	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address. --

(ADDITIONAL PARTY'S CORRESPONDENCE ADDRESS)

Mark A. Patrick
2099 Pennsylvania Ave., NW
Suite 100
Washington, DC 20006-6801

Enclosed is a copy of the latest communication from the United States Patent and Trademark Office in the above-identified Application/Patent.

UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
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APPLICATION NUMBER	PATENT NUMBER	GROUP ART UNIT	REQUEST ID
14/691,445	10297249	2658	89435

PAIR Correspondence Address/Fee Address Change

The following fields have been changed to Customer Number 00197 on 06/10/2019 via Private PAIR in view of the certification copied below that authorized the change.

- Maintenance Fee Address

The address for Customer Number 00197 is:
00197
CPA GLOBAL LIMITED
2318 Mill Road 12th Floor
ALEXANDRIA, VA 22314

I certify, in accordance with 37 CFR 1.4(d)(4) that I am:

An attorney or Agent of Record registered to practice before the Patent and Trademark Office who has been given power of attorney in this application

Signature:	/James G. Gatto/
Name:	James G. Gatto
Registration Number:	32694

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

INVENTORS :	Larry BALDWIN *et al.*	CONFIRMATION NO.:	8351
SERIAL NUMBER :	14/691,445	PATENT NO.:	10,297,249
FILING DATE :	April 20, 2015	ISSUE DATE:	May 21, 2019
FOR :	SYSTEM AND METHOD FOR A COOPERATIVE CONVERSATIONAL VOICE USER INTERFACE		

PETITION TO EXPEDITE UNDER 37 C.F.R.§ 1.182

Office of Petitions
P. O. Box 1450
Alexandria, VA 22313-1450

Sir:

This is a Petition to Expedite Under 37 C.F.R. § 1.182 to expedite the processing of the Deficiency Payment Under 37 C.F.R. § 1.28(c) filed herewith.

Please charge the processing fee required under 37 C.F.R. § 1.17(f) in the amount of $400.00 for this Petition to Expedite to Deposit Account No. 504561 (Ref. No. **62KC-218492**). Please contact the undersigned by telephone if there are any questions regarding this matter.

Respectfully submitted,

SHEPPARD MULLIN RICHTER & HAMPTON LLP

By /Mark A. Patrick/
Mark A. Patrick
Registration No.: 72,958

Customer No.
133759

2099 Pennsylvania Avenue, NW
Suite 100
Washington, D.C. 20006-6801
Telephone: (202) 747-2192

Dated: June 5, 2019

Electronic Patent Application Fee Transmittal

Application Number:	14691445
Filing Date:	20-Apr-2015
Title of Invention:	SYSTEM AND METHOD FOR A COOPERATIVE CONVERSATIONAL VOICE USER INTERFACE
First Named Inventor/Applicant Name:	Larry BALDWIN
Filer:	Mark Andrew Patrick/Diane Bogusz
Attorney Docket Number:	62KC-218492

Filed as Large Entity

Filing Fees for Utility under 35 USC 111(a)

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Basic Filing:				
Pages:				
Claims:				
Miscellaneous-Filing:				
Petition:				
PETITION FEE- 37 CFR 1.17(F) (GROUP I)	1462	1	400	400
Patent-Appeals-and-Interference:				
Post-Allowance-and-Post-Issuance:				

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Extension-of-Time:				
Miscellaneous:				
		Total in USD ($)		**400**

Electronic Acknowledgement Receipt	
EFS ID:	36215592
Application Number:	14691445
International Application Number:	
Confirmation Number:	8351
Title of Invention:	SYSTEM AND METHOD FOR A COOPERATIVE CONVERSATIONAL VOICE USER INTERFACE
First Named Inventor/Applicant Name:	Larry BALDWIN
Customer Number:	133759
Filer:	Mark Andrew Patrick/Diane Bogusz
Filer Authorized By:	Mark Andrew Patrick
Attorney Docket Number:	62KC-218492
Receipt Date:	05-JUN-2019
Filing Date:	20-APR-2015
Time Stamp:	18:07:37
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	DA
Payment was successfully received in RAM	$400
RAM confirmation Number	060619INTEFSW00005128504561
Deposit Account	
Authorized User	
The Director of the USPTO is hereby authorized to charge indicated fees and credit any overpayment as follows:	

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Notification of loss of entitlement to small entity status	62KC-218492_Deficiency_Payment.pdf	149815 ff606663679300d7b41b07cbf198ce937bb44c48	no	4
Warnings:					
Information:					
2	Petition for review by the Office of Petitions	62KC-218492_Petition_to_Expedite.pdf	112425 01a5a3d32ebac5d28657bb116fb0b35a66662a5d	no	1
Warnings:					
Information:					
3	Fee Worksheet (SB06)	fee-info.pdf	30977 f270ae2780db915b41bd313302bcb6c3e53218ad	no	2
Warnings:					
Information:					
		Total Files Size (in bytes):	293217		

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.

<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.
<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.
<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.

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

INVENTORS :	Larry BALDWIN *et al.*	CONFIRMATION NO.:	8351
SERIAL NUMBER :	14/691,445	PATENT NO.:	10,297,249
FILING DATE :	April 20, 2015	ISSUE DATE:	May 21, 2019
FOR :	SYSTEM AND METHOD FOR A COOPERATIVE CONVERSATIONAL VOICE USER INTERFACE		

DEFICIENCY PAYMENT UNDER 37 C.F.R. § 1.28(c)

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

Sir:

This paper is being submitted to address a good faith error in payment of small entity fees. In this application, small entity status was established in good faith, and fees as a small entity were paid in good faith. It was later discovered that such status as a small entity was established in error. As such, Applicant believes small entity status is no longer appropriate in the instant application. Applicant notes that the erroneous payments of small entity fees were made inadvertently, without deceptive intent.

Pursuant to 37 C.F.R. § 1.28(c)(1)-(2), the fees paid in error and an itemization of the deficiencies owed for each previous fee erroneously paid as a small entity is attached as **APPENDIX A**, including an itemization of the requirements of 37 C.F.R. § 1.28(c)(2)(ii).

Accordingly, pursuant to 37 C.F.R. § 1.28(c), Applicant requests that the Commissioner excuse the good faith error in payment of small entity fees, and charge the deficiency payment owed, which is calculated to be **$4,460.00,** to Deposit Account No. 504561 **(Ref. No. 62KC-218492).**

Respectfully submitted,

SHEPPARD MULLIN RICHTER & HAMPTON LLP

By /Mark A. Patrick/
Mark A. Patrick
Registration No.: 72,958

Customer No.
133759

2099 Pennsylvania Avenue, NW
Suite 100
Washington, D.C. 20006-6801
Telephone: (202) 747-2192

Dated: June 5, 2019

Deficiency Payment Under 37 C.F.R. § 1.28(c)
Application Serial No.: 14/691,445
Patent No.: 10,297,249
Attorney Docket No.: 62KC-218492

APPENDIX A
ITEMIZATION OF DEFICIENCY PAYMENTS

Deficient Payment	Type of Fee Erroneously Paid as Small Entity 37 C.F.R. 1.28(c)(2)(ii)(A)	Current Fee for Non-Small Entity 37 C.F.R. 1.28(c)(2)(ii)(A)	Small Entity Fee Actually Paid 37 C.F.R. 1.28(c)(2)(ii)(B)	Date Small Entity Fee Paid 37 C.F.R. 1.28(c)(2)(ii)(B)	Deficiency Owed 37 C.F.R. 1.28(c)(2)(ii)(C)
First Deficient Payment	Basic Filing Fee – Utility (electronic filing for small entities) – Fee Code 4011	$300.00	$70.00	Application filed April 20, 2015	$300.00 - $70.00 = **$230.00**
Second Deficient Payment	Utility Search Fee – Fee Code 2111	$660.00	$300.00	Application filed April 20, 2015	$660.00 - $300.00 = **$360.00**
Third Deficient Payment	Utility Examination Fee – Fee Code 2311	$760.00	$360.00	Application filed April 20, 2015	$760.00 - $360.00 = **$400.00**
Fourth Deficient Payment	Extension – 1 month with $0 paid – Fee Code 2251	$200.00	$100.00	Response filed September 11, 2017	$200.00 - $100.00 = **$100.00**
Fifth Deficient Payment	5 Claims in excess of 20 – Fee Code 2202	$500.00	$200.00	Response filed September 11, 2017	$500.00 - $200.00 = **$300.00**
Sixth Deficient Payment	Information Disclosure Statement – Fee Code 2806	$240.00	$90.00	Information Disclosure Statement filed October 19, 2017	$240.00 - $90.00 = **$150.00**
Seventh Deficient Payment	Information Disclosure Statement – Fee Code 2806	$240.00	$90.00	Information Disclosure Statement filed January 5, 2018	$240.00 - $90.00 = **$150.00**
Eighth Deficient Payment	Notice of Appeal – Fee Code 2401	$800.00	$400.00	Notice of Appeal filed April 12, 2018	$800.00 - $400.00 = **$400.00**

SMRH:4827-8384-7064.1

Deficiency Payment Under 37 C.F.R. § 1.28(c)
Application Serial No.: 14/691,445
Patent No.: 10,297,249
Attorney Docket No.: 62KC-218492

NINTH DEFICIENT PAYMENT	Extension – 3 months with $0 paid – Fee Code 2253	$1,400.00	$700.00	Notice of Appeal filed April 12, 2018	$1,400.00 - $700.00 = **$700.00**
TENTH DEFICIENT PAYMENT	Request for Continued Examination – Fee Code 2801	$1,300.00	$650.00	Response filed July 12, 2018	$1,300.00 - $650.00 = **$650.00**
ELEVENTH DEFICIENT PAYMENT	Extension – 1 month with $0 paid – Fee Code 2251	$200.00	$100.00	Response filed July 12, 2018	$200.00 - $100.00 = **$100.00**
TWELFTH DEFICIENT PAYMENT	Information Disclosure Statement – Fee Code 2806	$240.00	$120.00	Information Disclosure Statement filed August 23, 2018	$240.00 - $120.00 = **$120.00**
THIRTEENTH DEFICIENT PAYMENT	6 Claims in excess of 20 – Fee Code 2202	$600.00	$300.00	Response filed January 31, 2019	$600.00 - $300.00 = **$300.00**
FOURTEENTH DEFICIENT PAYMENT	Utility Issue Fee – Fee Code 2501	$1,000.00	$500.00	Issue Fee paid March 25, 2019	$1,000.00 - $500.00 = **$500.00**
TOTAL DEFICIENCY PAYMENT OWED 37 C.F.R. 1.28(c)(2)(ii)(D)	$230.00 + $360.00 + $400.00 + $100.00 + $300.00 + $150.00 + $150.00 + $400.00 + $700.00 + $650.00 + $100.00 + $120.00 + $300.00 + $500.00 = **$4,460.00** Total Deficiency Owed				

SMRH:4827-8384-7064.1

Document code: WFEE

United States Patent and Trademark Office
Sales Receipt for Accounting Date: 07/02/2019

SMOHAMM2 ADJ #00000001 Mailroom Dt: 06/05/2019
Seq No: 10 Sales Acctg Dt: 06/07/2019 504561 14691445
01 FC : 1599 4460.00 CR

Document code: WFEE

United States Patent and Trademark Office
Sales Receipt for Accounting Date: 07/02/2019

SMOHAMM2 SALE #00000001 Mailroom Dt: 06/05/2019 504561 14691445
01 FC : 1461 4,460.00 DA

UNITED STATES PATENT AND TRADEMARK OFFICE

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

APPLICATION NUMBER	FILING OR 371(C) DATE	FIRST NAMED APPLICANT	ATTY.DOCKET NO./TITLE	REQUEST ID
14/691,445	04/20/2015	VB Assets, LLC	62KC-218492	89173

Acknowledgement of Loss of Entitlement to Entity Status Discount

The entity status change request below filed through Private PAIR on 06/05/2019 has been accepted.

CERTIFICATIONS:

Change of Entity Status:

X Applicant changing to regular undiscounted fee status.

NOTE: Checking this box will be taken to be notification of loss of entitlement to small or micro entity status, as applicable.

This portion must be completed by the signatory or signatories making the entity status change in accordance with 37 CFR 1.4(d)(4).

Signature:	/Mark A. Patrick/
Name:	Mark A. Patrick
Registration Number:	72958

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

INVENTORS :	Larry BALDWIN *et al.*	CONFIRMATION NO.:	8351
SERIAL NUMBER :	14/691,445	PATENT NO.:	10,297,249
FILING DATE :	April 20, 2015	ISSUE DATE:	May 21, 2019
FOR :	SYSTEM AND METHOD FOR A COOPERATIVE CONVERSATIONAL VOICE USER INTERFACE		

DEFICIENCY PAYMENT UNDER 37 C.F.R. § 1.28(c)

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

Sir:

This paper is being submitted to address a good faith error in payment of small entity fees. In this application, small entity status was established in good faith, and fees as a small entity were paid in good faith. It was later discovered that such status as a small entity was established in error. As such, Applicant believes small entity status is no longer appropriate in the instant application. Applicant notes that the erroneous payments of small entity fees were made inadvertently, without deceptive intent.

Pursuant to 37 C.F.R. § 1.28(c)(1)-(2), the fees paid in error and an itemization of the deficiencies owed for each previous fee erroneously paid as a small entity is attached as **APPENDIX A**, including an itemization of the requirements of 37 C.F.R. § 1.28(c)(2)(ii).

Accordingly, pursuant to 37 C.F.R. § 1.28(c), Applicant requests that the Commissioner excuse the good faith error in payment of small entity fees, and charge the deficiency payment owed, which is calculated to be **$4,460.00,** to Deposit Account No. 504561 **(Ref. No. 62KC-218492).**

Respectfully submitted,

SHEPPARD MULLIN RICHTER & HAMPTON LLP

By /Mark A. Patrick/
Mark A. Patrick
Registration No.: 72,958

Customer No.
133759

2099 Pennsylvania Avenue, NW
Suite 100
Washington, D.C. 20006-6801
Telephone: (202) 747-2192

Dated: June 5, 2019

Deficiency Payment Under 37 C.F.R. § 1.28(c)
Application Serial No.: 14/691,445
Patent No.: 10,297,249
Attorney Docket No.: 62KC-218492

APPENDIX A
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SMRH:4827-8384-7064.1

Deficiency Payment Under 37 C.F.R. § 1.28(c)
Application Serial No.: 14/691,445
Patent No.: 10,297,249
Attorney Docket No.: 62KC-218492

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FOURTEENTH DEFICIENT PAYMENT	Utility Issue Fee – Fee Code 2501	$1,000.00	$500.00	Issue Fee paid March 25, 2019	$1,000.00 - $500.00 = **$500.00**
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SMRH:4827-8384-7064.1

United States Patent and Trademark Office

- Sales Receipt -

06/07/2019 DALLEN 00000010 504561 14691445

01 FC:1599 4460.00 DA

UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
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APPLICATION NO.	ISSUE DATE	PATENT NO.	ATTORNEY DOCKET NO.	CONFIRMATION NO.
14/691,445	05/21/2019	10297249	62KC-218492	8351

133759 7590 05/01/2019

Sheppard Mullin Richter & Hampton LLP
650 Town Center Drive, 4th Floor
Costa Mesa, CA 92626

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 289 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):

Larry BALDWIN, Maple Valley, WA;
VB Assets, LLC, Bellevue, WA;
Tom FREEMAN, Mercer Island, WA;
Michael TJALVE, Bellevue, WA;
Blane EBERSOLD, Seattle, WA;
Chris WEIDER, Everett, WA;

The United States represents the largest, most dynamic marketplace in the world and is an unparalleled location for business investment, innovation, and commercialization of new technologies. The USA offers tremendous resources and advantages for those who invest and manufacture goods here. Through SelectUSA, our nation works to encourage and facilitate business investment. To learn more about why the USA is the best country in the world to develop technology, manufacture products, and grow your business, visit SelectUSA.gov.

IR103 (Rev. 10/09)

IN THE UNITED STATES PATENT & TRADEMARK OFFICE

In Re Patent Application Of:	Larry BALDWIN *et al.*	**Attorney Docket No.:**	62KC-218492
Serial No.:	14/691,445	**Confirmation No.:**	8351
Filing Date:	April 20, 2015	**Examiner:**	Eric L. Yen
		Art Unit:	2658

For: SYSTEM AND METHOD FOR A COOPERATIVE CONVERSATIONAL VOICE USER INTERFACE

COMMENTS ON STATEMENT OF REASONS FOR ALLOWANCE

MAIL STOP ISSUE FEE
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Submitted: March 25, 2019

Dear Sir:

In response to the Reasons for Allowance provided in the Notice of Allowance mailed February 13, 2019, and prior to payment of the issue fee payment, Applicant submits the **Remarks** beginning on page 2 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 therefor (including fees for net addition of claims) are hereby authorized to be charged to our Deposit Account No. 504561 (**Ref. No. 62KC-218492**).

REMARKS

In response to the Examiner's Statement of Reasons for Allowance in the Notice of Allowability mailed on February 13, 2019, the Applicant respectfully submits the following comments.

In the Statement of Reasons for Allowance, the Examiner states:

> As described in the previous prior art rejections of claims 21-22 in the Final Office Action mailed 10/12/17, **Byers (US 6,219,645)**, in combination with Kennewick and Perkins, suggests where multiple microphones receive the same utterance and comparing the signals from the different microphones are compared to each other, and selecting the best/cleanest signal out of the different microphone signals based on the comparison.
>
> Byers does not, however, describe where "sound from the first voice input and the second voice input" (i.e. sound that is based on both voice inputs from the first and second input devices) are filtered, where the filtering is based on the comparison.
>
> Regardless of whether the prior art does or does not teach or suggest filtering sound based on multiple microphone signals based on comparison of those multiple microphone signals to each other, at least one more reference would be required to address all of the limitations of claims 1 and 21 together, such that the prior art does not reasonably suggest the combination of all limitations in claims 21 and 1 together due to the quantity of references required to address every limitation (at least five) and due to the complexity of the manner in which those references would need to be combined.

Notice of Allowability at 5-6.

In response to the Examiner's reasons for allowance in this application, Applicant respectfully submits that the subject matter of the allowed claims are patentable for their respective recitations of claimed combinations as a whole, without any particular criticality or distinguishing feature being attributable to any one or more of such features, and without any narrowing interpretation being imposed on any of such features. As such, Applicant submits that no one element or limitation in particular should be deemed to impart to or be required for patentability of the claims.

Furthermore, Applicant respectfully submits that the independent claims are all separately patentable from each other and are patentable for the subject matter specifically recited as a whole in each of those claims. Applicant also submits that the dependent claims are allowable for their dependence on the allowed independent claims and further for the additional subject matter recited in each of those dependent claims.

The Applicant reserves the right to pursue at a later date any previously pending or other broader or narrower claims that capture any subject matter supported by the application's disclosure. Accordingly, reviewers of this or any child or related prosecution history shall not reasonably infer that the Applicant has made any disclaimers, disavowals, or abandonments of any subject matter supported by the present application, and any prior or alleged disclaimers, disavowals, or abandonments are hereby rescinded.

These comments are being filed concurrently with payment of the Issue Fee.

Respectfully submitted,

Date: **March 25, 2019**

SHEPPARD MULLIN RICHTER & HAMPTON LLP

By: / Mark A. Patrick /
Mark A. Patrick
Registration No. 72,958

Customer No. 133759

2099 Pennsylvania Avenue, NW, Suite 100
Washington, DC 20006-6801
Main: 202-747-1900
Direct Dial: 202-747-2192
Fax: 202-747-3853

Electronic Patent Application Fee Transmittal

Application Number:	14691445
Filing Date:	20-Apr-2015
Title of Invention:	SYSTEM AND METHOD FOR A COOPERATIVE CONVERSATIONAL VOICE USER INTERFACE
First Named Inventor/Applicant Name:	Larry BALDWIN
Filer:	Mark Andrew Patrick/Susan Trader
Attorney Docket Number:	62KC-218492

Filed as Small Entity

Filing Fees for Utility under 35 USC 111(a)

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	500	500

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Extension-of-Time:				
Miscellaneous:				
			Total in USD ($)	**500**

Electronic Acknowledgement Receipt	
EFS ID:	35517293
Application Number:	14691445
International Application Number:	
Confirmation Number:	8351
Title of Invention:	SYSTEM AND METHOD FOR A COOPERATIVE CONVERSATIONAL VOICE USER INTERFACE
First Named Inventor/Applicant Name:	Larry BALDWIN
Customer Number:	133759
Filer:	Mark Andrew Patrick/Susan Trader
Filer Authorized By:	Mark Andrew Patrick
Attorney Docket Number:	62KC-218492
Receipt Date:	25-MAR-2019
Filing Date:	20-APR-2015
Time Stamp:	14:24:58
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	DA
Payment was successfully received in RAM	$500
RAM confirmation Number	032619INTEFSW00000415504561
Deposit Account	504561
Authorized User	Susan Trader
The Director of the USPTO is hereby authorized to charge indicated fees and credit any overpayment as follows: 37 CFR 1.16 (National application filing, search, and examination fees) 37 CFR 1.17 (Patent application and reexamination processing fees)	

37 CFR 1.19 (Document supply fees)

37 CFR 1.20 (Post Issuance fees)

37 CFR 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)	62KC-218492_IssueFee.pdf	92965 040b6d132498f41cf41c62aa0ce8e3c69c0ad67f	no	1
Warnings:					
Information:					
2	Miscellaneous Incoming Letter	62KC-218492_Comments.pdf	130077 5648bc23e25074d68918f1297126049c01babf8a	no	3
Warnings:					
Information:					
3	Fee Worksheet (SB06)	fee-info.pdf	30378 75a4434e9ab3012370e3980ea89dd111403bfc95	no	2
Warnings:					
Information:					
		Total Files Size (in bytes):	253420		

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.

<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.
<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.
<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.

PART B - FEE(S) TRANSMITTAL

Complete and send this form, together with applicable fee(s), by mail or fax, or via EFS-Web.

By mail, send to: Mail Stop ISSUE FEE
Commissioner for Patents
P.O. Box 1450
Alexandria, Virginia 22313-1450

By fax, send to: (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)

133759 7590 02/13/2019
Sheppard Mullin Richter & Hampton LLP
650 Town Center Drive, 4th Floor
Costa Mesa, CA 92626

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 transmitted to the USPTO via EFS-Web or by facsimile to (571) 273-2885, on the date below.

(Typed or printed name)

(Signature)

(Date)

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
14/691,445	04/20/2015	Larry BALDWIN	62KC-218492	8351

TITLE OF INVENTION: SYSTEM AND METHOD FOR A COOPERATIVE CONVERSATIONAL VOICE USER INTERFACE

APPLN. TYPE	ENTITY STATUS	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	SMALL	$500	$0.00	$0.00	$500	05/13/2019

EXAMINER	ART UNIT	CLASS-SUBCLASS
YEN, ERIC L	2658	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 03-09 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 Sheppard Mullin Richter & Hampton 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 must have been previously recorded, or filed for recordation, as set forth in 37 CFR 3.11 and 37 CFR 3.81(a). Completion of this form is NOT a substitute for filing an assignment.

(A) NAME OF ASSIGNEE: VB Assets, LLC

(B) RESIDENCE: (CITY and STATE OR COUNTRY): Bellevue, Washington

Please check the appropriate assignee category or categories (will not be printed on the patent) : ❑ Individual ■ Corporation or other private group entity ❑ Government

4a. Fees submitted: ■ Issue Fee ❑ Publication Fee (if required) ❑ Advance Order - # of Copies _____

4b. Method of Payment: *(Please first reapply any previously paid fee shown above)*

■ Electronic Payment via EFS-Web ❑ Enclosed check ❑ Non-electronic payment by credit card (Attach form PTO-2038)

■ The Director is hereby authorized to charge the required fee(s), any deficiency, or credit any overpayment to Deposit Account No. 504561

5. **Change in Entity Status** (from status indicated above)

❑ Applicant certifying micro entity status. See 37 CFR 1.29

❑ Applicant asserting small entity status. See 37 CFR 1.27

❑ Applicant changing to regular undiscounted fee status.

NOTE: Absent a valid certification of Micro Entity Status (see forms PTO/SB/15A and 15B), issue fee payment in the micro entity amount will not be accepted at the risk of application abandonment.
NOTE: If the application was previously under micro entity status, checking this box will be taken to be a notification of loss of entitlement to micro entity status.
NOTE: Checking this box will be taken to be a notification of loss of entitlement to small or micro entity status, as applicable.

NOTE: This form must be signed in accordance with 37 CFR 1.31 and 1.33. See 37 CFR 1.4 for signature requirements and certifications.

Authorized Signature /Mark A. Patrick/ Date March 25, 2019

Typed or printed name Mark A. Patrick Registration No. 72,958

PTOL-85 Part B (08-18) Approved for use through 01/31/2020 OMB 0651-0033 U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE

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Page 31

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

133759 7590 02/13/2019

Sheppard Mullin Richter & Hampton LLP
650 Town Center Drive, 4th Floor
Costa Mesa, CA 92626

EXAMINER	
YEN, ERIC L	
ART UNIT	PAPER NUMBER
2658	

DATE MAILED: 02/13/2019

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
14/691,445	04/20/2015	Larry BALDWIN	62KC-218492	8351

TITLE OF INVENTION: SYSTEM AND METHOD FOR A COOPERATIVE CONVERSATIONAL VOICE USER INTERFACE

APPLN. TYPE	ENTITY STATUS	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	SMALL	$500	$0.00	$0.00	$500	05/13/2019

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 ENTITY STATUS shown above. If the ENTITY STATUS is shown as SMALL or MICRO, verify whether entitlement to that entity status still applies.

If the ENTITY STATUS is the same as shown above, pay the TOTAL FEE(S) DUE shown above.

If the ENTITY STATUS is changed from that shown above, on PART B - FEE(S) TRANSMITTAL, complete section number 5 titled "Change in Entity Status (from status indicated above)".

For purposes of this notice, small entity fees are 1/2 the amount of undiscounted fees, and micro entity fees are 1/2 the amount of small entity fees.

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: Maintenance fees are due in utility patents issuing on applications filed on or after Dec. 12, 1980. It is patentee's responsibility to ensure timely payment of maintenance fees when due. More information is available at www.uspto.gov/PatentMaintenanceFees.

PTOL-85 (Rev. 02/11)

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Exhibit 1003
Page 32

PART B - FEE(S) TRANSMITTAL

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Commissioner for Patents
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(Typed or printed name)
(Signature)
(Date)

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
14/691,445	04/20/2015	Larry BALDWIN	62KC-218492	8351

TITLE OF INVENTION: SYSTEM AND METHOD FOR A COOPERATIVE CONVERSATIONAL VOICE USER INTERFACE

APPLN. TYPE	ENTITY STATUS	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	SMALL	$500	$0.00	$0.00	$500	05/13/2019

EXAMINER	ART UNIT	CLASS-SUBCLASS
YEN, ERIC L	2658	704-257000

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❑ 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 03-09 or more recent) attached. **Use of a Customer Number is required.**

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(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 must have been previously recorded, or filed for recordation, as set forth in 37 CFR 3.11 and 37 CFR 3.81(a). 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. Fees submitted: ❑ Issue Fee ❑ Publication Fee (if required) ❑ Advance Order - # of Copies _____

4b. Method of Payment: *(Please first reapply any previously paid fee shown above)*

❑ Electronic Payment via EFS-Web ❑ Enclosed check ❑ Non-electronic payment by credit card (Attach form PTO-2038)

❑ The Director is hereby authorized to charge the required fee(s), any deficiency, or credit any overpayment to Deposit Account No. _____

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❑ Applicant asserting small entity status. See 37 CFR 1.27

❑ Applicant changing to regular undiscounted fee status.

NOTE: Absent a valid certification of Micro Entity Status (see forms PTO/SB/15A and 15B), issue fee payment in the micro entity amount will not be accepted at the risk of application abandonment.
NOTE: If the application was previously under micro entity status, checking this box will be taken to be a notification of loss of entitlement to micro entity status.
NOTE: Checking this box will be taken to be a notification of loss of entitlement to small or micro entity status, as applicable.

NOTE: This form must be signed in accordance with 37 CFR 1.31 and 1.33. See 37 CFR 1.4 for signature requirements and certifications.

Authorized Signature _____ Date _____

Typed or printed name _____ Registration No. _____

Amazon/VB Assets
Exhibit 1003
Page 33

UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
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P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
14/691,445	04/20/2015	Larry BALDWIN	62KC-218492	8351

133759 7590 02/13/2019

Sheppard Mullin Richter & Hampton LLP
650 Town Center Drive, 4th Floor
Costa Mesa, CA 92626

EXAMINER	
YEN, ERIC L	
ART UNIT	**PAPER NUMBER**
2658	

DATE MAILED: 02/13/2019

Determination of Patent Term Adjustment under 35 U.S.C. 154 (b)
(Applications filed on or after May 29, 2000)

The Office has discontinued providing a Patent Term Adjustment (PTA) calculation with the Notice of Allowance.

Section 1(h)(2) of the AIA Technical Corrections Act amended 35 U.S.C. 154(b)(3)(B)(i) to eliminate the requirement that the Office provide a patent term adjustment determination with the notice of allowance. See Revisions to Patent Term Adjustment, 78 Fed. Reg. 19416, 19417 (Apr. 1, 2013). Therefore, the Office is no longer providing an initial patent term adjustment determination with the notice of allowance. The Office will continue to provide a patent term adjustment determination with the Issue Notification Letter that is mailed to applicant approximately three weeks prior to the issue date of the patent, and will include the patent term adjustment on the patent. Any request for reconsideration of the patent term adjustment determination (or reinstatement of patent term adjustment) should follow the process outlined in 37 CFR 1.705.

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.

PTOL-85 (Rev. 02/11)

OMB Clearance and PRA Burden Statement for PTOL-85 Part B

The Paperwork Reduction Act (PRA) of 1995 requires Federal agencies to obtain Office of Management and Budget approval before requesting most types of information from the public. When OMB approves an agency request to collect information from the public, OMB (i) provides a valid OMB Control Number and expiration date for the agency to display on the instrument that will be used to collect the information and (ii) requires the agency to inform the public about the OMB Control Number's legal significance in accordance with 5 CFR 1320.5(b).

The information collected by PTOL-85 Part B 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 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, 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.

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.

Notice of Allowability	Application No. 14/691,445	Applicant(s) BALDWIN et al.	
	Examiner ERIC YEN	Art Unit 2658	AIA Status No

-- 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 Amendment filed 1/31/19.
   ☐ A declaration(s)/affidavit(s) under **37 CFR 1.130(b)** was/were filed on _____.

2. ☐ An election was made by the applicant in response to a restriction requirement set forth during the interview on _____; the restriction requirement and election have been incorporated into this action.

3. ☑ The allowed claim(s) is/are 1,3-13,15-20 and 22-31 . As a result of the allowed claim(s), you may be eligible to benefit from the **Patent Prosecution Highway** program at a participating intellectual property office for the corresponding application. For more information, please see **http://www.uspto.gov/patents/init_events/pph/index.jsp** or send an inquiry to **PPHfeedback@uspto.gov.**

4. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

   Certified copies:

   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 areply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.
THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
   ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____ .

   Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).

6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☑ Notice of References Cited (PTO-892)
2. ☐ Information Disclosure Statements (PTO/SB/08), Paper No./Mail Date _____.
3. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material _____.
4. ☐ Interview Summary (PTO-413), Paper No./Mail Date. _____.
5. ☑ Examiner's Amendment/Comment
6. ☑ Examiner's Statement of Reasons for Allowance
7. ☐ Other _____.

/ERIC YEN/
Primary Examiner, Art Unit 2658

Amazon/VB Assets
Exhibit 1003
Page 36

DETAILED ACTION

Notice of Pre-AIA or AIA Status

1. The present application is being examined under the pre-AIA first to invent provisions.

Response to Amendment

1. In response to the Final Office Action mailed 12/4/18, applicant has submitted an After-Final amendment filed 1/31/19.

Claims 1, 3, 4, 13, 15, 16, 22, 24, have been amended. Claim 21 has been cancelled. New claims 26-31 have been added.

Election/Restrictions

2. Claims 1, 3-13, 15-20, 22-31, are allowable. Claims 3-6, 8-10, 15-18, and 20, previously withdrawn from consideration as a result of a restriction requirement, include all the limitations of an allowable claim. Pursuant to the procedures set forth in MPEP § 821.04(a), **the restriction requirement between inventions I-III, as set forth in the Office action mailed on 2/28/17, is hereby withdrawn** and claims 3-6, 8-10, 15-18, and 20 hereby rejoined and fully examined for patentability under 37 CFR 1.104. In view of the withdrawal of the restriction requirement, applicant(s) are advised that if any claim presented in a continuation or divisional application is anticipated by, or includes all the limitations of, a claim that is allowable in the present application, such claim may be subject to provisional statutory and/or nonstatutory double patenting rejections over the claims of the instant application. Once the restriction requirement is withdrawn, the provisions of 35 U.S.C. 121 are no longer applicable. See *In re Ziegler*, 443 F.2d 1211, 1215, 170 USPQ 129, 131-32 (CCPA 1971). See also MPEP § 804.01.

EXAMINER'S AMENDMENT

3. 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 an interview with Mark Patrick on 2/6/19.

The application has been amended as follows:

Make the following amendments to the claims filed 1/31/19.

As per Claim 3, amend "second response" in the last line to recite –response— (i.e. delete "second").

As per Claim 4, amend "third natural language utterance" in line 6 to recite – second natural language utterance--, and amend "third natural language utterance" in the 2nd to last line to recite –second natural language utterance--

As per Claim 5, amend "the third natural" in line 1 to recite –the second natural--, amend "the third natural language utterance" in line 4 to recite –the second natural language utterance--, amend "the third natural language utterance" in line 6 to recite –

the second natural language utterance--, and amend "the third natural language utterance" in line 7 to recite –the second natural language utterance--.

As per Claim 6, amend "the third natural language utterance" in line 2 to recite –the second natural language utterance--, amend "third context" in line 4 to recite –second context--, amend "the third natural language utterance" in line 4 to recite –the second natural language utterance--, amend "third context" in line 5 to recite –second context--, and amend "third natural language utterance" in line 6 to recite –second natural language utterance--.

As per Claim 15, amend "a second" in the 2nd to last line to recite –a—(i.e. delete "second")

As per Claim 16, amend "third natural language utterance" in line 7 to recite –second natural language utterance--, and amend "third natural language" in line 8 to recite –second natural language--

As per Claim 17, amend "the third natural" in line 1 to recite –the second natural--, amend "the third natural language utterance" in line 4 to recite –the second natural language utterance--, amend "the third natural language utterance" in line 6 to recite –the second natural language utterance--, and amend "the third natural language utterance" in line 7 to recite –the second natural language utterance--.

As per Claim 18, amend "the third natural language utterance" in line 3 to recite –the second natural language utterance--, amend "third context for the third" in line 4 to recite –second context for the second--, amend "third context" in line 6 to recite –second context--, and amend "third natural language" in line 6 to recite –second natural language--.

As per Claim 20, amend "the short-term" in the 2nd to last line to recite –short-term— (i.e. delete "the")

Allowable Subject Matter

4. Claims 1, 3-13, 15-20, 22-31, are allowed.

5. The following is an examiner's statement of reasons for allowance:

As described in the previous prior art rejections of claims 21-22 in the Final Office Action mailed 10/12/17, **Byers (US 6,219,645)**, in combination with Kennewick and Perkins, suggests where multiple microphones receive the same utterance and comparing the signals from the different microphones are compared to each other, and selecting the best/cleanest signal out of the different microphone signals based on the comparison.

Byers does not, however, describe where "sound from the first voice input and the second voice input" (i.e. sound that is based on both voice inputs from the first and second input devices) are filtered, where the filtering is based on the comparison.

Regardless of whether the prior art does or does not teach or suggest filtering sound based on multiple microphone signals based on comparison of those multiple

microphone signals to each other, at least one more reference would be required to address all of the limitations of claims 1 and 21 together, such that the prior art does not reasonably suggest the combination of all limitations in claims 21 and 1 together due to the quantity of references required to address every limitation (at least five) and due to the complexity of the manner in which those references would need to be combined.

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

6. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. See PTO-892

1. Any inquiry concerning this communication or earlier communications from the examiner should be directed to ERIC YEN whose telephone number is (571)272-4249. The examiner can normally be reached on M-F 9:00-5:30PM.

Examiner interviews are available via telephone, in-person, and video conferencing using a USPTO supplied web-based collaboration tool. To schedule an interview, applicant is encouraged to use the USPTO Automated Interview Request (AIR) at http://www.uspto.gov/interviewpractice.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, RICHEMOND DORVIL can be reached on (571)272-7602. 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.

EY 2/6/19

/ERIC YEN/
Primary Examiner, Art Unit 2658

Notice of References Cited	Application/Control No. 14/691,445	Applicant(s)/Patent Under Reexamination BALDWIN et al.	
	Examiner ERIC YEN	Art Unit 2658	Page 1 of 1

U.S. PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Name	CPC Classification	US Classification
*	A	US-20050060142-A1	03-2005	Visser, Erik	G10L21/0208	704/201
*	B	US-20010021905-A1	09-2001	Burnett, Greg C.	A61B5/0507	704/233
	C					
	D					
	E					
	F					
	G					
	H					
	I					
	J					
	K					
	L					
	M					

FOREIGN PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Country	Name	CPC 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.

Search Notes	Application/Control No.	Applicant(s)/Patent Under Reexamination
	14/691,445	BALDWIN et al.
	Examiner	Art Unit
	ERIC YEN	2658

CPC - Searched*		
Symbol	**Date**	**Examiner**
G10L 15/22	5/3/17	EY
G06F 17/27, 17/2785	5/3/17	EY
G10L 15/1815, 15/1822, 15/183, 15/22, 2015/225, 2015/228, 2021/02166, 25/51	02/06/2019	EY
G06F 17/27, 17/2785	02/06/2019	EY

CPC Combination Sets - Searched*		
Symbol	**Date**	**Examiner**

US Classification - Searched*			
Class	**Subclass**	**Date**	**Examiner**

* See search history printout included with this form or the SEARCH NOTES box below to determine the scope of the search.

Search Notes		
Search Notes	**Date**	**Examiner**
EAST Search (attached)	5/3/17	EY
EAST Search (attached)	10/5/17	EY
EAST Search (attached)	07/26/2018	EY
EAST Search (attached)	11/29/2018	EY
EAST Search (attached)	02/06/2019	EY

Amazon/VB Assets
Exhibit 1003
Page 44

Search Notes	Application/Control No.	Applicant(s)/Patent Under Reexamination
	14/691,445	BALDWIN et al.
	Examiner	Art Unit
	ERIC YEN	2658

Interference Search			
US Class/CPC Symbol	US Subclass/CPC Group	Date	Examiner
G10L	15/1815, 15/1822, 15/183, 15/22, 2015/225, 2015/228, 2021/02166, 25/51	02/06/2019	EY
G06F	17/27, 17/2785	02/06/2019	EY

Amazon/VB Assets
Exhibit 1003
Page 45

Issue Classification	Application/Control No.	Applicant(s)/Patent Under Reexamination
	14/691,445	BALDWIN et al.
	Examiner	**Art Unit**
	ERIC YEN	2658

CPC								
Symbol							**Type**	**Version**
G10L	/	15	/	18			F	2013-01-01
G10L	/	15	/	1815			I	2013-01-01
G10L	/	15	/	1822			I	2013-01-01
G10L	/	25	/	51			I	2013-01-01
G06F	/	17	/	2785			I	2013-01-01
G10L	/	15	/	22			I	2013-01-01
G06F	/	3	/	167			I	2013-01-01
G10L	/	17	/	22			I	2013-01-01
G10L	/	2015	/	228			A	2013-01-01
G10L	/	2015	/	225			A	2013-01-01
G10L	/	2021	/	02166			A	2013-01-01
G10L	/	15	/	183			A	2013-01-01
G10L	/	2015	/	0631			A	2013-01-01

CPC Combination Sets									
Symbol							**Type**	**Set**	**Ranking**	**Version**
	/		/							

NONE		Total Claims Allowed:	
(Assistant Examiner)	(Date)	28	
/ERIC YEN/ Primary Examiner, Art Unit 2658	06 February 2019	O.G. Print Claim(s)	O.G. Print Figure
(Primary Examiner)	(Date)	1	2

U.S. Patent and Trademark Office — Part of Paper No.: 20190204

Amazon/VB Assets
Exhibit 1003
Page 46

Issue Classification	Application/Control No.	Applicant(s)/Patent Under Reexamination
	14/691,445	BALDWIN et al.
	Examiner	**Art Unit**
	ERIC YEN	2658

INTERNATIONAL CLASSIFICATION				
CLAIMED				
G06F3/16	/	3	/	16
G06F17/27	/	17	/	27
G10L15/06	/	15	/	06
G10L15/18	/	15	/	18
G10L15/22	/	15	/	22
G10L17/22	/	17	/	22
G10L25/51	/	25	/	51
G10L15/183	/	15	/	183
G10L21/0216	/	21	/	0216

NON-CLAIMED				
	/		/	

US ORIGINAL CLASSIFICATION	
CLASS	**SUBCLASS**

CROSS REFERENCES(S)						
CLASS	**SUBCLASS (ONE SUBCLASS PER BLOCK)**					

NONE		Total Claims Allowed:	
(Assistant Examiner)	(Date)	28	
/ERIC YEN/ Primary Examiner, Art Unit 2658	06 February 2019	O.G. Print Claim(s)	O.G. Print Figure
(Primary Examiner)	(Date)	1	2

U.S. Patent and Trademark Office — Part of Paper No.: 20190204

Amazon/VB Assets
Exhibit 1003
Page 47

Issue Classification	Application/Control No.	Applicant(s)/Patent Under Reexamination
	14/691,445	BALDWIN et al.
	Examiner	**Art Unit**
	ERIC YEN	2658

☐ Claims renumbered in the same order as presented by applicant ☐ CPA ☐ T.D. ☐ R.1.47

CLAIMS

Final	Original	Final	Original	Final	Original	Final	Original	Final	Original	Final	Original	Final	Original	Final	Original
1	1	10	11	12	22	28	31								
2	3	11	12	13	23										
3	4	16	13	14	24										
4	5	17	15	15	25										
5	6	18	16	23	26										
6	7	19	17	24	27										
7	8	20	18	25	28										
8	9	21	19	26	29										
9	10	22	20	27	30										

NONE		**Total Claims Allowed:**	
(Assistant Examiner)	(Date)	28	
/ERIC YEN/ Primary Examiner, Art Unit 2658	06 February 2019	O.G. Print Claim(s)	O.G. Print Figure
(Primary Examiner)	(Date)	1	2

U.S. Patent and Trademark Office — Part of Paper No.: 20190204

Amazon/VB Assets
Exhibit 1003
Page 48

IN THE UNITED STATES PATENT & TRADEMARK OFFICE

In Re Patent Application Of:	Larry BALDWIN *et al.*	**Attorney Docket No.:**	62KC-218492
Serial No.:	14/691,445	**Confirmation No.:**	8351
Filing Date:	April 20, 2015	**Examiner:**	Eric L. Yen
		Art Unit:	2658

For: SYSTEM AND METHOD FOR A COOPERATIVE CONVERSATIONAL VOICE USER INTERFACE

RESPONSE TO FINAL OFFICE ACTION MAILED DECEMBER 4, 2018

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

Submitted: January 31, 2019

Dear Sir:

In response to the Final Office Action mailed **December 4, 2018**, please amend the above-identified application as follows:

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

Remarks begin on page **11** of this paper.

It is not believed that extensions of time or fees for net addition of claims are required beyond those that may otherwise be provided for in documents accompanying this paper. However, if additional extensions of time are necessary to prevent abandonment of this application, then such extensions of time are hereby petitioned for under 37 C.F.R. § 1.136(a), and any fees required therefor (including fees for net addition of claims) are hereby authorized to be charged to our Deposit Account No. 504561 (**Ref. No. 62KC-218492**).

EAST Search History

EAST Search History (Prior Art)

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
L3	53	(G10L15/$ G10L2015/$ G10L21/$ G10L2021/$ G10L25/$ G10L2025/$ G06F17/27$ G06F2017/27$).cpc. and ((compar$4 near5 microphones) same (filter$4 with microphone$1))	US-PGPUB; USPAT; USOCR; EPO; JPO	OR	OFF	2019/02/06 13:36
L4	60	(G10L15/$ G10L2015/$ G10L21/$ G10L2021/$ G10L25/$ G10L2025/$ G06F17/27$ G06F2017/27$).cpc. and ((filter$4 with microphones with compar$4))	US-PGPUB; USPAT; USOCR; EPO; JPO	OR	OFF	2019/02/06 13:45

2/6/2019 1:49:32 PM
C:\Users\eyen\Documents\EAST\Workspaces\15448688.wsp

PTO/SB/06 (09-11)
Approved for use through 1/31/2014. OMB 0651-0032
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

PATENT APPLICATION FEE DETERMINATION RECORD Substitute for Form PTO-875	Application or Docket Number 14/691,445	Filing Date 04/20/2015	☐ To be Mailed

ENTITY: ☐ LARGE ☑ SMALL ☐ MICRO

APPLICATION AS FILED - PART I

FOR	(Column 1) NUMBER FILED	(Column 2) NUMBER EXTRA		RATE ($)	FEE ($)
☐ BASIC FEE (37 CFR 1.16(a), (b), or (c))	N/A	N/A		N/A	
☐ SEARCH FEE (37 CFR 1.16(k), (i), or (m))	N/A	N/A		N/A	
☐ EXAMINATION FEE (37 CFR 1.16(o), (p), or (q))	N/A	N/A		N/A	
TOTAL CLAIMS (37 CFR 1.16(i))	minus 20 =	*		x $40 =	
INDEPENDENT CLAIMS (37 CFR 1.16(h))	minus 3 =	*		x $210 =	
☐ APPLICATION SIZE FEE (37 CFR 1.16(s))	If the specification and drawings exceed 100 sheets of paper, the application size fee due is $310 ($155 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	

APPLICATION AS AMENDED - PART II

		(Column 1) CLAIMS REMAINING AFTER AMENDMENT		(Column 2) HIGHEST NUMBER PREVIOUSLY PAID FOR	(Column 3) PRESENT EXTRA		RATE ($)	ADDITIONAL FEE ($)
AMENDMENT	01/31/2019							
	Total (37 CFR 1.16(i))	* 28	Minus	** 23	= 5		x $50 =	250
	Independent (37 CFR 1.16(h))	* 2	Minus	*** 3	= 0		x $230 =	0
	☐ Application Size Fee (37 CFR 1.16(s))							
	☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))							
							TOTAL ADD'L FEE	250

		(Column 1) CLAIMS REMAINING AFTER AMENDMENT		(Column 2) HIGHEST NUMBER PREVIOUSLY PAID FOR	(Column 3) PRESENT EXTRA		RATE ($)	ADDITIONAL FEE ($)
AMENDMENT								
	Total (37 CFR 1.16(i))	*	Minus	**	=		x $0 =	
	Independent (37 CFR 1.16(h))	*	Minus	***	=		x $0 =	
	☐ Application Size Fee (37 CFR 1.16(s))							
	☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))							
							TOTAL ADD'L FEE	

* If the entry in column 1 is less than the entry in column 2, write "0" in column 3.	LIE
** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 20, enter "20".	/VINCENT S BUTLER/
*** 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 & TRADEMARK OFFICE

In Re Patent Application Of:	Larry BALDWIN *et al.*	**Attorney Docket No.:**	62KC-218492
Serial No.:	14/691,445	**Confirmation No.:**	8351
Filing Date:	April 20, 2015	**Examiner:**	Eric L. Yen
		Art Unit:	2658

For: SYSTEM AND METHOD FOR A COOPERATIVE CONVERSATIONAL VOICE USER INTERFACE

RESPONSE TO FINAL OFFICE ACTION MAILED DECEMBER 4, 2018

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

Submitted: January 31, 2019

Dear Sir:

In response to the Final Office Action mailed **December 4, 2018**, please amend the above-identified application as follows:

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

Remarks begin on page **11** of this paper.

It is not believed that extensions of time or fees for net addition of claims are required beyond those that may otherwise be provided for in documents accompanying this paper. However, if additional extensions of time are necessary to prevent abandonment of this application, then such extensions of time are hereby petitioned for under 37 C.F.R. § 1.136(a), and any fees required therefor (including fees for net addition of claims) are hereby authorized to be charged to our Deposit Account No. 504561 (**Ref. No. 62KC-218492**).

AMENDMENTS TO THE CLAIMS

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

LISTING OF CLAIMS:

1. (**Currently Amended**) A computer-implemented method of facilitating natural language system responses using short-term knowledge generated based on one or more prior multi-modal device interactions, the method being implemented by a computer system that includes one or more physical processors executing one or more computer program instructions which, when executed, perform the method, the method comprising:

receiving, by the computer system during a first conversation, a first voice input via a first input device, the first voice input comprising a first natural language utterance;

receiving, by the computer system, a second voice input comprising the first natural language utterance via a second input device;

comparing, by the computer system, the first voice input with the second voice input;

filtering, by the computer system, sound from the first voice input and the second voice input based on the comparison;

obtaining, by the computer system during the first conversation, a user interface state related to one or more non-voice inputs associated with the first voice input, the one or more non-voice inputs comprising at least a first non-voice input;

generating, by the computer system, the short-term knowledge based on at least the first voice input and the first non-voice input;

determining, by the computer system, based on the short-term knowledge, a first context for the first natural language utterance;

determining, by the computer system, based on the first context, an interpretation of the first natural language utterance; and

generating, by the computer system, based on the interpretation of the first natural language utterance, a first response to the first natural language utterance.

2. (**Canceled**).

3. (**Withdrawn – Currently Amended**) The method of claim 1, ~~wherein the first voice input is received via a first input device,~~ the method further comprising:

receiving, at the computer system, a second natural language utterance via the first input device;

determining, by the computer system, based on the short-term knowledge, whether the second natural language utterance corresponds to the first context;

determining, by the computer system, responsive to the second natural language utterance not corresponding to the first context, a second context for the second natural language utterance based on the short-term knowledge;

determining, by the computer system, based on the second context, an interpretation of the second natural language utterance; and

generating, by the computer system, based on the interpretation of the second natural language utterance, a second response to the second natural language utterance.

4. (**Withdrawn – Currently Amended**) The method of claim 1, ~~wherein the first voice input is received via a first input device,~~ the method further comprising:

tracking, by the computer system, contexts identified for multiple consecutive natural language user utterances to generate a context stack, the context stack including the contexts identified for the multiple consecutive natural language user utterances;

receiving, at the computer system, a third natural language utterance via the first input device; and

determining, by the computer system, based on the short-term knowledge, whether the third natural language utterance corresponds to one or more individual ones of the contexts included in the context stack.

5. (**Withdrawn**) The method of claim 4, wherein determining whether the third natural language utterance corresponds to one or more individual ones of the contexts included in the context stack includes:

determining whether the third natural language utterance corresponds to a most recent context included in the context stack; and

responsive to the third natural language utterance not corresponding to the most recent context, determining whether the third natural language utterance corresponds to a second most recent context included in the context stack.

6. (**Withdrawn**) The method of claim 4, further comprising:

determining, by the computer system, responsive to the third natural language utterance not corresponding to one or more individual ones of the contexts included in the context stack, a third context for the third natural language utterance based on the short-term knowledge; and

determining, by the computer system, based on the third context, an interpretation of the third natural language utterance.

7. (**Original**) The method of claim 1, wherein determining the interpretation of the first natural language utterance comprises determining, based on the first context, an interpretation of one or more recognized words of the first natural language utterance.

8. (**Withdrawn**) The method of claim 1, the method further comprising:

expiring, by the computer system, one or more items of short-term knowledge that are based on one or more natural language utterances received during conversations occurring prior to the first conversation.

9. (**Withdrawn**) The method of claim 8, further comprising:

accumulating, by the computer system, long-term knowledge based on the one or more items of short-term knowledge that are expired.

10. (**Withdrawn**) The method of claim 1, the method further comprising:

accumulating, by the computer system, long-term knowledge, wherein the long-term knowledge is accumulated based on one or more natural language utterances received during conversations occurring prior to the first conversation, wherein the first context is determined based on the short-term knowledge and the long-term knowledge.

11. (**Original**) The method of claim 1, further comprising:

determining, by the computer system, based on the short-term knowledge, a manner in which the first natural language utterance is spoken, wherein the first response is generated based on the determined manner and the interpretation of the first natural language utterance.

12. (**Original**) The method of claim 11, wherein the manner in which the first natural language utterance is spoken includes at least one of a tone, a pace, an inflection, or a timing.

13. (**Currently Amended**) A system for facilitating natural language system responses via short-term knowledge generated based on one or more prior multi-modal device interactions, the system comprising:

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

receive, during a first conversation, a first voice input <u>via a first input device, the first voice input</u> comprising a first natural language utterance;

<u>receive a second voice input comprising the first natural language utterance via a second input device;</u>

<u>compare the first voice input with the second voice input;</u>

<u>filter sound from the first voice input and the second voice input based on the comparison;</u>

obtain, during the first conversation, a user interface state related to one or more non-voice inputs associated with the first voice input, the one or more non-voice inputs comprising at least a first non-voice input;

generate the short-term knowledge based on at least the first voice input and the first non-voice input;

determine, based on the short-term knowledge, a first context for the first natural language utterance;

determine, based on the first context, an interpretation of the first natural language utterance; and generate, based on the interpretation of the first natural language utterance, a first response to the first natural language utterance.

14. (**Canceled**).

15. (**Withdrawn – Currently Amended**) The system of claim 13, ~~wherein the first voice input is received via a first input device, and~~ wherein the one or more physical processors are further caused to:

receive a second natural language utterance via the first input device;

determine, based on the short-term knowledge, whether the second natural language utterance corresponds to the first context;

determine, responsive to the second natural language utterance not corresponding to the first context, a second context for the second natural language utterance based on the short-term knowledge;

determine, based on the second context, an interpretation of the second natural language utterance; and

generate, based on the interpretation of the second natural language utterance, a second response to the second natural language utterance.

16. (**Withdrawn – Currently Amended**) The system of claim 13, ~~wherein the first voice input is received via a first input device, and~~ wherein the one or more physical processors are further caused to:

track contexts identified for multiple consecutive natural language user utterances to generate a context stack, the context stack including the contexts identified for the multiple consecutive natural language user utterances;

receive a third natural language utterance via the first input device; and

determine, based on the short-term knowledge, whether the third natural language utterance corresponds to one or more individual ones of the contexts included in the context stack.

17. (**Withdrawn**) The system of claim 16, wherein determining whether the third natural language utterance corresponds to one or more individual ones of the contexts included in the context stack includes:

determining whether the third natural language utterance corresponds to a most recent context included in the context stack; and

responsive to the third natural language utterance not corresponding to the most recent context, determining whether the third natural language utterance corresponds to a second most recent context included in the context stack.

18. (**Withdrawn**) The system of claim 16, wherein the one or more physical processors are caused to:

determine, responsive to the third natural language utterance not corresponding to one or more individual ones of the contexts included in the context stack, a third context for the third natural language utterance based on the short-term knowledge; and

determine, based on the third context, an interpretation of the third natural language utterance.

19. (**Original**) The system of claim 13, wherein determining the interpretation of the first natural language utterance comprises determining, based on the first context, an interpretation of one or more recognized words of the first natural language utterance.

20. (**Withdrawn**) The system of claim 13, wherein the one or more physical processors are caused to:

expire one or more items of accumulated short-term knowledge that are based on one or more natural language utterances received during conversations occurring prior to the first conversation; and

accumulate long-term knowledge based on the one or more items of accumulated short-term knowledge that are expired, wherein the first context is determined based on the short-term knowledge and the long-term knowledge.

21. (**Canceled**).

22. (**Currently Amended**) The method of claim [[21]] 1, wherein the second input device is included with the first input device in a single device.

23. (**Previously Presented**) The method of claim 1, wherein generating the first response comprises generating, by the computer system, a non-voice response in a graphical user interface and/or a voice response via a speaker.

24. (**Currently Amended**) The method of claim 1, wherein the first natural language utterance relates to a request and the first response is intended to be responsive to the request, the method further comprising:

receiving, by the computer system, a second natural language utterance in response to the first response, wherein the second natural language utterance comprises a clarification related to the interpretation of the first natural language utterance; and

responsive to receipt of the second natural language utterance, generating, by the computer system, a ~~second~~ response to the second natural language utterance based on the interpretation of the first natural language utterance and the clarification related to the interpretation of the first natural language utterance.

25. (**Previously Presented**) The method of claim 1, wherein the first non-voice input is received via a non-voice input device comprising a touch screen device, the method further comprising:

receiving, by the computer system, information indicating a location on the touch screen device that received the first non-voice input.

26. (**New**) The system of claim 13, wherein the one or more physical processors are caused to:

determine, based on the short-term knowledge, a manner in which the first natural language utterance is spoken, wherein the first response is generated based on the determined manner and the interpretation of the first natural language utterance.

27. (**New**) The system of claim 26, wherein the manner in which the first natural language utterance is spoken includes at least one of a tone, a pace, an inflection, or a timing.

28. (**New**) The system of claim 13, wherein the second input device is included with the first input device in a single device.

29. (**New**) The system of claim 13, wherein to generate the first response, the one or more physical processors are caused to:

generate a non-voice response in a graphical user interface and/or a voice response via a speaker.

30. (**New**) The system of claim 13, wherein the first natural language utterance relates to a request and the first response is intended to be responsive to the request, wherein the one or more physical processors are further caused to:

receive a second natural language utterance in response to the first response, wherein the second natural language utterance comprises a clarification related to the interpretation of the first natural language utterance; and

responsive to receipt of the second natural language utterance, generate a response to the second natural language utterance based on the interpretation of the first natural language utterance and the clarification related to the interpretation of the first natural language utterance.

31. (**New**) The system of claim 13, wherein the first non-voice input is received via a non-voice input device comprising a touch screen device, and wherein the one or more physical processors are further caused to:

receive information indicating a location on the touch screen device that received the first non-voice input.

REMARKS

In response to the Final Office Action dated **December 4, 2018** (hereinafter "Final Action"), claims 1, 3, 4, 13, 15, 16, 22, and 24 have been amended, claims 26-31 have been newly added, and claim 21 has been canceled without prejudice or disclaimer. Claims 2 and 14 were canceled in a prior amendment. Therefore, claims 1, 3-13, 15-20, and 22-31 remain pending, of which claims 3-6, 8-10, 15-18, and 20 are withdrawn. Support for the instant amendments and the additional claims is provided throughout the as-filed Specification. Thus, no new matter has been added. In view of the foregoing amendments and following remarks, allowance of all the claims pending in the application is respectfully requested.

ALLOWABLE SUBJECT MATTER

Applicant thanks the Examiner for the indication of allowability of claims 21 and 22. *Final Action* at 50. Specifically, the Examiner has indicated the following:

> Claims 21-22 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Final Action at 50. *Solely* in an effort to expedite prosecution of this application and expressly not acquiescing to the propriety of the alleged rejections, Applicant has amended independent claims 1 and 13 to incorporate the limitations previously recited by allowable dependent claim 21. Currently pending claims 3-12, 15-20, and 22-31 depend from and add features to one of claims 1 and 13. As such, at least claims 1, 3-13, 15-20, and 22-31 are believed to be in condition for allowance.

WITHDRAWN CLAIMS

Claims 3-6, 8-10, 15-18, and 20 were withdrawn by the Examiner following Applicant's Response dated April 28, 2017, to the Requirement for Restriction mailed February 28, 2017 (hereinafter "Restriction Requirement"). In the Restriction Requirement, the Examiner stated:

> Applicant is required under 35 U.S.C. § 121 to elect a single disclosed species, or a single grouping of patentably indistinct species, for prosecution on the merits to which the claims shall be

> restricted if no generic claim is finally held to be allowable. Currently, claims 1-2, 7, 13-14, 19, are generic.

Restriction Requirement at 3.

Applicant asserts that one or more of the withdrawn claims, which the Examiner alleged were directed to one or more "independent or distinct" species, depend from or otherwise require all the limitations of an allowable generic claim. As such, Applicant requests consideration of these claims under 37 CFR 1.141. The Examiner is kindly invited to contact the Applicant's representative at the number provided below to discuss the withdrawn claims.

REJECTION UNDER 35 U.S.C. § 112

Claim 24 stands rejected under 35 U.S.C. § 112(b), or 35 U.S.C. § 112 (pre-AIA), second paragraph, as being allegedly indefinite for allegedly failing to particularly point out and distinctly claim the subject matter which the applicant regards as the invention. *Final Action* at 3-4. Applicant traverses the rejection set forth by the Examiner. Nonetheless, *solely* in an effort to expedite prosecution of this application and expressly not acquiescing to the propriety of the alleged rejection, Applicant has amended claim 24, rendering the rejection of this claim under 35 U.S.C. § 112 moot. As such, Applicant respectfully requests that this rejection be withdrawn.

REJECTIONS UNDER 35 U.S.C. § 103

Claims 1, 7, 13, 19, 23, and 25 stand rejected under pre-AIA 35 U.S.C. § 103 as allegedly being unpatentable over U.S. Patent Application Publication No. 2004/0044516 to Kennewick *et al.* (hereinafter "Kennewick") in view of U.S. Patent Application Publication No. 2004/0006475 to Ehlen *et al.* (hereinafter "Ehlen") and U.S. Patent No. 7,072,888 to Perkins (hereinafter "Perkins"). *Final Action* at 5. Claims 11 and 12 stand rejected under pre-AIA 35 U.S.C. § 103 as allegedly being unpatentable over Kennewick in view of Ehlen and Perkins, and further in view of U.S. Patent Application Publication No. 2003/0167167 to Gong (hereinafter "Gong"). *Final Action* at 35. Claim 24 stands rejected under pre-AIA 35 U.S.C. § 103 as allegedly being unpatentable over Kennewick in view of Ehlen and Perkins, and further in view of U.S. Patent No. 5,860,059 to Aust *et al.* (hereinafter "Aust"). *Final Action* at 43.

Applicant disagrees with the rejection set forth by the Examiner. Nonetheless, *solely* to expedite prosecution and expressly not acquiescing in the propriety of the rejection, Applicant

has amended independent claims 1 and 13 to incorporate the limitations previously recited by allowable dependent claim 21. The remaining pending claims each depend from and add features to one of claims 1 and 13. Therefore, the rejection under 35 U.S.C. § 103 has been rendered moot. As such, Applicant respectfully requests that this rejection be withdrawn.

NEWLY ADDED CLAIMS

Applicant introduces newly added claims 26-31 to recite additional subject matter disclosed by Applicant's Specification. Applicant respectfully asserts that, in addition to reciting additional allowable subject matter, these claims are allowable over the references cited by the Examiner at least due to their dependency on an allowable claim and the further features they each recite.

CONCLUSION

Having addressed each of the foregoing rejections, it is respectfully submitted that a full and complete response has been made to the outstanding Office Action and, as such, the application is in condition for allowance. Notice to that effect is respectfully requested.

If the Examiner believes, for any reason, that personal communication will expedite prosecution of this application, the Examiner is invited to telephone the undersigned at the number provided.

Respectfully submitted,

Date: **January 31, 2019**

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Electronic Patent Application Fee Transmittal

Application Number:	14691445
Filing Date:	20-Apr-2015
Title of Invention:	SYSTEM AND METHOD FOR A COOPERATIVE CONVERSATIONAL VOICE USER INTERFACE
First Named Inventor/Applicant Name:	Larry BALDWIN
Filer:	Mark Andrew Patrick/Diane Bogusz
Attorney Docket Number:	62KC-218492

Filed as Small Entity

Filing Fees for Utility under 35 USC 111(a)

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Basic Filing:				
Pages:				
Claims:				
CLAIMS IN EXCESS OF 20	2202	6	50	300
Miscellaneous-Filing:				
Petition:				
Patent-Appeals-and-Interference:				
Post-Allowance-and-Post-Issuance:				

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Extension-of-Time:				
Miscellaneous:				
			Total in USD ($)	**300**

Electronic Acknowledgement Receipt	
EFS ID:	35017505
Application Number:	14691445
International Application Number:	
Confirmation Number:	8351
Title of Invention:	SYSTEM AND METHOD FOR A COOPERATIVE CONVERSATIONAL VOICE USER INTERFACE
First Named Inventor/Applicant Name:	Larry BALDWIN
Customer Number:	133759
Filer:	Mark Andrew Patrick
Filer Authorized By:	
Attorney Docket Number:	62KC-218492
Receipt Date:	31-JAN-2019
Filing Date:	20-APR-2015
Time Stamp:	13:51:21
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	DA
Payment was successfully received in RAM	$300
RAM confirmation Number	020119INTEFSW00000137504561
Deposit Account	
Authorized User	
The Director of the USPTO is hereby authorized to charge indicated fees and credit any overpayment as follows:	

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1		218492_AF_RESPONSE.pdf	60143 d6586bbfadbd97eeb635d991ff03cf58b5a4579c	yes	13
	Multipart Description/PDF files in .zip description				
	Document Description		**Start**	**End**	
	Response After Final Action		1	1	
	Claims		2	10	
	Applicant Arguments/Remarks Made in an Amendment		11	13	
Warnings:					
Information:					
2	Fee Worksheet (SB06)	fee-info.pdf	30803 94c7ec788b51e409f2fb620fbca9c49c0b6d5883	no	2
Warnings:					
Information:					
		Total Files Size (in bytes):	90946		

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.

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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
14/691,445	04/20/2015	Larry BALDWIN	62KC-218492	8351

133759 7590 12/04/2018

Sheppard Mullin Richter & Hampton LLP
650 Town Center Drive, 4th Floor
Costa Mesa, CA 92626

EXAMINER	
YEN, ERIC L	

ART UNIT	PAPER NUMBER
2658	

NOTIFICATION DATE	DELIVERY MODE
12/04/2018	ELECTRONIC

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

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

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

SheppardMullin_Pair@firsttofile.com
dmipdocketing@sheppardmullin.com

Office Action Summary	**Application No.** 14/691,445	**Applicant(s)** BALDWIN et al.	
	Examiner ERIC YEN	**Art Unit** 2658	**AIA Status** No

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTHS FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☑ Responsive to communication(s) filed on 10/31/18.

☐ A declaration(s)/affidavit(s) under **37 CFR 1.130(b)** was/were filed on _____.

2a)☑ This action is **FINAL.** 2b) ☐ This action is non-final.

3)☐ An election was made by the applicant in response to a restriction requirement set forth during the interview on _____; the restriction requirement and election have been incorporated into this action.

4)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims*

5) ☑ Claim(s) 1,3-13 and 15-25 is/are pending in the application.

5a) Of the above claim(s) 3-6,8-10,15-18 and 20 is/are withdrawn from consideration.

6) ☐ Claim(s) _____ is/are allowed.

7) ☑ Claim(s) 1,7,11-13,19 and 23-25 is/are rejected.

8) ☑ Claim(s) 21-22 is/are objected to.

9) ☐ Claim(s) _____ are subject to restriction and/or election requirement

* If any claims have been determined allowable, you may be eligible to benefit from the **Patent Prosecution Highway** program at a participating intellectual property office for the corresponding application. For more information, please see http://www.uspto.gov/patents/init_events/pph/index.jsp or send an inquiry to **PPHfeedback@uspto.gov.**

Application Papers

10)☐ The specification is objected to by the Examiner.

11)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

Certified copies:

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)).

** See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☑ Notice of References Cited (PTO-892)

2) ☑ Information Disclosure Statement(s) (PTO/SB/08a and/or PTO/SB/08b) Paper No(s)/Mail Date _____.

3) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date _____.

4) ☐ Other: _____.

DETAILED ACTION

Notice of Pre-AIA or AIA Status

1. The present application is being examined under the pre-AIA first to invent provisions.

Response to Amendment

1. In response to the Office Action mailed 7/31/18, applicant has submitted an amendment filed 10/31/18.

Claims 1, 3, 4, 8, 10, 13, 15, 16, 20, 21, 24, 25, have been amended.

Election/Restrictions

Claims 1, 7, 11-13, 19, and 21-25 are pending and under examination.

Claims 3-6, 8-10, 15-18, and 20 remain withdrawn because the pending claims from which they depend remain rejected.

Response to Arguments

1. Applicant's arguments with respect to claims 1 and 13 have been considered but are moot in view of the new ground(s) of rejection

The 103 rejections below are necessitated by Amendment, and the indication of allowable subject matter in the Office Action mailed 7/31/18 do not apply to the current claims.

As a result of Applicant's amendments to remove the unsupported subject matter (i.e. where a single conversation/dialog lasts for a predefined time/period), the current claims no longer include the combination of all limitations (including the unsupported

subject matter) which made the previous claims filed 7/12/18 allowable for 103 purposes, and thus the previous allowable subject matter indication does not apply.

The current claims are rejected, as necessitated by Applicant's amendments, under 103 for the reasons discussed below in the 103 rejections.

Applicant's "Request for Examiner Interview" is acknowledged but due to time constraints and a lack of a clear path to overcome all rejections, this Office Action is being issued. Applicant is free to contact the examiner for an interview prior to filing Applicant's next response.

Claim Rejections - 35 USC § 112

1. The following is a quotation of 35 U.S.C. 112(b):
(b) CONCLUSION.—The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the inventor or a joint inventor regards as the invention.

The following is a quotation of 35 U.S.C. 112 (pre-AIA), second paragraph:
The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claims 24 are rejected under 35 U.S.C. 112(b) or 35 U.S.C. 112 (pre-AIA), second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which the inventor or a joint inventor, or for pre-AIA the applicant regards as the invention.

Claim 24 recites "a second response to the second natural language utterance" which, while fairly clearly intended to refer to a "second" response relative to the first response, where the second response is responsive to the second natural language

utterance, the plain and ordinary meaning of "a second response to the second natural language utterance" refers to the second of at least two responses to the second natural language utterance, and no first response to the second natural language utterance is claimed.

Applicant's apparent intended interpretation is not within the set of interpretations of "a second response to the second natural language utterance" because these words must be treated as an entire phrase, such that this phrase must be interpreted as a second response to utterance #2.

Therefore, as claimed, it is not clear which interpretation claim 24 should have because Applicant's intended interpretation is inconsistent with the plain and ordinary meaning and the plain and ordinary meaning has no "first response to utterance #2" for "a second response to the second natural language utterance" to be "second" to.

For the purposes of applying art, the examiner has interpreted "a second response to the second natural language utterance" as a "second response" relative to the "first response", where the "second response" responds "to the second natural language utterance" (as Applicant seems to have intended).

Claim Rejections - 35 USC § 103

1. The following is a quotation of pre-AIA 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. Claims 1, 7, 13, 19, 23, 25, are rejected under pre-AIA 35 U.S.C. 103(a) as being unpatentable over Kennewick et al. (US 2004/0044516), hereafter Kennewick, in view of Ehlen et al. (US 2004/0006475), hereafter Ehlen, and Perkins (US 7,072,888).

As per Claims 1 and 13, Kennewick suggests (along with its system equivalent) **a computer-implemented method of facilitating natural language system responses using knowledge generated based on one or more prior device interactions, the method being implemented by a computer system that includes one or more physical processors executing one or more computer program instructions which, when executed, perform the method** ("presenting results in a natural manner", paragraph 3; "current systems are generally unable to provide... for users to make natural language speech queries and receive natural language sounding responses", paragraph 6; "overcome these and other drawbacks", paragraph 7; "system comprises a speech unit interface device that receives spoken natural language queries, commands and/or other utterances from a user... computer device or system that receives input from the speech unit and processes the input... system may further generate a natural language speech response in response to the user and/or generate a natural language speech message without any prompting from a user such as an alert message", paragraph 10; "speech unit may be incorporated into the computer device, or may be a separate structure", paragraph 11; "computer device or system may comprise a stand alone or networked PC... or other computer device or system... software that is installed onto the computer... text to speech", paragraph 12; "return results of questions as responses to users... creates a response string, which is sent to the text to speech

engine… output by the speaker", paragraph 89; Figure 1; "system… may include a main unit… and a speech unit. Alternatively... may only comprise of the main unit... speech unit... completely separate", paragraph 84; "speech unit… includes one or more microphones… speech received at the microphone… transmits the coded speech to the main unit", paragraph 86; "users personal or user profile... values... information specific to the individual... history of their interactions with the system... domains of interest... personal profile data... used by the agents... and the parser... past behavior or history, questions... User profile data can be manually entered by the user and/or can be learned by the system… based on user behavior", paragraph 114; "Examples of information in a user profile includes, history of questions asked", paragraph 29; Figure 1; "parser... determines a context for an utterance by applying…user profile… dialog history", paragraph 152; "parser… determine the most likely context or domain for a user's question and/or command", paragraph 153; "what about flight one hundred and twenty too?", paragraph 155;

Paragraph 10, in particular, describes where a "system" [particularly a main unit component as described in paragraph 89 and Figure 1] generates "natural language speech responses", such that the "natural language speech responses" can be interpreted as "natural language system responses" [since they are generated by a system].

Paragraph 10 further describes one embodiment where the system "comprises… a computer device" [i.e. "a computer system" in claim 1 and a "system" in claim 13] and paragraph 12 describes one embodiment where the computer device can be a PC [i.e. personal computer] and where various functions are implemented via software,

including a text to speech engine which, as described in paragraph 89, is used to generate response audio that is output to the user [obviously the “natural language system responses” in paragraph 10]. Kennewick, therefore, at least suggests that the response generation and other functions of Kennewick’s ”computer device” is implemented by the claimed generic computer components [“one of more physical processors programmed with one or more computer program instructions which, when executed, cause the one or more physical processors to…” in claim 13 and “implemented by a computer system that includes one or more physical processors executing one or more computer program instructions which, when executed, perform…” in claim 1].

The computer device and the method it implements can be interpreted as a system/method that “facilitat[es] natural language system responses" because, as described in paragraphs 6-7, "current systems" [obviously prior art systems] cannot provide the natural language responses described in paragraph 10, such that the system/functions described in paragraph 10 “facilitate”/make-it-easier-to produce responses that are "natural sounding"/"natural language responses" [easier relative to prior art systems that are “generally unable” to do so, as described in paragraph 6].

Paragraphs 152 and 153 describe where a parser determines a context for a question/command [obviously a “natural language utterance”, see e.g. the example question in paragraph 155] based on “user profile” and “dialog history” [paragraph 152], where “user profile” and “dialog history” can be interpreted as “knowledge” which a context of an utterance is determined based on [relevant for the "determining... a first context..." limitation].

Paragraph 114 further describes where the user profile "knowledge" discussed in the previous paragraph can be manually entered by the user and/or can be learned by the system… based on user behavior, and paragraph 29 describes where user profile information can include a history of questions asked [obviously questions asked by the user since it is part of profile information that is obviously for a particular user].

The "history of questions asked" example of user profile "knowledge" [paragraph 29] particularly reads on where the user profile "knowledge" is "generated based on one or more prior… device interactions" because questions asked are obviously voice utterance inputs spoken by the user to "interact" with the "device" [see e.g. paragraph 155]. Those asked questions are obviously "prior… device interactions" because a history of questions asked obviously cannot exist if the questions in the history [i.e. "device interactions" since the user interacts with the device by asking the questions] were not actually asked at some time "prior" to generating the history.

Paragraph 29 further describes where profile data such as the "history of questions asked" user profile "knowledge" may be used in, among other things, "presenting answers to the user". Paragraph 114 further at least suggests where "responses" are "created... based on the... users personal or user profile... values" [i.e. based on the user profile "knowledge"]. Paragraph 89 further teaches where responses may be created using data in the user profile. These three paragraphs at least suggest where the "natural language responses" that are "facilitated" by Kennewick's "system" are "facilitat[ed]… using/via… knowledge generated based on one or more prior… device interactions" [i.e. where the history of questions asked via voice inputs spoken by the user are used to create responses, as described in paragraphs 89 and 114, or

present answers, as described in paragraph 29, where responses are natural language responses, as described in paragraph 10])

the method comprising: receiving, by the computer system during a first conversation, a first voice input comprising a first natural language utterance ("speech unit... receives spoken natural language queries, commands and/or other utterances from a user… computer device or system that receives input from the speech unit", paragraph 10; "speech unit… incorporated into the computer device or system", paragraph 11; "computer device or system… stand alone or networked PC", paragraph 12; "system… may include a main unit… and a speech unit. Alternatively... may only comprise of the main unit... speech unit... completely separate", paragraph 84; "speech unit… includes one or more microphones… speech received at the microphone… transmits the coded speech to the main unit", paragraph 86; "utterance… user asks 'what about flight one hundred and twenty too?'", paragraph 155; "natural question and response environment… direct response to a set of questions… user may be asked one or more questions to resolve the ambiguity", paragraph 30; "user may start a dialog with the system… first address it… end of a dialog or to interrupt a dialog… dismissal word… good by", paragraph 148; Figure 5; "query for retrieving data, the response would contain the requested information… response may be in the form of a natural language format… relayed to the user… audio message", paragraph 185;

"spoken natural language queries" [paragraph 10] are at least obviously "voice inputs" that are "uttered" by a user, such that they can each be interpreted as "a… voice input comprising a…natural language utterance" [any one of which can be interpreted

as a “first” voice input comprising a “first” natural language utterance]. See also paragraph 155 which provides an example of a natural language utterance question.

Paragraph 10 describes that a “speech unit interface device… receives spoken natural language queries” [i.e. “natural language utterances”] and that a “computer device or system… receives input from the speech unit”. Paragraphs 84 and 86 similarly describes a main unit and a speech unit [paragraph 84] and where speech received at a microphone at a speech unit is communicated to the main unit [paragraph 86], similar to how the "computer device" in paragraph 10 "receives input from the speech unit".

These paragraphs at least suggest where the main unit is a computer device/"computer system"-in-claim-1/”system”-in-claim-13 that “receiv[es]…a first voice input comprising a first natural language utterance" [i.e. the main unit receives one of the many "spoken natural language queries” from the speech unit].

Paragraph 148 further teaches the concept of a user starting a dialog with the system [which suggests a dialog/"conversation" between the user and the system], paragraph 30 describes where the user "can receive a direct response to a set of questions" [which suggests that the user asked multiple questions and is getting a response from the system] and where “the user may be asked one or more questions" [which suggests where there the system can also ask multiple questions and receive answers from the user], paragraph 155 describes an example of a user asking a natural language question [“what about flight…?”], paragraph 185 describes where the system can respond to a query [obviously, in at least some embodiments, a question] for retrieving data with a natural language response that “contain[s] the requested

information", and Figure 5 depicts a flow diagram which suggests where a user and system exchange "back and forth" communications where a user says something, a system responds by requesting verification, a user then responds by either verifying or rephrasing, etc. [i.e. conducting a "conversation"]. See also paragraph 10 which describes where the system responses may also be natural language responses.

The portions of Kennewick discussed in the previous paragraph suggest an obvious embodiment where "a first voice input comprising a first natural language utterance" is "receiv[ed]... during a first conversation" [i.e. where the spoken natural language queries are received by the system during an exchange of natural language queries and responses between the user and the system])

generating, by the computer system, the knowledge based on at least the first voice input ("presenting results in a natural manner", paragraph 3; "current systems are generally unable to provide... for users to make natural language speech queries and receive natural language sounding responses", paragraph 6; "overcome these and other drawbacks", paragraph 7; "system comprises a speech unit interface device that receives spoken natural language queries, commands and/or other utterances from a user... computer device or system that receives input from the speech unit and processes the input... system may further generate a natural language speech response in response to the user and/or generate a natural language speech message without any prompting from a user such as an alert message", paragraph 10; "speech unit may be incorporated into the computer device, or may be a separate structure", paragraph 11; "computer device or system may comprise a stand alone or networked PC... or other computer device or system... software that is installed onto the

computer… text to speech", paragraph 12; "return results of questions as responses to users… creates a response string, which is sent to the text to speech engine… output by the speaker", paragraph 89; Figure 1; "system… may include a main unit… and a speech unit. Alternatively... may only comprise of the main unit... speech unit... completely separate", paragraph 84; "speech unit… includes one or more microphones… speech received at the microphone… transmits the coded speech to the main unit", paragraph 86; "users personal or user profile... values... information specific to the individual... history of their interactions with the system... domains of interest... personal profile data... used by the agents... and the parser... past behavior or history, questions... User profile data can be manually entered by the user and/or can be learned by the system… based on user behavior", paragraph 114; "Examples of information in a user profile includes, history of questions asked", paragraph 29; Figure 1; "parser... determines a context for an utterance by applying…user profile… dialog history", paragraph 152; "parser… determine the most likely context or domain for a user's question and/or command", paragraph 153; "what about flight one hundred and twenty too?", paragraph 155;

As discussed in the portion of this rejection directed to the preamble, paragraph 29 describes where user profile "knowledge" is used in "presenting answers" and can, in one example, be a "history of questions asked". Paragraph 114 further suggests where responses can be created based on user profile data, and paragraph 10 describes where responses can be natural language responses. Paragraph 89 also teaches where responses may be created using user profile data. Paragraphs 10, 29, 89, and 114 collectively suggest where natural language system responses that are "facilitated"

by the “system”/”computer system” are “based on" a history of questions asked “knowledge”. Paragraph 10 [which describes spoken natural language queries] and paragraph 155 [which provides an example of a question that is obviously spoken] and paragraphs 84 and 86 [which describe receiving speech from a speech unit input device] further suggest where questions asked by the user are received by the computer system [from a speech unit input device] as voice inputs.

Based on what was discussed in the previous paragraph, Kennewick suggests where the “history of questions asked” user profile “knowledge” [which is used to generate responses] is “generat[ed], by the computer system… based on at least the first voice input” since a history of questions asked is obviously formed/”generated” based on questions spoken by the user [and received by the system from the speech unit].)

determining, by the computer system, based on the knowledge, a first context for the first natural language utterance ("speech unit... receives spoken natural language queries, commands and/or other utterances from a user… computer device or system that receives input from the speech unit”, paragraph 10; “speech unit… incorporated into the computer device or system”, paragraph 11; “computer device or system… stand alone or networked PC”, paragraph 12; “system… may include a main unit… and a speech unit. Alternatively... may only comprise of the main unit... speech unit... completely separate", paragraph 84; “speech unit… includes one or more microphones… speech received at the microphone… transmits the coded speech to the main unit”, paragraph 86; “speech unit… microphone”, paragraph 139; “speech received by the… microphone… sent to the speech… coder… transmission of the

coded speech to the speech recognition engine", paragraph 142; "output of the speech coder… fed to the speech recognition engine… recognizes words and phrases… passes these to the parser... for interpretation", paragraph 147; Figure 1; "Once the words and phrases have been recognized by the speech recognition engine… parser… determines a context for an utterance by applying… user profile… dialog history", paragraph 152; "parser... determine the most likely context or domain for a user's question and/or command… number of factors including, the user profile… previous context", paragraph 153; "commands and questions are interpreted, queries formulated, responses created and results presented based on the users personal or user profile… history of their interactions with the system, and domains of interest… may be used by… the parser… past behavior or history, questions… can be manually entered by the user and/or can be learned by the system… based on user behavior", paragraph 114; "Examples of information in a user profile includes, history of questions asked", paragraph 29;

As discussed in the portion of this rejection directed to the "receiving…" limitation, paragraphs 10-12 and 84 and 86 suggest where the main unit "computer system"-in-claim-1/"system"-in-claim-13 receives "a first voice input comprising a first natural language utterance".

Paragraph 139 [which describes where the speech unit of Figure 1 includes a microphone], paragraph 142 [which describes where speech received by the speech unit's microphone is communicated to a speech recognition engine], Figure 1 [which depicts a path between the speech coder 138 and speech recognition 120 mentioned in paragraph 142 that includes passing transceiver/speech coder 122], paragraph 147

[which describes where "the output of the speech coder 122" is speech-recognized into words/phrases that are passed to a parser, where the "output of the speech coder 122" is obviously the speech-unit-received speech transmitted to the speech recognition as per paragraph 142 based on the path depicted in Figure 1 and based on the fact that paragraph 147 describes that the coder output is fed to the speech recognition engine just like the received speech described in paragraph 142], paragraph 152 [which describes where speech recognition results are passed to a parser and where the parser "determines a context for an utterance by applying", among other things, "user profile" and "dialog history"] and paragraph 153 [which describes determining a most likely context/domain for a user's question and/or command, where the user's question/command is obviously the natural language utterance that is received from the speech unit input device and recognized], collectively suggest where "computer system"-in-claim-1/"system"-in-claim-13 [the main unit that includes the parser and speech recognizer] "determin[es]... a first context for the first natural language utterance" [i.e. the most likely context or domain for a user's question/command which is spoken by the user in natural language form into the speech unit and which is communicated from the speech unit to the main unit].

Paragraph 152 further describes where the parser "determines a context for an utterance by applying... user profile... and dialog history" where user profile and dialog history, especially the history of questions asked, can, as discussed above in the portion of this rejection directed to the preamble and "generating..." limitation, be interpreted as "knowledge..." that is "generat[ed]...based on at least the first voice input" [particularly in the history of questions asked example of paragraph 29, where asked questions are

obviously spoken questions uttered by a user]. Therefore, Kennewick at least suggests where the "first context" is determined "based on the… knowledge" [i.e. based on the history of questions asked])

determining, by the computer system, based on the first context, an interpretation of the first natural language utterance ("user asks 'what about flight one hundred and twenty too?'…parser and domain agent use flight information… and network information along with context to determine the most plausible interpretation among; flight 100 and flight 20 also, flight 100 and flight 22, flight 122, and the like", paragraph 155; "approximate meaning of the utterance can be determined… correct interpretation of the user utterance", paragraph 185; "commands and questions are interpreted, queries formulated, responses created and results presented based on the users personal or user profile… history of their interactions with the system, and domains of interest… may be used by… the parser… past behavior or history, questions… can be manually entered by the user and/or can be learned by the system… based on user behavior", paragraph 114; "history of questions asked", paragraph 29; "speech unit... receives spoken natural language queries, commands and/or other utterances from a user… computer device or system that receives input from the speech unit", paragraph 10; "speech unit… incorporated into the computer device or system", paragraph 11; "computer device or system… stand alone or networked PC", paragraph 12; "system… may include a main unit… and a speech unit. Alternatively... may only comprise of the main unit... speech unit... completely separate", paragraph 84; "speech unit… includes one or more microphones… speech received at the microphone… transmits the coded speech to the main unit", paragraph 86; "speech

unit… microphone", paragraph 139; "speech received by the… microphone… sent to the speech… coder… transmission of the coded speech to the speech recognition engine", paragraph 142; "output of the speech coder… fed to the speech recognition engine… recognizes words and phrases… passes these to the parser... for interpretation", paragraph 147; Figure 1; "Once the words and phrases have been recognized by the speech recognition engine… parser… determines a context for an utterance by applying… user profile… dialog history", paragraph 152; "parser... determine the most likely context or domain for a user's question and/or command… number of factors including, the user profile… previous context", paragraph 153;

In addition to what was discussed above in the portion of this rejection directed to the "determining... a first context..." limitation, where Kennewick suggests where a spoken natural language utterance is received by the speech unit, where the utterance is communicated to a speech recognizer in the main unit, and where the speech recognizer recognizes the utterance and where the parser determines a context for the spoken natural language utterance, paragraph 155 further describes where context is used to interpret a user's spoken question.

This at least suggests where the parser-determined most likely context [i.e. the "first context for the first natural language utterance" that is "determin[ed]… based on… knowledge"] is used to "determin[e], by the" main unit "computer system"-in-claim-1/"system"-in-claim-13, "based on the first context, an interpretation of the first natural language utterance", at least because the parser is described in paragraph 153 as the entity that determines the context and is described in paragraph 155 as the entity that uses context to determine the most plausible interpretation. Paragraph 185 also

describes determining an approximate meaning of the utterance where an approximate meaning can be interpreted as an "interpretation", and also describes obtaining a correct interpretation of the user utterance, such that it is at least obvious that the interpretation is determined for “the first natural language utterance”.)

and generating, by the computer system, based on the interpretation of the first natural language utterance, a first response to the first natural language utterance (“receiving natural language speech-based queries and/or commands and generating a response…Once the utterance has been converted into an understandable format… approximate meaning of the utterance can be determined at 304… use of… user profiles…other data. Based on the approximate meaning, one or more correctly formatted queries and/or commands may be generated… in order to generate the desired response or action… correct interpretation of the user utterance and result in the desired response and/or action… data may be useful for future inquiries and commands… response, if need be, may be generated and forwarded to the user… In the case of a query for retrieving data, the response would contain the requested information… response may be a confirmation that a specific action[s] has been executed… response may be in the form of a natural language format… response may relayed to the user… as an audio message and/or a visual message”, paragraph 185; “agents… return results of questions as responses to users… generally present these results using the speech unit… agents... create a response string... send to the text to speech engine... required utterances... transmitted form the main unit... to the ... speech unit... output by the speaker", paragraph 89; “user asks ‘what about flight one hundred and twenty too?’…parser and domain agent use flight information… and network

information along with context to determine the most plausible interpretation among; flight 100 and flight 20 also, flight 100 and flight 22, flight 122, and the like", paragraph 155; Figure 1; "commands and questions are interpreted, queries formulated, responses created and results presented based on the users personal or user profile… history of their interactions with the system, and domains of interest… may be used by… the parser… past behavior or history, questions… can be manually entered by the user and/or can be learned by the system… based on user behavior", paragraph 114; "history of questions asked", paragraph 29; "speech unit... receives spoken natural language queries, commands and/or other utterances from a user… computer device or system that receives input from the speech unit", paragraph 10; "speech unit… incorporated into the computer device or system", paragraph 11; "computer device or system… stand alone or networked PC", paragraph 12; "system… may include a main unit… and a speech unit. Alternatively... may only comprise of the main unit... speech unit... completely separate", paragraph 84; "speech unit… includes one or more microphones… speech received at the microphone… transmits the coded speech to the main unit", paragraph 86; "speech unit… microphone", paragraph 139; "speech received by the… microphone… sent to the speech… coder… transmission of the coded speech to the speech recognition engine", paragraph 142; "output of the speech coder… fed to the speech recognition engine… recognizes words and phrases… passes these to the parser... for interpretation", paragraph 147; Figure 1; "Once the words and phrases have been recognized by the speech recognition engine… parser… determines a context for an utterance by applying… user profile… dialog history", paragraph 152; "parser...

determine the most likely context or domain for a user's question and/or command… number of factors including, the user profile… previous context", paragraph 153;

In addition to what was discussed above in the portion of this rejection directed to the "determining… an interpretation…" limitation, where Kennewick suggests where the parser uses a determined most likely context to interpret a user's utterance, paragraph 185 describes where responses are generated based on a user's query and can be in a natural language form [e.g. requested information as a response to a query for retrieving data], and paragraph 89 describes where responses are generated using components of the main unit "computer system" [particularly agents and text to speech engine in Figure 1]

This at least suggests where Kennewick's main unit "computer system"-in-claim-1/"system"-in-claim-13 "generat[es]… based on the interpretation of the first natural language utterance, a first response to the first natural language utterance" because it is obvious to give the user what he/she asked for such that it is obvious to base the response on what the system understood the user's request to mean [i.e. based on the interpretation of the utterance, as suggested by paragraph 185, where the interpretation of the utterance is obviously based on context in the embodiment described in paragraph 155, where context is based on history of questions asked and other user profile and dialog history data, as described in paragraphs 29, 114, 152-153]).

Kennewick does not, but Ehlen (in combination with Kennewick) suggests **wherein the knowledge is generated based on one or more prior multi-modal device interactions, obtaining, by the computer system during the first conversation, a user interface state related to one or more non-voice inputs**

associated with the first voice input, the one or more non-voice inputs comprising at least a first non-voice input, and where the knowledge is also generated based on the first non-voice input ("Multi-modal interfaces offer users unprecedented flexibility in how they choose to issue requests and give other responses... example... user can use speech, pen, or multi-modal combinations of the two or more modes to indicate what kinds of restaurants they are interested in, to get subway directions, or to get information [such as a phone number] for a restaurant", paragraph 28; "example... device displaying a map of New York City, a user can, on a touch-sensitive screen, circle an area using a stylus, and say 'show me Italian restaurants... system will respond... provide information regarding restaurants, tourist sites, directions to any location etc.", paragraph 13; "city help... to any kind of multi-modal interaction whether it be for medical information, news... etc.... multi-modal interface is employed to receive requests from a user and provide information to the user", paragraph 26;

As discussed in the portion of this rejection based on Kennewick and directed to the preamble and the "generating... knowledge based on at least the voice input" limitation, the history of questions asked [see Kennewick, paragraph 29] that is obviously used to generate responses [see Kennewick, paragraphs 29, 89 and 114] can be interpreted as "knowledge" which is used to "facilitat[e] natural language system responses".

Ehlen, like Kennewick, is directed to a user entering requests into a system and receiving information in response [paragraph 26], including, in some examples, getting directions and getting restaurant information such as a phone number [paragraph 28].

Ehlen [in paragraph 28] more particularly describes where requests entered into a system that provides information to a user [obviously in response to the request] can be "multi-modal" and can use a combination of speech [i.e. "voice input"] and pen [i.e. "non-voice input"]. Paragraph 13 provides an example where an information request is issued by both circling an area on a touch-screen displaying a map [i.e. a "non-voice input"] and also speaking "show me Italian restaurants" [i.e. a "voice input"] causing the system to respond by showing all Italian restaurants in the circled area.

The references suggest a combination where Kennewick's "computer system" is further equipped with a "non-voice input" device [like Ehlen's touch-screen] which, together with the speech processing functions described in Kennewick, is used to issue multi-modal requests for information that are a combination of non-voice input [for example by circling something displayed on the touch screen as part of the request] and voice input [including by asking/speaking questions as part of the same request, as per Kennewick, paragraphs 29 and 155]. For example, an example of a multi-modal request entered by the user into the combination is where a user circles an area on a map of New York City [as per Ehlen, paragraph 13] and asks [by speaking] the system to show the user Italian restaurants [as per paragraph 13 of Ehlen] in the form of a question [e.g. "Can you show me Italian restaurants?", like "what about flight one hundred and twenty too?" in Kennewick, paragraph 155], in order to ask the system to show all Italian restaurants in the circled area [as per Ehlen, paragraph 13]

In this combination, an obvious embodiment of the history of questions asked "knowledge" [which is used to determine context, and indirectly used to determine interpretation and response, as discussed above in the portion of this rejection based on

Kennewick and directed to the last 3 limitations of claim 1] is where at least some of the questions asked [i.e. requests for information] in the history/"knowledge" are "multi-modal" requests/questions ["device interactions"] which are each a combination of a voice input [any of which can be interpreted as a "first voice input"] and a non-voice input [any of which can be interpreted as a "first non-voice input" comprised by "one or more non-voice inputs"], such that the history of questions asked "knowledge" is obviously "generated based on one or more prior multi-modal device interactions" [since a history obviously cannot contain a request/question that was not "asked" at some "prior" time]. It is at least obvious for the non-voice component of the request/question to be included in the history because it provides a critical element of the user's request.

In the combination, the "computer system" obviously "obtain[s]... during the first conversation, a user interface state related to one or more non-voice inputs associated with the first voice input, the one or more non-voice inputs comprising at least a first non-voice input".

In the show restaurants example [described in Ehlen, paragraph 13], the touch-screen stylus circling can be interpreted as both "one or more non-voice inputs" and "a/the first non-voice input" [since a touch/drawing on the touch screen is a touch input].

The touch-screen stylus circling is obviously "associated with the first voice input" [in this example, "Show me Italian restaurants" and/or an obvious question form "Can you show me Italian restaurants?"] since they are both part of the same request for Italian restaurants in a stylus-circled area.

In this example, the touch display [a form of "user interface"] can be interpreted as being in a "state" with a portion of a displayed map circled by the stylus, where the

"state" of the "user interface" is obviously "related to [the] one or more non-voice inputs associated with the first voice input" since that circled-map state was defined by the user's stylus touch input which is part of the same request as the speech input.

In order to process the user's request for Italian restaurants in the circled area properly, the "computer system" of the combination obviously "obtains" the circled-map "user interface state" as part of the multi-modal request [since the system obviously cannot provide information about Italian restaurants in a circled area without first receiving/obtaining information about the circled area].

In the combination, the "user interface" is obviously "obtained" "during the first conversation". As discussed above in the portion of this rejection based on Kennewick [alone] and directed to the "receiving, by the computer system during a first conversation, a first voice input comprising a first natural language utterance" limitation, Kennewick suggests where a speech input request is received as part of a dialog/"conversation". Therefore, in the example of the combination discussed in the previous 5 paragraphs, the multi-modal request is obviously received, by the system, as part of [i.e. "during"] a "first conversation"/dialog between the user and the system, such that it is obvious that the "first voice input" component of the multi-modal request is received during the same "first conversation" that the obvious "user interface state" is "obtained", since the speech and non-speech components are obviously both entered simultaneously as part of the same multi-modal request.

As discussed above, in the combination, the history of questions/requests obviously includes a history of multi-modal requests/questions including both the voice components and the non-voice components of multi-modal requests since the non-voice

components are critical elements of the multi-modal requests. In the example discussed in the previous paragraphs, it is thus further obvious for the history of questions/requests "knowledge" to be "generated... based on at least the first voice input and the first non-voice input" [the history of questions/requests obviously includes information about the user's spoken "first voice input" to show Italian restaurants and obviously includes information about the area circled by the user using the "first non-voice" stylus "input", and is thus obviously "generated" based on "the first voice input" and the "first non-voice input"])

Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to perform a simple substitution of one type of speech-enabled computer system with another, because the prior art teaches the claimed invention except for the substitution of a speech-enabled computer system which does not necessarily receive multi-modal requests with a speech-enabled computer system that does receive multi-modal requests. Ehlen teaches that a speech-enabled computer systems that receives multi-modal requests were known in the art. One of ordinary skill in the art could have substituted one type of speech-enabled computer system with another to obtain the predictable results of a natural language query and response system that uses user profile information (as per Kennewick) and that can receive multi-modal requests (as per Ehlen).

Kennewick, in view of Ehlen, do not, but Perkins (in combination with Kennewick and Ehlen) suggests **where the knowledge is short-term knowledge, and where the short-term knowledge is generated based on at least the first voice input and the first non-voice input** ("recording user searches... Table of Searches... initially empty

when the user profile is created... When a user submits a query to the search engine... adds a new record... updates an existing record... processes the user query and returns to the user a list of resources that match the query", col. 7, lines 21-30; “Query... text of the query... Date submitted... date on which the query was last submitted”, col. 7, lines 35-45; “If the query does not exist in the Table of Queries... add a new query entry to the Table of Queries... Date Last Submitted... updated", col. 8, lines 39-56; "Query... text of the query submitted by the user... date on which the query was last submitted", col. 9, lines 42-52; “Date Last Submitted... used by the search engine to clean up old or obsolete records that are no longer needed... removing queries not used in the previous n days (e.g. the previous thirty days)”, col. 9, lines 59-63; “provide users the ability to query the database... locate content that is relevant to the user’s query... query may be in several different forms, but most common are words, phrases, or questions”, col. 1, line 62 – col. 2, line 16;

As discussed above in the portion of this rejection based on Kennewick [alone], Kennewick describes, in paragraphs 29, 114, and Figure 1, where Kennewick's main unit "computer system"-in-claim-1/”system”-in-claim-13 includes user profile data that can be used, among other things, to interpret questions and that includes, among other things, a history of questions asked. Paragraph 185 of Kennewick further describes receiving “natural language speech-based queries and/or commands” where, “In the case of a query for retrieving data, the response would contain the requested information”. The "history of questions asked" in the user profile information thus can be interpreted as a "history of queries".

The combination [thus far] is as discussed in the portion of this rejection based on Ehlen [in combination with Kennewick], including where a history of questions/requests/queries includes multi-modal requests that each include a voice component and a non-voice component.

Perkins, like Kennewick, teaches recording query information in user profile data [see cited passages at the start of this section based on Perkins, in combination with Ehlen and Kennewick] which can also be interpreted as recording a "history of queries" [like Kennewick], and Perkins also teaches where query information that is older than or not used during the past n days [30 days in the particular example of col. 9, lines 59-63] are deleted. Perkins also describes, in col. 1, line 62 – col. 2, line 16, where queries can be questions [like Kennewick].

Perkins and Kennewick and Ehlen, in combination, suggest where the “history of questions asked” [which, in the Kennewick/Ehlen combination discussed above, obviously includes multi-modal requests] only includes questions and/or multi-modal requests that were asked/placed/issued to the system in the past n days, such that the history of questions asked "knowledge" [which, in an obvious embodiment, includes multi-modal requests] is "short-term" knowledge [i.e. knowledge acquired during a "short term" that expires once it is "older" than that "short term"], and such that "the short-term knowledge” is “generated” “based on at least the first voice input and the first non-voice input” [i.e. the history of questions asked is generated based on questions and/or multi-modal requests that were received/asked during the given n day time period, including a “current” multi-modal request that is a combination of a voice input and a non-voice input].).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to perform a simple substitution of one type of history data with another because the prior art teaches the claimed invention except for the substitution of history data that is not based on queries received during a given time period with history data that is based on queries received during a given time period. Perkins teaches that history data that is based on information received during a given time period was known in the art. One of ordinary skill in the art could have substituted one type of history data with another to obtain the predictable results of a natural language query and response system that uses user profile information (as per Kennewick) and that can receive multi-modal requests (as per Ehlen) where the user profile information is based on queries that were received during the past n days (as per Perkins).

As per Claim 7, 19, Kennewick (in combination with Ehlen and Perkins) suggests **wherein determining the interpretation of the first natural language utterance comprises determining, based on the first context, an interpretation of one or more recognized words of the first natural language utterance** ("user asks 'what about flight one hundred and twenty too?'...parser and domain agent use flight information... and network information along with context to determine the most plausible interpretation among; flight 100 and flight 20 also, flight 100 and flight 22, flight 122, and the like", paragraph 155; "approximate meaning of the utterance can be determined... correct interpretation of the user utterance", paragraph 185; "commands and questions are interpreted, queries formulated, responses created and results presented based on the users personal or user profile... history of their interactions with

the system, and domains of interest… may be used by… the parser… past behavior or history, questions… can be manually entered by the user and/or can be learned by the system… based on user behavior", paragraph 114; "history of questions asked", paragraph 29; "speech unit... receives spoken natural language queries, commands and/or other utterances from a user… computer device or system that receives input from the speech unit", paragraph 10; "speech unit… incorporated into the computer device or system", paragraph 11; "computer device or system… stand alone or networked PC", paragraph 12; "system… may include a main unit… and a speech unit. Alternatively... may only comprise of the main unit... speech unit... completely separate", paragraph 84; "speech unit… includes one or more microphones… speech received at the microphone… transmits the coded speech to the main unit", paragraph 86; "speech unit… microphone", paragraph 139; "speech received by the… microphone… sent to the speech… coder… transmission of the coded speech to the speech recognition engine", paragraph 142; "output of the speech coder… fed to the speech recognition engine… recognizes words and phrases… passes these to the parser... for interpretation", paragraph 147; Figure 1; "Once the words and phrases have been recognized by the speech recognition engine… parser… determines a context for an utterance by applying… user profile… dialog history", paragraph 152; "parser... determine the most likely context or domain for a user's question and/or command… number of factors including, the user profile… previous context", paragraph 153;

The combination is as discussed in the rejection of claim 1.

For reasons discussed in the portion of the rejection of claim 1 directed to the "determining… an interpretation…" limitation [incorporated here by reference],

Kennewick suggests where the parser interprets the first natural language utterance based on context [paragraph 155] where context is determined based on user profile "knowledge" [i.e. the "first context" obviously determined based on the user profile "knowledge", paragraphs 152-153, 29, and 114] including a history of questions and multi-modal requests asked over the last n days [as per the combination of Kennewick and Ehlen and Perkins].

Paragraph 155 further provides an example where context is used to interpret the spoken words "what about flight one hundred and twenty too?" which further suggests where Kennewick's main unit "determin[es], based on the first context, an interpretation of one or more... words of the first natural language utterance" [since context is used to determine what particular words mean, like whether "flight one hundred and twenty too" in the natural language question "what about flight one hundred and twenty too?" means "flight 100 and flight 20 also", "flight 100 and flight 22", etc.]

Paragraph 147 also describes where "recognize[d] words and phrases" are "passe[d]... to the parser... for interpretation", which further suggests where the parser interprets "recognized" words [based on context, as discussed in paragraph 155, where the context is, in an obvious embodiment, the most likely "first context" determined by the parser that is doing the interpretation, as per paragraphs 152-153].)

As per Claim 23, Kennewick (in combination with Ehlen and Perkins) suggests **wherein generating the first response comprises generating, by the computer system, a non-voice response in a graphical user interface and/or a voice response via a speaker** ("receiving natural language speech-based queries and/or

commands and generating a response…Once the utterance has been converted into an understandable format… approximate meaning of the utterance can be determined at 304… use of… user profiles…other data. Based on the approximate meaning, one or more correctly formatted queries and/or commands may be generated… in order to generate the desired response or action… correct interpretation of the user utterance and result in the desired response and/or action… data may be useful for future inquiries and commands… response, if need be, may be generated and forwarded to the user… In the case of a query for retrieving data, the response would contain the requested information… response may be a confirmation that a specific action[s] has been executed… response may be in the form of a natural language format… response may relayed to the user… as an audio message and/or a visual message", paragraph 185; "agents… return results of questions as responses to users… generally present these results using the speech unit… agents... create a response string... send to the text to speech engine... required utterances... transmitted form the main unit... to the ... speech unit... output by the speaker", paragraph 89; "user asks 'what about flight one hundred and twenty too?'…parser and domain agent use flight information… and network information along with context to determine the most plausible interpretation among; flight 100 and flight 20 also, flight 100 and flight 22, flight 122, and the like", paragraph 155; Figure 1; "commands and questions are interpreted, queries formulated, responses created and results presented based on the users personal or user profile… history of their interactions with the system, and domains of interest… may be used by… the parser… past behavior or history, questions… can be manually entered by the user and/or can be learned by the system… based on user behavior", paragraph 114;

“history of questions asked”, paragraph 29; "speech unit... receives spoken natural language queries, commands and/or other utterances from a user… computer device or system that receives input from the speech unit”, paragraph 10; “speech unit… incorporated into the computer device or system”, paragraph 11; “computer device or system… stand alone or networked PC”, paragraph 12; “system… may include a main unit… and a speech unit. Alternatively... may only comprise of the main unit... speech unit... completely separate", paragraph 84; “speech unit… includes one or more microphones… speech received at the microphone… transmits the coded speech to the main unit”, paragraph 86; “speech unit… microphone”, paragraph 139; “speech received by the… microphone… sent to the speech… coder… transmission of the coded speech to the speech recognition engine”, paragraph 142; “output of the speech coder… fed to the speech recognition engine… recognizes words and phrases… passes these to the parser... for interpretation", paragraph 147; Figure 1; “Once the words and phrases have been recognized by the speech recognition engine… parser… determines a context for an utterance by applying… user profile… dialog history”, paragraph 152; "parser... determine the most likely context or domain for a user's question and/or command… number of factors including, the user profile… previous context”, paragraph 153;

Kennewick suggests “generating the first response” for reasons discussed in the portion of the rejection of claim 1 directed to the “generating… based on the interpretation of the first natural language utterance, a first response to the first natural language utterance” limitation.

Paragraph 185 [particularly the last sentence] particularly teaches where responses may be presented/”generated, by the computer system” via "an audio

message" [obviously “a voice response via a speaker” in the personal computer embodiment described in paragraph 12 when the response is a natural language response as per paragraph 10] and/or “a visual message displayed on a user interface” [obviously displayed on a “graphical user interface" display, where the visual message is obviously "non-voice"]).

As per Claim 25, Kennewick does not, but Ehlen (in combination with Kennewick and Perkins) suggests **wherein the first non-voice input is received via a non-voice input device comprising a touch screen device, the method further comprising: receiving, by the computer system, information indicating a location on the touch screen device that received the first non-voice input** (“Multi-modal interfaces offer users unprecedented flexibility in how they choose to issue requests and give other responses… example… user can use speech, pen, or multi-modal combinations of the two or more modes to indicate what kinds of restaurants they are interested in, to get subway directions, or to get information [such as a phone number] for a restaurant”, paragraph 28; “example… device displaying a map of New York City, a user can, on a touch-sensitive screen, circle an area using a stylus, and say ‘show me Italian restaurants… system will respond… provide information regarding restaurants, tourist sites, directions to any location etc.”, paragraph 13; “city help… to any kind of multi-modal interaction whether it be for medical information, news… etc.… multi-modal interface is employed to receive requests from a user and provide information to the user”, paragraph 26;

The combination is as discussed in the rejection of claim 1, including an example where the multi-modal input is a combined speech and touch-screen input described in Ehlen, paragraph 13.

In the example of the combination of claim 1 discussed in the portion of the rejection of claim 1 based on Ehlen [in combination with Kennewick], the "first non-voice input" [i.e. the drawing of a circle on the displayed map with a stylus] is, as described in Ehlen, paragraph 13, entered into the system via a "touch-sensitive screen" [i.e. "a non-voice input device comprising a touch screen device"]. The combination applied to reject claim 1 thus suggests "wherein the first non-voice input is received via a non-voice input device comprising a touch screen device" [in the show me Italian restaurants in the circled area example, the circle drawing touch "first non-voice input" is received via the touch-sensitive screen "non-voice input device".

The combination further suggests where the "computer system" "receiv[es]... information indicating a location on the touch screen device that received the first non-voice input" since the system obviously cannot provide information on Italian restaurants in the circled area without "receiving... information indicating" which places/parts/"locations" of the "touch screen" displaying the map were touched by [i.e. "that received"] the stylus-drawn circle "first non-voice input" that defines the circled area)

Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to perform a simple substitution of one type of speech-enabled computer system with another, because the prior art teaches the claimed invention except for the substitution of a speech-enabled computer system which does not

necessarily receive multi-modal requests including touch screen input with a speech-enabled computer system that does receive multi-modal requests including touch screen input. Ehlen teaches that a speech-enabled computer systems that receives multi-modal requests including touch screen input were known in the art. One of ordinary skill in the art could have substituted one type of speech-enabled computer system with another to obtain the predictable results of a natural language query and response system that uses user profile information (as per Kennewick) and that can receive multi-modal requests including touch screen input (as per Ehlen) where the user profile information is based on queries that were received during the past n days (as per Perkins).

1. Claims 11-12 are rejected under pre-AIA 35 U.S.C. 103(a) as being unpatentable over Kennewick, in view of Ehlen and Perkins, as applied to Claim 1, above, and further in view of Gong (US 2003/0167167).

As per Claim 11, Kennewick, in view of Ehlen and Perkins, do not, but Gong (in combination with Kennewick and Ehlen and Perkins) suggests **determining, by the computer system, based on the short-term knowledge, a manner in which the first natural language utterance is spoken, wherein the first response is generated based on the determined manner and the interpretation of the first natural language utterance** ("determine the user's affective state... vocal analysis... pitch range, the volume, and the degree of breathiness in the speech... louder and faster speech compared to the user's basic pattern... happy... quieter and slower... than

normal… indicate that a user is sad", paragraph 50; "determining the user's affective state… verbal content that reveals the user's emotions… great…disappeared", paragraph 51; "determines the appropriate verbal expression… for the intelligent social agent", paragraph 62; "generates an appropriate verbal expression for the intelligent social agent… includes the appropriate verbal content and appropriate emotional semantics based on the content… basic user profile information", paragraph 63; "processor may increase the number of words used in a verbal expression when the affective state of the user is happy or may decrease the number of words used or use words with fewer syllables if the affective state of the user is sad", paragraph 64; "send the verbal expression text… convert the verbal expression text to speech and output the speech", paragraph 65; "generates the appropriate affect for the verbal expression of the intelligent social agent… modifying the speech style from the baseline style of speech for the intelligent social agent... speech rate, pitch average, pitch range, intensity, voice quality, pitch changes, and level of articulation… fear… speech rate is much faster, the pitch average is very much higher... table below", paragraph 69; Table just above paragraph 60; "create an intelligent social agent... appearance and voice are appealing and appropriate for the target users", paragraph 70; "user profile", paragraph 71; "applies the appeal rule to the stored basic user profile… select a voice for the intelligent social agent… appealing to the user… match the user's speech style characteristics… speech rate, pitch average, pitch range, and articulation… appropriate for the voice of the intelligent social agent", paragraph 76;

The combination of Kennewick and Ehlen and Perkins is as discussed in the rejection of claim 1, where context used to interpret an utterance is based on user

profile information including a history of questions asked [as per Kennewick], where requests include multi-modal requests [as per Ehlen] where questions older than n days are removed [as per Perkins] such that the history of questions asked is "short-term knowledge" [including multi-modal requests/questions] that is used to determine context that is used to interpret an utterance that is used to generate a response.

Gong, like Kennewick, teaches using user profile information to determine how to communicate with a user [see Gong, paragraphs 62-65 and 76, and see Kennewick paragraph 114 which describes where personal profile data can be used for the text to speech engine and Kennewick paragraph 89 which describes where responses are based on user profile data, among other things].

Gong further teaches where a user's emotion/"affective state" can be determined from user speech by determining, for example, whether speech is faster/slower than the user's "basic pattern"/"normal" [paragraph 50, see the table above paragraph 70 for other parameters that obviously reflect different emotions when they are not "normal"] and also teaches where an agent voice [obviously used to communicate with the user] matches a user's speech style, which includes "speech rate, pitch average, pitch range, and articulation" [paragraph 76].

These paragraphs suggest where Gong's system has "knowledge" of a user's "normal" speech rate, pitch average, pitch range, etc., based on received user speech. A system obviously cannot determine that speech is slower/faster than normal without having information indicating what "normal"/"user's basic pattern" is, and cannot match a user's speech style without knowing what the user's "speech rate, pitch average, pitch range, and articulation" is. Since these features/parameters are qualities/characteristics

of a user's speech, it is obvious to derive those features/parameters/"knowledge" from samples of the user's speech ["natural language utterances" which contain the exact information that is needed to determine those features/parameters]. Also, if a system can determine a user's pitch average, pitch range, etc., for speech style matching purposes, the system can obviously compute those same parameters for identifying "affective state".

Gong, in combination with Kennewick and Ehlen and Perkins, suggests a combination where the utterances in the questions and multi-modal requests [including speech and non-speech] used to generate the n-day "history of questions asked" [i.e. voice question/request utterances, including those utterances that are part of multi-modal requests, received during the last n days] are further analyzed to determine a user's "normal" speech speed/rate/pace [for the affective state recognition] and also to determine a user's "normal" speech rate, pitch average, pitch range, articulation [so that the system can determine affective state based on the other parameters in the table above paragraph 70], such that, in the combination, the "short-term knowledge" [knowledge based on questions and multi-modal requests asked in the last n days "short term"] that is "based on one or more prior multi-modal device interactions" [i.e. based-on at least one multi-modal request asked within the last n days] includes a history of questions and multi-modal requests asked in the last n days [as per Kennewick and Ehlen and Perkins] and also includes a user's "normal" speech speed/rate, pitch range, pitch average, etc. [calculated from the last-n-day-question/multi-modal-request-utterances].

In the suggested combination, the “short-term knowledge” discussed in the previous paragraph is used to “determine… a first context for the first natural language utterance” since Kennewick and Ehlen and Perkins suggest where the “history of questions asked” portion is used to determine context [see portion of the rejection of claim 1 directed to the “determining… a first context…” limitation].

In the suggested combination, Kennewick’s main unit “computer system” [of claim 1, which performs the same response generation and TTS functions as Gong] also “determin[es]… based on the short-term knowledge” [i.e. based on the portion of the “short-term knowledge” that is the “normal” speech rate, pitch range, pitch average, etc. derived from the "short term” last-n-day-question/multi-modal-request-utterances] “a manner in which the first natural language utterance is spoken”, for example by “determining” that “the first natural language utterance is spoken” in a happy or sad “manner” based on whether the "first natural language utterance" is spoken faster or slower than the "normal" speech rate indicated by the speech rate portion of the "short-term knowledge", and also, for example, by determining that pitch average of the "first natural language utterance” is higher/lower than normal, by determining that pitch range of the "first natural language utterance" is wider/narrower than normal [see table above paragraph 70].

As discussed above in the portion of the rejection of claim 1 directed to the "generating... a first response" limitation, Kennewick suggests "generating, by the computer system, based on the interpretation of the first natural language utterance, a first response to the first natural language utterance” [e.g. by providing a natural language response containing retrieved information in response to a request/question to

retrieve information, see Kennewick, paragraphs 155 and 185], such that Kennewick suggests “wherein the first response is generated based on... the interpretation of the first natural language utterance”.

Gong further teaches where a “verbal expression” which is converted using “text to speech” [obviously a communication to the user since user's do not need a text to speech converter to produce speech] can vary depending on the determined "affective state" [more words when user is happy, fewer/shorter words when user is sad, see paragraphs 64-65] where determining affective state can be performed by analyzing speech [paragraph 50].

The combination of Kennewick, Ehlen, Perkins, and Gong, further suggests "wherein the first response is generated based on the determined manner". As discussed above, the combination suggests where Kennewick's main unit "computer system" can further determine that the first natural language utterance is spoken in a happy or sad manner depending on whether the speech rate is faster or slower than normal, depending on whether pitch average is higher/lower than normal, depending on whether the pitch range is wider or narrower than normal, etc. Based on Gong, paragraph 50, the combination suggests where this determined happy/sad/etc. “manner in which the first natural language utterance is spoken” determines the number/length of words that are used to articulate the natural language response generated by Kennewick.)

Therefore, it would have been obvious at the time of invention to modify Kennewick, in view of Ehlen and Perkins, to include the suggestion of Gong (in combination with Kennewick and Ehlen and Perkins) of determining, by the computer

system, based on the short-term knowledge, a manner in which the first natural language utterance is spoken, wherein the first response is generated based on the determined manner and the interpretation of the first natural language utterance, in order to produces responses that are “appropriate for the user” mood (Gong, paragraph 64) and "appealing to the user" (Gong, paragraph 76) and that makes the system express emotion that it should express (Gong, paragraph 64).

As per Claim 12, Kennewick, in view of Ehlen and Perkins, do not, but Gong (in combination with Kennewick and Ehlen and Perkins) suggests **wherein the manner in which the first natural language utterance is spoken includes at least one of a tone, a pace, an inflection, or a timing** (“determine the user’s affective state... vocal analysis... pitch range, the volume, and the degree of breathiness in the speech... louder and faster speech compared to the user’s basic pattern... happy... quieter and slower... than normal... indicate that a user is sad”, paragraph 50; “determining the user’s affective state... verbal content that reveals the user’s emotions... great...disappeared”, paragraph 51; “determines the appropriate verbal expression... for the intelligent social agent”, paragraph 62; “generates an appropriate verbal expression for the intelligent social agent... includes the appropriate verbal content and appropriate emotional semantics based on the content... basic user profile information”, paragraph 63; “processor may increase the number of words used in a verbal expression when the affective state of the user is happy or may decrease the number of words used or use words with fewer syllables if the affective state of the user is sad”, paragraph 64; “send the verbal expression text... convert the verbal expression text to

speech and output the speech", paragraph 65; "generates the appropriate affect for the verbal expression of the intelligent social agent… modifying the speech style from the baseline style of speech for the intelligent social agent... speech rate, pitch average, pitch range, intensity, voice quality, pitch changes, and level of articulation… fear… speech rate is much faster, the pitch average is very much higher... table below", paragraph 69; Table just above paragraph 60; "create an intelligent social agent... appearance and voice are appealing and appropriate for the target users", paragraph 70; "user profile", paragraph 71; "applies the appeal rule to the stored basic user profile… select a voice for the intelligent social agent… appealing to the user… match the user's speech style characteristics… speech rate, pitch average, pitch range, and articulation… appropriate for the voice of the intelligent social agent", paragraph 76;

The combination is as discussed in the rejection of claim 11.

In the combination, determining that a user is happy/sad based on determining that the first natural language utterance is spoken faster/slower than normal can be interpreted as determining that the first natural language utterance is spoken with a faster/slower-than-normal "pace" or "timing" "manner", and determining that the first natural language utterance is spoken with a particular pitch average/range can be interpreted as speaking with a particular kind of "tone" "manner" [since pitch obviously defines how a user's voice sounds])

Therefore, it would have been obvious at the time of invention to modify Kennewick, in view of Ehlen and Perkins, to include the suggestion of Gong (in combination with Kennewick and Ehlen and Perkins) of wherein the manner in which the first natural language utterance is spoken includes at least one of a tone, a pace, an

inflection, or a timing, in order to produces responses that are “appropriate for the user” mood (Gong, paragraph 64) and "appealing to the user" (Gong, paragraph 76) and that makes the system express emotion that it should express (Gong, paragraph 64).

3. Claims 24 is/are rejected under pre-AIA 35 U.S.C. 103(a) as being unpatentable over Kennewick, in view of Ehlen and Perkins, as applied to claim 1, above, and further in view of Aust et al. (US 5,860,059), hereafter Aust.

As per Claim 24, Kennewick (in combination with Ehlen and Perkins) suggests **wherein the first natural language utterance relates to a request and the first response is intended to be responsive to the request** (“receiving natural language speech-based queries and/or commands and generating a response... Once the utterance has been converted into an understandable format... approximate meaning of the utterance can be determined at 304... use of... user profiles... other data. Based on the approximate meaning, one or more correctly formatted queries and/or commands may be generated... in order to generate the desired response or action... correct interpretation of the user utterance and result in the desired response and/or action... data may be useful for future inquiries and commands... response, if need be, may be generated and forwarded to the user... In the case of a query for retrieving data, the response would contain the requested information... response may be a confirmation that a specific action[s] has been executed... response may be in the form of a natural language format... response may relayed to the user... as an audio message and/or a visual message”, paragraph 185; “agents... return results of questions as responses to

users… generally present these results using the speech unit… agents... create a response string... send to the text to speech engine... required utterances... transmitted form the main unit... to the ... speech unit... output by the speaker", paragraph 89; "user asks 'what about flight one hundred and twenty too?'…parser and domain agent use flight information… and network information along with context to determine the most plausible interpretation among; flight 100 and flight 20 also, flight 100 and flight 22, flight 122, and the like", paragraph 155; Figure 1; "commands and questions are interpreted, queries formulated, responses created and results presented based on the users personal or user profile… history of their interactions with the system, and domains of interest… may be used by… the parser… past behavior or history, questions… can be manually entered by the user and/or can be learned by the system… based on user behavior", paragraph 114; "history of questions asked", paragraph 29; "speech unit... receives spoken natural language queries, commands and/or other utterances from a user… computer device or system that receives input from the speech unit", paragraph 10; "speech unit… incorporated into the computer device or system", paragraph 11; "computer device or system… stand alone or networked PC", paragraph 12; "system… may include a main unit… and a speech unit. Alternatively... may only comprise of the main unit... speech unit... completely separate", paragraph 84; "speech unit… includes one or more microphones… speech received at the microphone… transmits the coded speech to the main unit", paragraph 86; "speech unit… microphone", paragraph 139; "speech received by the… microphone… sent to the speech… coder… transmission of the coded speech to the speech recognition engine", paragraph 142; "output of the speech coder… fed to the speech recognition engine… recognizes words and

phrases… passes these to the parser... for interpretation", paragraph 147; Figure 1; "Once the words and phrases have been recognized by the speech recognition engine… parser… determines a context for an utterance by applying… user profile… dialog history", paragraph 152; "parser... determine the most likely context or domain for a user's question and/or command… number of factors including, the user profile… previous context", paragraph 153;

Kennewick suggests the generating of the first response for the reasons discussed in the portion of the rejection of claim 1 directed to the "generating... a first response..." limitation.

Paragraph 185 in particular describes where a query can be entered via natural language speech [obviously by spoken question] and, in the "query for retrieving data" embodiment, leads to a response containing "requested information".

In the "query for retrieving data" embodiment, the spoken "natural language utterance" query/question can be interpreted as something that "relates to a request" since, in the "query for retrieving data" example, it obviously contains a request, from the user, for the requested information.

In the "query for retrieving data" embodiment, returning a response which "contains the requested information" can be interpreted as where "the… response is intended to be responsive to the request" because it obviously provides exactly what the input request asked for.

Applying this embodiment to the combination applied to claim 1, the references suggest where the "first" natural language utterance in the received voice input "relates

to a request" and where the generated "first response is intended to be responsive to the request")

Kennewick, in view of Ehlen and Perkins, do not, but Aust (in combination with Kennewick, Ehlen, and Perkins) suggests **receiving, by the computer system, a second natural language utterance in response to the first response, wherein the second natural language utterance comprises a clarification related to the interpretation of the first natural language utterance; and responsive to receipt of the second natural language utterance, generating, by the computer system, a second response to the second natural language utterance based on the interpretation of the first natural language utterance and the clarification related to the interpretation of the first natural language utterance** ("From where to where do you want to travel?... obviously uncertain... At seven, at seven... at ten... From where to where do you want to travel at seven o'clock?... Not at seven..... From where to where do you want to travel at ten o'clock", col. 4, lines 7-31; "speech recognition... human-machine dialogue... enquiry system", col. 1, lines 7-35; Figure 2F

The combination [thus far] is as discussed in the rejection of claim 1 and the portion of this rejection of claim 24 directed to the "wherein the first natural language utterance relates to a request and the first response is intended to be responsive to the request".

Aust [in col. 4, lines 7-31 and col. 1, lines 7-35] describes where a speech-based dialog system [col. 1, lines 7-35] provides a response intended to be responsive to an ambiguous user's request based on how it interpreted the user's ambiguous request [col. 4, lines 7-31, i.e. "From where to where do you want to travel at seven o'clock?"

can be interpreted as a "first response" "intended to be responsive to the" "At seven, at seven... at ten" "request" since it is a reply/"response" to the user's request and since asking the departure and destination locations is, in Aust's system, the next logical question in the dialog's progression, and it is intended, as part of the response, to indicate to the user how it interpreted what the user said]. Figure 2F and col. 4, lines 7-31 describe where the system interprets two times from the user's utterance where the two times can be interpreted as an "interpretation of the first natural language utterance" [since it is an accurate recognition of what the user actually said]. Col. 4, lines 7-31 further describes where the user responds to the "first response" [From where to where do you want to travel at seven o'clock?] by speaking a "second natural language utterance" [Not at seven] which clarifies what the user meant by "At seven, at seven... at ten" [i.e. that the user meant ten, and not seven]. The clarification is "related to the interpretation of the first natural language utterance" in the sense that it lets the system know which of the two times that the system interpreted from "at seven, at seven...at ten" was the one that the user actually wanted. Col. 4, lines 7-31 further describes where the system responds to the user's clarification utterance [Not at seven] with "From where to where do you want to travel at ten o'clock?", which can be interpreted as a "response to the second natural language utterance" [since it is how the system replies to "Not at seven"] "based on the interpretation of the first natural language utterance" [no part of "Not at seven" mentions "ten", and so the system obviously derived "ten" from the "interpretation" of the two times in the "first natural language utterance" "At seven, at seven... at ten o'clock"] "and the clarification related to the interpretation of the first natural language utterance" [since "Not at seven" indicates that

seven, in the two interpreted times, is not the right time and therefore the system should proceed with the correct interpreted time 10].

The references suggest a combination where the combination system applied to reject claim 1 is further capable of handling ambiguous at-least-partially-user-spoken requests [where multi-modal requests, as described in Ehlen, include speech and non-speech combination requests], and determines multiple possible interpretations of an ambiguous multi-modal [partially speech] request as, collectively, "the interpretation of the first natural language utterance" [where the "first natural language utterance" is the speech component of the multi-modal request], responding "normally" to the user in a manner "intended to be responsive to the request" based on the system's best guess at which of the multiple possible interpretations the user intended [i.e. providing an information response, as described in Kennewick and Ehlen, based on the combination system's best guess as to which of the multiple interpretations was actually intended by the user, similar to Aust's "From where to where do you want to travel at seven o'clock?" which is obviously a response that is intended to continue the ticket-ordering dialog in Aust by responding "normally" as if the system correctly understood that the user was requesting seven, as opposed to asking the user which time the user meant which suggests that the system is "stuck"], and where, if the combination system misunderstood the user, the user speaks a clarification that rules out the best guess interpretation, and the system replies to the user's clarification speech with a response [another informational response to the user's multi-modal request] based on another of the multiple possible interpretations [collectively "interpretation of the first natural language utterance"] of the ambiguous multi-modal request.

In the combination, the user speaking the clarification that rules out the best guess interpretation obviously causes the "computer system" to "receiv[e]... a second natural language utterance" [i.e. receive the user-spoken clarification] "in response to the first response" [the clarification is spoken in response to the system's incorrect best-guess-based information response which obviously does not contain the information that the user asked for and thereby lets the user know that the system misunderstood the user's ambiguous multi-modal request and that the user's request needs to be clarified] "wherein the second natural language utterance comprises a clarification related to the interpretation of the first natural language utterance" [the spoken clarification indicates which of the multiple interpretations, collectively interpreted as "the interpretation of the first natural language utterance", is wrong].

In the combination, the system responds to the user's clarification ["responsive to receipt of the second natural language utterance, generating, by the computer system, a second response to the second natural language utterance"] using/"based on" another one of the multiple interpretations [where the multiple interpretations of the multi-modal request are collectively interpreted as "the interpretation of the first natural language utterance"] which is not ruled out by the clarification [i.e. "based on... the clarification related to the interpretation of the first natural language utterance"])

Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to perform a simple substitution of one type of speech-based request and response system with another because the prior art teaches the claimed invention except for the substitution of a speech-based request and response system which does not necessarily have the ability to handle ambiguous requests by responding first based

on one interpretation and then responding based on another interpretation in response to a clarification ruling out the one interpretation with a speech-based request and response system that does. Aust teaches that speech-based request and response systems that can handle ambiguous requests by responding first based on one interpretation and then responding based on another interpretation in response to a clarification ruling out the one interpretation were known in the art. One of ordinary skill in the art could have substituted one type of speech-based request and response system with another to obtain the predictable results of a natural language query and response system that uses user profile information (as per Kennewick) and that can receive multi-modal requests (as per Ehlen) where the user profile information is based on queries that were received during the past n days (as per Perkins), where the system can first respond to an ambiguous request by responding based on a best guess interpretation, and respond based on a different interpretation when the user speaks a clarification ruling out the best guess (as per Aust)

Allowable Subject Matter

1. Claims 21-22 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

2. The following is a statement of reasons for the indication of allowable subject matter:

As described in the previous prior art rejections of claims 21-22 in the Final Office Action mailed 10/12/17, **Byers (US 6,219,645)**, in combination with Kennewick and

Perkins, suggests where multiple microphones receive the same utterance and comparing the signals from the different microphones are compared to each other, and selecting the best/cleanest signal out of the different microphone signals based on the comparison.

Byers does not, however, describe where "sound from the first voice input and the second voice input" (i.e. sound that is based on both voice inputs from the first and second input devices) are filtered, where the filtering is based on the comparison.

Regardless of whether the prior art does or does not teach or suggest filtering sound based on multiple microphone signals based on comparison of those multiple microphone signals to each other, at least one more reference would be required to address all of the limitations of claims 1 and 21 together, such that the prior art does not reasonably suggest the combination of all limitations in claims 21 and 1 together due to the quantity of references required to address every limitation (at least five) and due to the complexity of the manner in which those references would need to be combined.

Double Patenting

1. For clarity of the record, NO double patenting rejections are required between the claims of this application and those of US 9,015,049 (Parent Patent 1) because the claims of Parent Patent 1 do not teach where short-term knowledge is generated based on both voice and non-voice inputs.

Also, while claims 11 of US 8,073,681 describe where an input including an utterance can be a multi-modal input that includes non-voice input, and while the independent claims teach where short-term knowledge is based on voice inputs, none

of the claims teach where the short-term knowledge is further based on the non-voice input component of the multi-modal input (as opposed to the utterance voice input only).

Conclusion

3. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. See PTO-892.

4. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

5. Any inquiry concerning this communication or earlier communications from the examiner should be directed to ERIC YEN whose telephone number is (571)272-4249. The examiner can normally be reached on M-F 9:00-5:30PM.

Examiner interviews are available via telephone, in-person, and video conferencing using a USPTO supplied web-based collaboration tool. To schedule an

interview, applicant is encouraged to use the USPTO Automated Interview Request (AIR) at http://www.uspto.gov/interviewpractice.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, RICHEMOND DORVIL can be reached on (571)272-7602. 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.

EY 11/29/18
/ERIC YEN/
Primary Examiner, Art Unit 2658

Notice of References Cited	Application/Control No. 14/691,445	Applicant(s)/Patent Under Reexamination BALDWIN et al.	
	Examiner ERIC YEN	Art Unit 2658	Page 1 of 1

U.S. PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Name	CPC Classification	US Classification
*	A	US-20040044516-A1	03-2004	Kennewick, Robert A.	G10L15/22	704/5
*	B	US-20040006475-A1	01-2004	Ehlen, Patrick	G10L15/22	704/270.1
*	C	US-7072888-B1	07-2006	Perkins; Alan	G06F17/30867	707/733
*	D	US-20030167167-A1	09-2003	Gong, Li	G10L15/22	704/250
*	E	US-5860059-A	01-1999	Aust; Harald	G06F3/16	704/231
*	F	US-6219645-B1	04-2001	Byers; Charles Calvin	G10L15/02	381/91
*	G	US-6823308-B2	11-2004	Keiller; Robert Alexander	G10L15/32	704/236
*	H	US-7729913-B1	06-2010	Lee; Nicholas J.	G06F17/30654	704/251
*	I	US-20030093419-A1	05-2003	Bangalore, Srinivas	G01C21/3664	1/1
*	J	US-6556970-B1	04-2003	Sasaki; Mikio	G01C21/3608	382/100
*	K	US-5982906-A	11-1999	Ono; Yoshihiro	G10L21/0208	381/94.1
*	L	US-6377919-B1	04-2002	Burnett; Greg C.	A61B5/0507	704/231
*	M	US-7146315-B2	12-2006	Balan; Radu Victor	G10L25/78	704/233

FOREIGN PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Country	Name	CPC 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.

Amazon/VB Assets
Exhibit 1003
Page 124

Index of Claims	Application/Control No.	Applicant(s)/Patent Under Reexamination
	14/691,445	BALDWIN et al.
	Examiner	Art Unit
	ERIC YEN	2658

✓	Rejected	-	Cancelled	N	Non-Elected	A	Appeal
=	Allowed	÷	Restricted	I	Interference	O	Objected

CLAIMS

☐ Claims renumbered in the same order as presented by applicant ☐ CPA ☐ T.D. ☐ R.1.47

CLAIM		DATE								
Final	Original	02/22/2017	05/03/2017	10/05/2017	07/26/2018					
	1	÷	✓	✓	✓					
	2	÷	✓	✓	-					
	3	÷	N	N	N					
	4	÷	N	N	N					
	5	÷	N	N	N					
	6	÷	N	N	N					
	7	÷	✓	✓	✓					
	8	÷	N	N	N					
	9	÷	N	N	N					
	10	÷	N	N	N					
	11	÷	✓	✓	✓					
	12	÷	✓	✓	✓					
	13	÷	✓	✓	✓					
	14	÷	✓	✓	-					
	15	÷	N	N	N					
	16	÷	N	N	N					
	17	÷	N	N	N					
	18	÷	N	N	N					
	19	÷	✓	✓	✓					
	20	÷	N	N	N					
	21			✓	✓					
	22			✓	✓					
	23			✓	✓					
	24			✓	✓					
	25			✓	✓					

Amazon/VB Assets
Exhibit 1003
Page 125

Search Notes	Application/Control No.	Applicant(s)/Patent Under Reexamination
	14/691,445	BALDWIN et al.
	Examiner	Art Unit
	ERIC YEN	2658

CPC - Searched*		
Symbol	Date	Examiner
G10L 15/22	5/3/17	EY
G06F 17/27, 17/2785	5/3/17	EY

CPC Combination Sets - Searched*		
Symbol	Date	Examiner

US Classification - Searched*			
Class	Subclass	Date	Examiner

* See search history printout included with this form or the SEARCH NOTES box below to determine the scope of the search.

Search Notes		
Search Notes	Date	Examiner
EAST Search (attached)	5/3/17	EY
EAST Search (attached)	10/5/17	EY
EAST Search (attached)	07/26/2018	EY
EAST Search (attached)	11/29/2018	EY

Interference Search			
US Class/CPC Symbol	US Subclass/CPC Group	Date	Examiner

Amazon/VB Assets
Exhibit 1003
Page 126

EAST Search History

EAST Search History (Prior Art)

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
L1	47	(G10L15/$ G10L2015/$ G10L21/$ G10L2021/$).cpc. and ((best cleanest) with microphone$1 with (attenuat$4 filter$4))	US-PGPUB; USPAT; USOCR; EPO; JPO	OR	OFF	2018/11/29 14:05
L2	14	(G10L15/$ G10L2015/$ G10L21/$ G10L2021/$).cpc. and ((best cleanest highest) with microphones with (attenuat$4 filter$4))	US-PGPUB; USPAT; USOCR; EPO; JPO	OR	OFF	2018/11/29 14:06
L3	4	(G10L15/$ G10L2015/$ G10L21/$ G10L2021/$).cpc. and (((remaining remainder) near5 microphones) with (attenuat$4 filter$4))	US-PGPUB; USPAT; USOCR; EPO; JPO	OR	OFF	2018/11/29 14:11
L4	31	(G10L15/$ G10L2015/$ G10L21/$ G10L2021/$).cpc. and (((compar$4) near5 microphones) with (attenuat$4 filter$4))	US-PGPUB; USPAT; USOCR; EPO; JPO	OR	OFF	2018/11/29 14:11
L5	35	(G10L15/$ G10L2015/$ G10L21/$ G10L2021/$ G10L25/$ G10L2025/$).cpc. and (compar$4 adj2 microphones)	US-PGPUB; USPAT; USOCR; EPO; JPO	OR	OFF	2018/11/29 14:15
L6	27	(G10L15/$ G10L2015/$ G10L21/$ G10L2021/$ G10L25/$ G10L2025/$).cpc. and (attenuat$4 with microphones with speaker$1)	US-PGPUB; USPAT; USOCR; EPO; JPO	OR	OFF	2018/11/29 14:30
L7	0	(G10L15/$ G10L2015/$ G10L21/$ G10L2021/$ G10L25/$ G10L2025/$).cpc. and ((filter$4 attenuat$4) with ((other remain$4) adj microphones))	US-PGPUB; USPAT; USOCR; EPO; JPO	OR	OFF	2018/11/29 15:17
L8	567	(G10L15/$ G10L2015/$ G10L21/$ G10L2021/$ G10L25/$ G10L2025/$).cpc. and (filter$4 with microphone$1 with speaker$1)	US-PGPUB; USPAT; USOCR; EPO; JPO	OR	OFF	2018/11/29 15:17
L9	385	(G10L15/$ G10L2015/$ G10L21/$ G10L2021/$ G10L25/$ G10L2025/$).cpc.	US-PGPUB;	OR	OFF	2018/11/29 15:23

		and ((identif$4 determin$4) with microphones with speaker$1)	USPAT; USOCR; EPO; JPO			
L11	6	("7502730" "9318108" "7031908" "7380250" "7512906" "20040102977" "20070060114" "20070067310" "20070106499" "20080126284" "20080189187" "20100191856" "20100312547" "20140337007").pn. and (filter$4)	US-PGPUB; USPAT; USOCR; EPO; JPO	OR	OFF	2018/11/29 15:52
L12	563	(G10L15/$ G10L2015/$ G10L21/$ G10L2021/$).cpc. and ((amplif$4) with microphone$1 with (speech))	US-PGPUB; USPAT; USOCR; EPO; JPO	OR	OFF	2018/11/29 15:53
L13	1	(G10L15/$ G10L2015/$ G10L21/$ G10L2021/$).cpc. and ((amplif$4) with microphone$1 with (speech voice) with (cleanest highest best))	US-PGPUB; USPAT; USOCR; EPO; JPO	OR	OFF	2018/11/29 15:53
L15	238	(G10L15/$ G10L2015/$ G10L21/$ G10L2021/$).cpc. and (microphone$1 with (cleanest highest best) with (speech voice))	US-PGPUB; USPAT; USOCR; EPO; JPO	OR	OFF	2018/11/29 15:54
L16	158	(G10L15/$ G10L2015/$).cpc. and (microphone$1 with (cleanest highest best) with (speech voice))	US-PGPUB; USPAT; USOCR; EPO; JPO	OR	OFF	2018/11/29 15:54
L18	1	"6219645".pn.	US-PGPUB; USPAT; USOCR; EPO; JPO	OR	OFF	2018/11/29 15:56
L19	88	("6219645").URPN.	USPAT	OR	OFF	2018/11/29 15:56
L20	37	("6219645").URPN. and filter$4	USPAT	OR	OFF	2018/11/29 15:56
L21	16	("6219645").URPN. and (filter$4 with microphone$1)	USPAT	OR	OFF	2018/11/29 15:56
L22	0	("6219645").URPN. and (filter$4 with ((each every) adj microphone$1))	USPAT	OR	OFF	2018/11/29 15:59
L23	0	(G10L15/$ G10L2015/$ G10L21/$ G10L2021/$).cpc. and (filter$4 with ((each every) adj microphone$1))	USPAT	OR	OFF	2018/11/29 15:59
L24	28	(G10L15/$ G10L2015/$ G10L21/$ G10L2021/$).cpc. and (filter$4 with (compar$4 with microphones))	USPAT	OR	OFF	2018/11/29 16:00
L25	16	(G10L15/$ G10L2015/$ G10L21/$ G10L2021/$).cpc. and (filter$4 with (best adj2 (speech voice)))	USPAT	OR	OFF	2018/11/29 16:13
L26	22	(G10L15/$ G10L2015/$ G10L21/$ G10L2021/$).cpc. and (filter$4 adj2	USPAT	OR	OFF	2018/11/29 16:21

		microphones)				
L27	49	(G10L15/$ G10L2015/$ G10L21/$ G10L2021/$).cpc. and (filter$4 adj2 microphones)	US-PGPUB; USPAT; USOCR; EPO; JPO	OR	OFF	2018/11/29 16:24
L28	14	(G10L15/$ G10L2015/$ G10L21/$ G10L2021/$).cpc. and (attenuat$4 adj2 microphones)	US-PGPUB; USPAT; USOCR; EPO; JPO	OR	OFF	2018/11/29 16:24
L29	77	(G10L15/$ G10L2015/$ G10L21/$ G10L2021/$).cpc. and (reduc$4 adj2 microphones)	US-PGPUB; USPAT; USOCR; EPO; JPO	OR	OFF	2018/11/29 16:25
L30	544	(G10L15/$ G10L2015/$ G10L21/$ G10L2021/$).cpc. and ((attenuat$4 reduc$4) near5 microphones)	US-PGPUB; USPAT; USOCR; EPO; JPO	OR	OFF	2018/11/29 16:26
L31	126	(G10L15/$ G10L2015/$ G10L21/$ G10L2021/$).cpc. and ((best highest) near5 microphones)	US-PGPUB; USPAT; USOCR; EPO; JPO	OR	OFF	2018/11/29 16:49
L32	34	(G10L15/$ G10L2015/$ G10L21/$ G10L2021/$).cpc. and ((best highest) adj microphone)	US-PGPUB; USPAT; USOCR; EPO; JPO	OR	OFF	2018/11/29 16:49
L33	202	(G10L15/$ G10L2015/$ G10L21/$ G10L2021/$).cpc. and ((beamform$4 beam-form$4) with compar$4)	US-PGPUB; USPAT; USOCR; EPO; JPO	OR	OFF	2018/11/29 16:50
L34	65	(G10L15/$ G10L2015/$ G10L21/$ G10L2021/$).cpc. and ((best highest) near5 array$1 near5 microphone$1)	US-PGPUB; USPAT; USOCR; EPO; JPO	OR	OFF	2018/11/29 16:51
L35	923	(G10L15/$ G10L2015/$ G10L21/$ G10L2021/$).cpc. and (suppress$4 near5 microphone$1)	US-PGPUB; USPAT; USOCR; EPO; JPO	OR	OFF	2018/11/29 16:53
L36	323	(G10L15/$ G10L2015/$ G10L21/$ G10L2021/$).cpc. and (suppress$4 near5 microphones)	US-PGPUB; USPAT; USOCR; EPO;	OR	OFF	2018/11/29 16:53

			JPO			
L37	0	(G10L15/$ G10L2015/$ G10L21/$ G10L2021/$).cpc. and ((suppress$4 adj2 microphones) with compar$4)	US-PGPUB; USPAT; USOCR; EPO; JPO	OR	OFF	2018/11/29 16:54
L38	10	(G10L15/$ G10L2015/$ G10L21/$ G10L2021/$).cpc. and ((suppress$4 adj2 microphones))	US-PGPUB; USPAT; USOCR; EPO; JPO	OR	OFF	2018/11/29 16:54
L39	21	(G10L15/$ G10L2015/$ G10L21/$ G10L2021/$).cpc. and (((beamform$4 beam-form$4) with filter$4) same (compar$4 with (signals microphones)))	US-PGPUB; USPAT; USOCR; EPO; JPO	OR	OFF	2018/11/29 17:02
L40	21	(G10L15/$ G10L2015/$ G10L21/$ G10L2021/$).cpc. and (microphone with ((highest best) adj (SNR signal-to-noise)))	US-PGPUB; USPAT; USOCR; EPO; JPO	OR	OFF	2018/11/29 17:03
L41	27	(G10L15/$ G10L2015/$ G10L21/$ G10L2021/$).cpc. and (microphone same ((highest best) adj (SNR signal-to-noise)))	US-PGPUB; USPAT; USOCR; EPO; JPO	OR	OFF	2018/11/29 17:04
L42	30	(G10L15/$ G10L2015/$ G10L21/$ G10L2021/$).cpc. and (microphone$1 same ((highest best) adj (SNR signal-to-noise)))	US-PGPUB; USPAT; USOCR; EPO; JPO	OR	OFF	2018/11/29 17:04
L43	1	"7680652".pn. and SNR	US-PGPUB; USPAT; USOCR; EPO; JPO	OR	OFF	2018/11/29 17:05
L44	6	("20040044516" "20040006475" "7072888" "20030167167" "6219645" "5860059").pn. and select$4	US-PGPUB; USPAT; USOCR; EPO; JPO	OR	OFF	2018/11/29 17:06
L45	5	("20040044516" "20040006475" "7072888" "20030167167" "5860059").pn.	US-PGPUB; USPAT; USOCR; EPO; JPO	OR	OFF	2018/11/29 17:40
S88	4	("20160196838" "20040166820" "20120323585" "9767828").pn.	US-PGPUB; USPAT; USOCR; EPO;	OR	OFF	2018/11/21 07:54

			JPO			
S89	352	(G10L15/$ G10L2015/$).cpc. and ((multi-modal multimodal) near5 (request$1 question$1 quer$4))	US-PGPUB; USPAT; USOCR; EPO; JPO	OR	OFF	2018/11/21 09:02
S90	96	(G10L15/$ G10L2015/$).cpc. and ((multi-modal multimodal) near5 (request$1 question$1 quer$4)) and (histor$4 with (request$1 question$1 quer$4))	US-PGPUB; USPAT; USOCR; EPO; JPO	OR	OFF	2018/11/21 09:02
S91	49	((eric e) and yen).xa,xp. and ((multi-modal multimodal))	US-PGPUB; USPAT; USOCR; EPO; JPO	OR	OFF	2018/11/21 09:04
S92	12	((eric e) and yen).xa,xp. and ((multi-modal multimodal)).clm.	US-PGPUB; USPAT; USOCR; EPO; JPO	OR	OFF	2018/11/21 09:04
S93	1	"20040083109".pn.	US-PGPUB; USPAT; USOCR; EPO; JPO	OR	OFF	2018/11/21 09:07
S94	3	("7502730" "9318108" "7031908" "7380250" "7512906" "20040102977" "20070060114" "20070067310" "20070106499" "20080126284" "20080189187" "20100191856" "20100312547" "20140337007").pn. and (multimodal multi-modal)	US-PGPUB; USPAT; USOCR; EPO; JPO	OR	OFF	2018/11/21 09:10
S95	30	(G10L15/$ G10L2015/$).cpc. and ((speech and non-speech) near5 (request$1 question$1 quer$4)) and (histor$4 with (request$1 question$1 quer$4))	US-PGPUB; USPAT; USOCR; EPO; JPO	OR	OFF	2018/11/21 09:11
S96	61	(G10L15/$ G10L2015/$).cpc. and ((speech and non-speech) near5 (request$1 question$1 quer$4))	US-PGPUB; USPAT; USOCR; EPO; JPO	OR	OFF	2018/11/21 09:20
S97	1	"20040006475".pn.	US-PGPUB; USPAT; USOCR; EPO; JPO	OR	OFF	2018/11/21 09:24
S98	368	(G10L15/$ G10L2015/$).cpc. and (combination$1 with (spoken speech) with (request$1 question$1 quer$4))	US-PGPUB; USPAT; USOCR;	OR	OFF	2018/11/21 09:32

			EPO; JPO			
S99	26	(G10L15/$ G10L2015/$).cpc. and (combination$1 with (spoken speech voice) with (manual$2 keyboard$1 mouse$1 touch) with (request$1 question$1 quer$4))	US-PGPUB; USPAT; USOCR; EPO; JPO	OR	OFF	2018/11/21 09:32
S100	0	("7502730" "9318108" "7031908" "7380250" "7512906" "20040102977" "20070060114" "20070067310" "20070106499" "20080126284" "20080189187" "20100191856" "20100312547" "20140337007").pn. and (non-speech)	US-PGPUB; USPAT; USOCR; EPO; JPO	OR	OFF	2018/11/26 10:21
S101	0	("7502730" "9318108" "7031908" "7380250" "7512906" "20040102977" "20070060114" "20070067310" "20070106499" "20080126284" "20080189187" "20100191856" "20100312547" "20140337007").pn. and (non-voice)	US-PGPUB; USPAT; USOCR; EPO; JPO	OR	OFF	2018/11/26 10:21
S102	1	("7502730" "9318108" "7031908" "7380250" "7512906" "20040102977" "20070060114" "20070067310" "20070106499" "20080126284" "20080189187" "20100191856" "20100312547" "20140337007").pn. and (multiple adj mode$1)	US-PGPUB; USPAT; USOCR; EPO; JPO	OR	OFF	2018/11/26 10:22
S103	1	("7502730" "9318108" "7031908" "7380250" "7512906" "20040102977" "20070060114" "20070067310" "20070106499" "20080126284" "20080189187" "20100191856" "20100312547" "20140337007").pn. and (multiple adj (mode$1 modalit$4))	US-PGPUB; USPAT; USOCR; EPO; JPO	OR	OFF	2018/11/26 10:22
S104	1	("7502730" "9318108" "7031908" "7380250" "7512906" "20040102977" "20070060114" "20070067310" "20070106499" "20080126284" "20080189187" "20100191856" "20100312547" "20140337007").pn. and ((plural$3 multiple) adj (mode$1 modalit$4))	US-PGPUB; USPAT; USOCR; EPO; JPO	OR	OFF	2018/11/26 10:22
S106	152	(G10L15/$ G10L2015/$).cpc. and (together with (spoken speech) with (request$1 question$1 quer$4))	US-PGPUB; USPAT; USOCR; EPO; JPO	OR	OFF	2018/11/26 10:25
S107	89	(G10L15/$ G10L2015/$).cpc. and (click$4 with (spoken speech) with (quer$4 request$1 question$1))	US-PGPUB; USPAT; USOCR; EPO; JPO	OR	OFF	2018/11/26 10:26
S108	44	"6823308"	US-PGPUB; USPAT; USOCR; EPO; JPO	OR	OFF	2018/11/26 10:31
S109	1	"6823308".pn.	US-	OR	OFF	2018/11/26

			PGPUB; USPAT; USOCR; EPO; JPO			10:31
S110	110	(G10L15/$ G10L2015/$ G10L25/$ G10L2025/$).cpc. and ((request$1 question$1) with (modes))	US-PGPUB; USPAT; USOCR; EPO; JPO	OR	OFF	2018/11/28 12:06
S111	1	"20040044516".pn.	US-PGPUB; USPAT; USOCR; EPO; JPO	OR	OFF	2018/11/28 12:25
S112	1	"20040044516".pn. and histor$4	US-PGPUB; USPAT; USOCR; EPO; JPO	OR	OFF	2018/11/28 12:25
S113	1	"7729913".pn.	US-PGPUB; USPAT; USOCR; EPO; JPO	OR	OFF	2018/11/28 12:29
S114	1	"20040006475".pn.	US-PGPUB; USPAT; USOCR; EPO; JPO	OR	OFF	2018/11/28 12:54
S115	3	("20040044516" "20040006475" "7072888").pn.	US-PGPUB; USPAT; USOCR; EPO; JPO	OR	OFF	2018/11/28 14:36
S116	1	("20040044516" "20040006475" "7072888").pn. and touch	US-PGPUB; USPAT; USOCR; EPO; JPO	OR	OFF	2018/11/28 15:01
S117	2	("20040044516" "20040006475" "7072888").pn. and mobile	US-PGPUB; USPAT; USOCR; EPO; JPO	OR	OFF	2018/11/28 15:01
S118	4	("20040044516" "20040006475" "7072888" "20030167167").pn.	US-PGPUB; USPAT; USOCR; EPO; JPO	OR	OFF	2018/11/28 19:17
S119	5	("20040044516" "20040006475" "7072888"	US-	OR	OFF	2018/11/28

		"20030167167" "6219645").pn.	PGPUB; USPAT; USOCR; EPO; JPO			19:48
S120	3	("20040044516" "20040006475" "7072888" "20030167167" "6219645").pn. and filter$4	US-PGPUB; USPAT; USOCR; EPO; JPO	OR	OFF	2018/11/28 20:00
S121	1	("20040044516" "20040006475" "7072888" "20030167167" "6219645").pn. and attenuat$4	US-PGPUB; USPAT; USOCR; EPO; JPO	OR	OFF	2018/11/28 20:00
S122	0	("20040044516" "20040006475" "7072888" "20030167167" "6219645").pn. and (misunderstood misunderstand$4)	US-PGPUB; USPAT; USOCR; EPO; JPO	OR	OFF	2018/11/28 20:02
S123	1	"8073681".pn.	US-PGPUB; USPAT; USOCR; EPO; JPO	OR	OFF	2018/11/28 20:06
S124	1	"8515765".pn.	US-PGPUB; USPAT; USOCR; EPO; JPO	OR	OFF	2018/11/28 20:06
S125	11	(G10L15/$ G10L2015/$).cpc. and (misunderstood with (clarif$4 clarification$1))	US-PGPUB; USPAT; USOCR; EPO; JPO	OR	OFF	2018/11/29 10:11
S126	241	(G10L15/$ G10L2015/$).cpc. and (misunderstood)	US-PGPUB; USPAT; USOCR; EPO; JPO	OR	OFF	2018/11/29 10:13
S127	4	(G10L15/$ G10L2015/$).cpc. and (misunderstood with second)	US-PGPUB; USPAT; USOCR; EPO; JPO	OR	OFF	2018/11/29 10:13
S128	164	(G10L15/$ G10L2015/$).cpc. and (misunderstood with user$1)	US-PGPUB; USPAT; USOCR; EPO; JPO	OR	OFF	2018/11/29 10:15
S129	215	(G10L15/$ G10L2015/$).cpc. and	US-	OR	OFF	2018/11/29

		(misinterpreted)	PGPUB; USPAT; USOCR; EPO; JPO			10:20
S130	5526	(G10L15/$ G10L2015/$).cpc. and (user$1 with (correct corrects correction$1 clarif$4 clarification$1))	US-PGPUB; USPAT; USOCR; EPO; JPO	OR	OFF	2018/11/29 10:23
S132	287	(G10L15/$ G10L2015/$).cpc. and (user$1 with (clarif$4 clarification$1) with request$1)	US-PGPUB; USPAT; USOCR; EPO; JPO	OR	OFF	2018/11/29 10:23
S133	246	(G10L15/$ G10L2015/$).cpc. and (user$1 with ((clarif$4 clarification$1) near5 request$1))	US-PGPUB; USPAT; USOCR; EPO; JPO	OR	OFF	2018/11/29 10:24
S134	103	(G10L15/$ G10L2015/$).cpc. and (response$1 with (misunderstood mistake$1))	US-PGPUB; USPAT; USOCR; EPO; JPO	OR	OFF	2018/11/29 10:29
S135	5	(G10L15/$ G10L2015/$).cpc. and (response near5 unresponsive)	US-PGPUB; USPAT; USOCR; EPO; JPO	OR	OFF	2018/11/29 10:35
S136	119	(G10L15/$ G10L2015/$).cpc. and (incorrect adj interpretation$1)	US-PGPUB; USPAT; USOCR; EPO; JPO	OR	OFF	2018/11/29 10:35
S137	264	(G10L15/22$ G10L2015/22$).cpc. and ((repl$4 response$1) with (incorrect$2 misunderstand$4 misunderstood misinterpret$4))	US-PGPUB; USPAT; USOCR; EPO; JPO	OR	OFF	2018/11/29 10:37
S138	1	aust.in. and aachen and bonn	US-PGPUB; USPAT; USOCR; EPO; JPO	OR	OFF	2018/11/29 11:10
S139	6	("20040044516" "20040006475" "7072888" "20030167167" "6219645" "5860059").pn.	US-PGPUB; USPAT; USOCR; EPO; JPO	OR	OFF	2018/11/29 11:22

11/29/2018 6:02:47 PM

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Doc code: IDS
Doc description: Information Disclosure Statement (IDS) Filed

PTO/SB/08a (02-18)
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(Not for submission under 37 CFR 1.99)

Application Number	14691445
Filing Date	2015-04-20
First Named Inventor	Larry BALDWIN
Art Unit	2658
Examiner Name	Eric L. Yen
Attorney Docket Number	62KC-218492

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Examiner Initial*	Cite No	Patent Number	Kind Code[1]	Issue Date	Name of Patentee or Applicant of cited Document	Pages,Columns,Lines where Relevant Passages or Relevant Figures Appear
	1	7502730		2009-03-10	WANG KUANSAN	
	2	9318108		2016-04-19	GRUBER THOMAS ROBERT	

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	1	20140136187		2014-05-15	WOLVERTON MICHAEL J	

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	First Named Inventor	Larry BALDWIN
	Art Unit	2658
	Examiner Name	Eric L. Yen
	Attorney Docket Number	62KC-218492

Examiner Initials*	Cite No	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc), date, pages(s), volume-issue number(s), publisher, city and/or country where published.	T[5]
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Examiner Signature	/ERIC YEN/	Date Considered	11/29/2018

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	First Named Inventor	Larry BALDWIN
	Art Unit	2658
	Examiner Name	Eric L. Yen
	Attorney Docket Number	62KC-218492

CERTIFICATION STATEMENT

Please see 37 CFR 1.97 and 1.98 to make the appropriate selection(s):

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See attached certification statement.

The fee set forth in 37 CFR 1.17 (p) has been submitted herewith.

A certification statement is not submitted herewith.

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Signature	/Mark A. Patrick/	Date (YYYY-MM-DD)	2018-11-20
Name/Print	Mark A. Patrick	Registration Number	72,958

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Doc code: IDS
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Filing Date	2015-04-20
First Named Inventor	Larry BALDWIN
Art Unit	2658
Examiner Name	Eric L. Yen
Attorney Docket Number	62KC-218492

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Examiner Initial*	Cite No	Patent Number	Kind Code[1]	Issue Date	Name of Patentee or Applicant of cited Document	Pages,Columns,Lines where Relevant Passages or Relevant Figures Appear
	1	7031908		2006-04-18	HUANG XUEDONG D	
	2	7380250		2008-05-27	SCHECHTER GREG D	
	3	7512906		2009-03-31	BAIER JOHN JOSEPH	

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	1	20040102977		2004-05-27	METZLER BENJAMIN T	
	2	20070060114		2007-03-15	RAMER JOREY	
	3	20070067310		2007-03-22	GUPTA PUNEET	

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	First Named Inventor	Larry BALDWIN
	Art Unit	2658
	Examiner Name	Eric L. Yen
	Attorney Docket Number	62KC-218492

	4	20070106499		2007-05-10	DAHLGREN KATHLEEN	
	5	20080126284		2008-05-29	FORBES SCOTT C	
	6	20080189187		2008-08-07	HAO BIAO	
	7	20100191856		2010-07-29	GUPTA APURV	
	8	20100312547		2010-12-09	VAN OS MARCEL	
	9	20140337007		2014-11-13	WAIBEL NAOMI AOKI	

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	1	0129742	WO		2001-04-26	TELLME NETWORKS INC		

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/ERIC YEN/ 11/29/2018

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	Examiner Name	Eric L. Yen
	Attorney Docket Number	62KC-218492

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See attached certification statement.

☒ The fee set forth in 37 CFR 1.17 (p) has been submitted herewith.

☒ A certification statement is not submitted herewith.

SIGNATURE

A signature of the applicant or representative is required in accordance with CFR 1.33, 10.18. Please see CFR 1.4(d) for the form of the signature.

Signature	/Hean L. Koo/	Date (YYYY-MM-DD)	2018-08-23
Name/Print	Hean L. Koo	Registration Number	61214

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/ERIC YEN/ 11/29/2018

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2. A record from this system of records may be disclosed, as a routine use, in the course of presenting evidence to a court, magistrate, or administrative tribunal, including disclosures to opposing counsel in the course of settlement negotiations.

3. A record in this system of records may be disclosed, as a routine use, to a Member of Congress submitting a request involving an individual, to whom the record pertains, when the individual has requested assistance from the Member with respect to the subject matter of the record.

4. A record in this system of records may be disclosed, as a routine use, to a contractor of the Agency having need for the information in order to perform a contract. Recipients of information shall be required to comply with the requirements of the Privacy Act of 1974, as amended, pursuant to 5 U.S.C. 552a(m).

5. A record related to an International Application filed under the Patent Cooperation Treaty in this system of records may be disclosed, as a routine use, to the International Bureau of the World Intellectual Property Organization, pursuant to the Patent Cooperation Treaty.

6. A record in this system of records may be disclosed, as a routine use, to another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c)).

7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (i.e., GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.

8. A record from this system of records may be disclosed, as a routine use, to the public after either publication of the application pursuant to 35 U.S.C. 122(b) or issuance of a patent pursuant to 35 U.S.C. 151. Further, a record may be disclosed, subject to the limitations of 37 CFR 1.14, as a routine use, to the public if the record was filed in an application which became abandoned or in which the proceedings were terminated and which application is referenced by either a published application, an application open to public inspections or an issued patent.

9. A record from this system of records may be disclosed, as a routine use, to a Federal, State, or local law enforcement agency, if the USPTO becomes aware of a violation or potential violation of law or regulation.

/ERIC YEN/ 11/29/2018

ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /E.Y./

Doc code: IDS
Doc description: Information Disclosure Statement (IDS) Filed

PTO/SB/08a (02-18)
Approved for use through 11/30/2020. OMB 0651-0031
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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.

INFORMATION DISCLOSURE STATEMENT BY APPLICANT

(Not for submission under 37 CFR 1.99)

Application Number	14691445
Filing Date	2015-04-20
First Named Inventor	Larry BALDWIN
Art Unit	2658
Examiner Name	Eric L. Yen
Attorney Docket Number	62KC-218492

U.S.PATENTS Remove

Examiner Initial*	Cite No	Patent Number	Kind Code[1]	Issue Date	Name of Patentee or Applicant of cited Document	Pages,Columns,Lines where Relevant Passages or Relevant Figures Appear
	1	7502730		2009-03-10	WANG KUANSAN	
	2	9318108		2016-04-19	GRUBER THOMAS ROBERT	

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Examiner Initial*	Cite No	Publication Number	Kind Code[1]	Publication Date	Name of Patentee or Applicant of cited Document	Pages,Columns,Lines where Relevant Passages or Relevant Figures Appear
	1	20140136187		2014-05-15	WOLVERTON MICHAEL J	

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INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	14691445
	Filing Date	2015-04-20
	First Named Inventor	Larry BALDWIN
	Art Unit	2658
	Examiner Name	Eric L. Yen
	Attorney Docket Number	62KC-218492

Examiner Initials*	Cite No	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc), date, pages(s), volume-issue number(s), publisher, city and/or country where published.	T[5]
	1		

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EXAMINER SIGNATURE

Examiner Signature		Date Considered	

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

[1] See Kind Codes of USPTO Patent Documents at www.USPTO.GOV or MPEP 901.04. [2] Enter office that issued the document, by the two-letter code (WIPO Standard ST.3). [3] For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. [4] Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible. [5] Applicant is to place a check mark here if English language translation is attached.

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	14691445
	Filing Date	2015-04-20
	First Named Inventor	Larry BALDWIN
	Art Unit	2658
	Examiner Name	Eric L. Yen
	Attorney Docket Number	62KC-218492

CERTIFICATION STATEMENT

Please see 37 CFR 1.97 and 1.98 to make the appropriate selection(s):

That each item of information contained in the information disclosure statement was first cited in any communication from a foreign patent office in a counterpart foreign application not more than three months prior to the filing of the information disclosure statement. See 37 CFR 1.97(e)(1).

OR

☒ That no item of information contained in the information disclosure statement was cited in a communication from a foreign patent office in a counterpart foreign application, and, to the knowledge of the person signing the certification after making reasonable inquiry, no item of information contained in the information disclosure statement was known to any individual designated in 37 CFR 1.56(c) more than three months prior to the filing of the information disclosure statement. See 37 CFR 1.97(e)(2).

See attached certification statement.

The fee set forth in 37 CFR 1.17 (p) has been submitted herewith.

A certification statement is not submitted herewith.

SIGNATURE

A signature of the applicant or representative is required in accordance with CFR 1.33, 10.18. Please see CFR 1.4(d) for the form of the signature.

Signature	/Mark A. Patrick/	Date (YYYY-MM-DD)	2018-11-20
Name/Print	Mark A. Patrick	Registration Number	72,958

This collection of information is required by 37 CFR 1.97 and 1.98. 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 1 hour 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.**

Privacy Act Statement

The Privacy Act of 1974 (P.L. 93-579) requires that you be given certain information in connection with your submission of the attached form related to a patent application or patent. Accordingly, pursuant to the requirements of the Act, please be advised that: (1) the general authority for the collection of this information is 35 U.S.C. 2(b)(2); (2) furnishing of the information solicited is voluntary; and (3) the principal purpose for which the information is used by the U.S. Patent and Trademark Office is to process and/or examine your submission related to a patent application or patent. If you do not furnish the requested information, the U.S. Patent and Trademark Office may not be able to process and/or examine your submission, which may result in termination of proceedings or abandonment of the application or expiration of the patent.

The information provided by you in this form will be subject to the following routine uses:

1. The information on this form will be treated confidentially to the extent allowed under the Freedom of Information Act (5 U.S.C. 552) and the Privacy Act (5 U.S.C. 552a). Records from this system of records may be disclosed to the Department of Justice to determine whether the Freedom of Information Act requires disclosure of these record s.

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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:	34359222
Application Number:	14691445
International Application Number:	
Confirmation Number:	8351
Title of Invention:	SYSTEM AND METHOD FOR A COOPERATIVE CONVERSATIONAL VOICE USER INTERFACE
First Named Inventor/Applicant Name:	Larry BALDWIN
Customer Number:	133759
Filer:	Mark Andrew Patrick/Susan Trader
Filer Authorized By:	Mark Andrew Patrick
Attorney Docket Number:	62KC-218492
Receipt Date:	20-NOV-2018
Filing Date:	20-APR-2015
Time Stamp:	12:21:50
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	Transmittal Letter	62KC-218492_Transmittal-Letter.pdf	10694 ef5ede17065d82e592b07ae3ff5c2d2efeb8e8a6	no	1

Warnings:

Information:					
2	Information Disclosure Statement (IDS) Form (SB08)	62KC-218492_PTO_IDS-Form.pdf	1053144 4b3adbbf7a09d42de9c3545f2c4955f474b6556e	no	4
Warnings:					
Information:					
			Total Files Size (in bytes):	1063838	

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.

INFORMATION DISCLOSURE STATEMENT BY APPLICANT		
	Application Number	14/691,445
	Filing Date	4/20/2015
	First Named Inventor	Larry BALDWIN
	Art Unit	2658
Page 1 of 1	**Matter Number**	62KC-218492

GENERAL
Pursuant to 37 C.F.R. 1.97 and 1.98 and to the duty of disclosure set forth in 37 C.F.R. 1.56, the Examiner in charge of the above-identified application is requested to consider and make of record the references listed herewith. A copy of each listed reference, other than U.S. patents/applications and references cited in a parent application, is enclosed. Although the information submitted herewith may be "material" to the Examiner's consideration of the subject application, this submission is not intended to constitute an admission that such information is "prior art" as to the claimed invention. In accordance with 37 C.F.R. 1.97(g), the filing of this Information Disclosure Statement shall not be construed to mean that a search has been made.

TIMING
In accordance with 37 CFR 1.97(c), this Information Disclosure Statement is being filed after the period specified in 37 CFR 1.97(b) and before the mailing date of a Final Action under 37 CFR 1.113, a Notice of Allowance under 37 CFR 1.311, or an Action that otherwise closes prosecution in the application.

CERTIFICATION STATEMENT
No item of information contained in this information disclosure statement was cited in a communication from a foreign patent office in a counterpart foreign application, and, to the knowledge of the person signing the certification after making reasonable inquiry, no item of information contained in this information disclosure statement was known to any individual designated in 37 CFR 1.56(c) more than three months prior to the filing of this information disclosure statement.

FEE
No fee is required. This Information Disclosure Statement is being filed in accordance with 37 CFR 1.97(c), and is accompanied by the certification statement of 37 CFR 1.97(e)(2).

ADDITIONAL COMMENTS

SIGNATURE			
Signature	/ Mark A. Patrick /	Date	2018-11-20
Name	Mark A. Patrick	Registration Number	72,958

SyncIDS.com

IN THE UNITED STATES PATENT & TRADEMARK OFFICE			
In Re Patent Application Of:	Larry BALDWIN *et al.*	**Attorney Docket No.:**	62KC-218492
Serial No.:	14/691,445	**Confirmation No.:**	8351
Filing Date:	April 20, 2015	**Examiner:**	Eric L. Yen
		Art Unit:	2658
For:	SYSTEM AND METHOD FOR A COOPERATIVE CONVERSATIONAL VOICE USER INTERFACE		

RESPONSE TO NON-FINAL OFFICE ACTION MAILED JULY 31, 2018

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

Submitted: October 31, 2018

Dear Sir:

In response to the Non-Final Office Action mailed **July 31, 2018**, please amend the above-identified application as follows:

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

Remarks begin on page **10** of this paper.

It is not believed that extensions of time or fees for net addition of claims are required beyond those that may otherwise be provided for in documents accompanying this paper. However, if additional extensions of time are necessary to prevent abandonment of this application, then such extensions of time are hereby petitioned for under 37 C.F.R. § 1.136(a), and any fees required therefor (including fees for net addition of claims) are hereby authorized to be charged to our Deposit Account No. 504561 (**Ref. No. 62KC-218492**).

Amazon/VB Assets
Exhibit 1003
Page 153

Electronic Acknowledgement Receipt	
EFS ID:	34179049
Application Number:	14691445
International Application Number:	
Confirmation Number:	8351
Title of Invention:	SYSTEM AND METHOD FOR A COOPERATIVE CONVERSATIONAL VOICE USER INTERFACE
First Named Inventor/Applicant Name:	Larry BALDWIN
Customer Number:	133759
Filer:	Mark Andrew Patrick
Filer Authorized By:	
Attorney Docket Number:	62KC-218492
Receipt Date:	31-OCT-2018
Filing Date:	20-APR-2015
Time Stamp:	18:25:59
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		62KC-218492_Response.pdf	1021433 979cef94dd049bac0647b97e1d39460d09353fd9	yes	19

	Multipart Description/PDF files in .zip description		
	Document Description	**Start**	**End**
	Applicant Arguments/Remarks Made in an Amendment	10	19
	Claims	2	9
	Amendment/Req. Reconsideration-After Non-Final Reject	1	1
Warnings:			
Information:			
	Total Files Size (in bytes):	1021433	

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.

REMARKS

In response to the Non-Final Office Action dated **July 31, 2018** (hereinafter "Office Action"), claims 1, 3, 4, 8, 10, 13, 15, 16, 20, 21, 24, and 25 have been amended. No claims have been newly added or canceled. Claims 2 and 14 were canceled in a prior amendment. Therefore, claims 1, 3-13, and 15-25 remain pending, of which claims 3-6, 8-10, 15-18, and 20 are withdrawn. Support for the instant amendments is provided throughout the as-filed Specification. Thus, no new matter has been added. In view of the foregoing amendments and following remarks, allowance of all the claims pending in the application is respectfully requested.

REQUEST FOR EXAMINER INTERVIEW

Applicant respectfully requests an Examiner Interview prior to any next office action on the merits. The Examiner is invited to contact the undersigned to schedule such interview.

ALLOWABLE SUBJECT MATTER

Applicant thanks the Examiner for the indication of allowability of claims 1 and 13, pending the rejections set forth under 35 U.S.C. §§ 112 and 101. *Office Action* at 9. *Solely* in an effort to expedite prosecution of this application and expressly not acquiescing to the propriety of the alleged rejections, Applicant has amended claims 1 and 13, rendering the rejection under 35 U.S.C. § 112 of these claims, and their dependent claims, moot. Furthermore, for the reasons provided below, the rejection of independent claims 1 and 13 under 35 U.S.C. § 101 is improper and should be withdrawn for at least the reason that the claims are directed to patent-eligible subject matter. As such, currently pending claims 1 and 13 are believed to be in condition for allowance.

Currently pending claims 7, 11, 12, 19, and 21-25 depend from and add features to one of claims 1 and 13. As such, at least claims 1, 7, 11-13, 19, and 21-25 are believed to be in condition for allowance.

WITHDRAWN CLAIMS

Claims 3-6, 8-10, 15-18, and 20 were withdrawn by the Examiner following Applicant's Response dated April 28, 2017, to the Requirement for Restriction mailed February 28, 2017 (hereinafter "Restriction Requirement"). In the Restriction Requirement, the Examiner stated: "Applicant is required under 35 U.S.C. § 121 to elect a single disclosed species, or a single grouping of patentably indistinct species, for prosecution on the merits to which the claims shall be restricted if no generic claim is finally held to be allowable. Currently, claims 1-2, 7, 13-14, 19, are generic." *Restriction Requirement* at 3.

Applicant asserts that one or more of the withdrawn claims, which the Examiner alleged were directed to one or more "independent or distinct" species, depend from or otherwise require all the limitations of an allowable generic claim. As such, Applicant requests consideration of these claims under 37 CFR 1.141. The Examiner is kindly invited to contact the Applicant's representative at the number provided below to discuss the withdrawn claims.

REJECTION UNDER 35 U.S.C. § 112

Claims 1, 7, 11-13, 19, and 21-25 stand rejected under 35 U.S.C. § 112(a), or pre-AIA 35 U.S.C. § 112, first paragraph, as allegedly failing to comply with the written description requirement. *Office Action* at 4-5.

With respect to claims 1 and 13, the Examiner alleges, "Applicant's amendment to recite 'short-term knowledge obtained during a single conversation that lasts a predefined amount of time/time period' introduces new matter into the claims." *Office Action* at 5-6. Applicant traverses this rejection for at least the reason that the recitation is properly supported at least at paragraphs [013], [042-044], and [051] of the as-filed Specification of the present application. Nonetheless, *solely* in an effort to expedite prosecution of this application and expressly not acquiescing to the propriety of the alleged rejections, Applicant has amended claims 1 and 13, rendering the rejection of these claims, and their dependent claims, moot.

With respect to claim 24, the Examiner alleges the following:

> Claim 24 recites "receiving ... an indication that the first response is unresponsive to the request" and "generating, by the computer system, a second response that prompts a user to provide further input relating to the request, the second response including one or

> more words from the natural language utterance" which lacks written description and is thus new matter.

Office Action at 6. Applicant traverses this rejection for at least the reason that the recitation is properly supported by the as-filed Specification of the present application. Nonetheless, *solely* in an effort to expedite prosecution of this application and expressly not acquiescing to the propriety of the alleged rejection, Applicant has amended claim 24 to clarify various aspects of the claimed invention rendering the rejection of this claim under § 112 moot. Applicant notes that at least paragraph [059] of the as-filed Specification and the accompanying table provides Written Description support for this claim as amended.

Claim 25 stands rejected under 35 U.S.C. § 112(b), or 35 U.S.C. § 112 (pre-AIA), second paragraph, as being allegedly indefinite for allegedly failing to particularly point out and distinctly claim the subject matter which the applicant regards as the invention. *Office Action* at 9. Applicant traverses the rejection set forth by the Examiner. Nonetheless, *solely* in an effort to expedite prosecution of this application and expressly not acquiescing to the propriety of the alleged rejection, Applicant has amended claim 25, rendering the rejection of this claim under § 112 moot.

For at least the foregoing reasons, withdrawal of the rejections under 35 U.S.C. § 112 is earnestly sought.

REJECTION UNDER 35 U.S.C. § 101

Claims 1, 7, 11-13, 19, and 21-25 stand rejected under 35 U.S.C. § 101 as allegedly being directed to non-statutory subject matter. *Office Action* at 10. For the reasons provided below, the rejection of claims 1, 7, 11-13, 19, and 21-25 under 35 U.S.C. § 101 is improper and should be withdrawn for at least the reason that the claims are directed to patent-eligible subject matter.

Without providing an exhaustive enumeration of the legal analysis that MUST be provided by the Office Action to establish a *prima facie* case of non-statutory subject matter [*see, e.g.*, July 2015 Update: Interim Eligibility Guidance Quick Reference Sheet], the present rejection of claims 1, 7, 11-13, 19, and 21-25 under § 101 is deficient at least because the Office Action fails to show the claims are "directed to" an abstract idea (*e.g.*, step 2A), and the claims as a whole, considering all additional elements both individually and in combination, do not

amount to significantly more than a judicial exception (*e.g.*, step 2B). *See* July 2015 Update: Subject Matter Eligibility at 1, 2, and 6.

I. STEP 2A: CLAIMS 1, 7, 11-13, 19, AND 21-25 ARE NOT DIRECTED TO AN ABSTRACT IDEA AND THE OFFICE ACTION FAILS TO SHOW OTHERWISE

The burden of establishing a *prima facie* case that the claims are directed to ineligible subject matter falls on the Examiner. To establish a *prima facie* case for subject matter eligibility under step 2A, the Examiner must "clearly articulat[e] the reason(s) why the claimed invention is not eligible, for example by providing a reasoned rationale that identifies the judicial exception recited in the claim and why it is considered a judicial exception." July 2015 Update: Subject Matter Eligibility at 6. In determining whether the claims at issue were directed to an abstract idea under the first step of the *Mayo/Alice* test, the Federal Circuit in *McRO* cautioned that courts and examiners (by virtue of the present USPTO guidance) "'must be careful to avoid oversimplifying the claims' by looking at them generally and failing to account for the specific requirements of the claims." *Id.* at 1313 (quoting *TLI Commc'ns LLC v. A.V. Automotive, LLC*, 823 F.3d 607, 611 (Fed. Cir. 2016)).

In the Office Action, the Examiner alleges the following:

> As per Claims 1 and 13, they are directed to an idea "of itself", similar to Content Extraction and Elec. Power, directed to collecting data, analyzing data, storing data, and similar to RecogniCorp and Digitech, directed to applying an algorithm to data to generate new data, where, under RecogniCorp, adding one abstract idea to another is still abstract.

Office Action at 10.

This is erroneous because (i) the Office Action fails to establish a *prima facie* case that the claims are *directed to* merely collecting data, analyzing data, storing data, and applying an algorithm to data to generate new data, and (ii) the interpretation of claims in the Office Action grossly oversimplifies the claims and fails to account for the specific requirements recited. In fact, the Office Action merely concludes individual claim elements are directed to merely collecting data, analyzing data, storing data or merely applying an algorithm to data to generate new data without actually considering the claim language and providing any rationale explaining how the individual claim elements are supposedly directed to such overbroad concepts.

The Office Action cites to *RecogniCorp* to support the Examiner's position that adding one abstract idea to another does not render the claims eligible for patent. *Office Action* at 12. Specifically, the Examiner concludes that, "Claims 1 and 13 are, therefore, directed to an abstract idea including the combination of the above-discussed abstract steps, where, under RecogniCorp, adding one abstract idea to another is still abstract." *Office Action* at 12. However, the Examiner's reliance on *RecogniCorp* is misplaced as the Examiner has not identified a single abstract idea to which the pending claims are directed and has instead described individual claim elements at a high level of abstraction untethered from the actual language of the claim. When properly construed, the character of the claims, as a whole, is not directed to, nor recites, collecting data, analyzing data, and storing data or applying an algorithm to data to generate new data.

In *Enfish LLC v. Microsoft*, the "Federal Circuit cautioned against describing a claim at a high level of abstraction untethered from the language of the claim when determining the focus of the claim." May 2016 Update: Memorandum – Recent Subject Matter Eligibility Decisions (*Enfish, LLC v. Microsoft Corp. and TLI Communications LLC v. A.V. Automative, LLC*). In *Enfish*, the Federal Circuit also emphasized that "the 'directed to' inquiry applies a filter to claims, when interpreted in view of the Specification, based on whether their character as a whole is directed to a patent ineligible concept." *Id.*

When viewed in light of the specification, the character of the claims as a whole is directed to a technological improvement to interfaces between computers and humans through a particular natural language voice user interface. For example, as amended, independent claim 1 now recites, *inter alia*, the features of:

> receiving, by the computer system during a first conversation, a first voice input comprising a first natural language utterance;
>
> obtaining, by the computer system during the first conversation, a user interface state related to one or more non-voice inputs associated with the first voice input, the one or more non-voice inputs comprising at least a first non-voice input;
>
> generating, by the computer system, the short-term knowledge based on at least the first voice input and the first non-voice input;
>
> determining, by the computer system, based on the short-term knowledge, a first context for the first natural language utterance;

> determining, by the computer system, based on the first context, an interpretation of the first natural language utterance; and
>
> generating, by the computer system, based on the interpretation of the first natural language utterance, a first response to the first natural language utterance.

Independent claim 13 includes similar recitations. As claimed, a first input comprising a natural language utterance (or a voice input) and at least a second input comprising a non-voice input may be received during a single conversation. Based on the voice input and the non-voice input, short-term knowledge may be generated that may be used to determine a context of the natural language utterance. An interpretation of the natural language utterance may be determined based on the determined context. Based on the interpretation of the natural language utterance, a response to the natural language utterance may be generated. The foregoing represents an improvement to computer natural language understanding systems that enable computers to interact with humans in more natural ways while solving various problems that arise out of speech systems. *See, e.g.*, As-Filed Specification at [003-004].

Thus, the claims, ***when read as a whole***, are ***directed*** to technological improvements to voice interfaces, rather than merely the abstract idea of collecting data, analyzing data, and storing data or applying an algorithm to data to generate new data. For at least this reason alone, the rejection is improper and must be withdrawn.

In the Office Action, the Examiner cites *Content Extraction*, *Elec. Power Grp*, *RecogniCorp*, and *Digitech* alleging that the claims recite abstract concepts identified by the courts in one or more of the foregoing cases. *Office Action* at 10. However, the pending claims are distinguishable from each of the cases cited by the Examiner for at least the reason that, when properly construed, the character of the claims, as a whole, is not directed to, nor recites, patent-ineligible subject matter. Rather, the claims are directed to a concept inextricably tied to computer technology and distinct from the types of concepts found by the courts to be abstract.

For at least these reasons, Applicant submits the rejection of claims 1, 7, 11-13, 19, and 21-25 under 35 U.S.C. 101 should be withdrawn.

II. STEP 2B: CLAIMS 1, 7, 11-13, 19, AND 21-25 INCLUDE ADDITIONAL ELEMENTS THAT AMOUNT TO SIGNIFICANTLY MORE THAN A JUDICIAL EXCEPTION

Even assuming arguendo that the claims recite an abstract idea (which Appellant does not concede for the reasons set forth in detail above), the claims are nonetheless patent-eligible because they recite features that amount to significantly more than merely the alleged abstract idea itself and go beyond generally linking the use of the alleged abstract idea to a particular technological environment.

In the Office Action, the Examiner alleges the following:

> The remaining limitations ("computer-implemented", "computer system that includes one or more physical processors executing one or more computer program instructions which, when executed, perform the method", "by the computer system", "from a first input device", "from a non-voice input device", "A system", "one or more physical processors programmed with one or more computer program instructions which, when executed, cause the one or more physical processors to", "from a first input voice", "from a non-voice input device") are directed to generic computer implementation where, under Alice, generic computer implementation of an abstract idea is not sufficient to make an abstract idea patentable.

Office Action at 12. As an initial matter, the Examiner alleges that the instant claims do not include any additional elements that are sufficient to amount to significantly more than the judicial exception without sufficient evidence to do so. This is improper. In its Berkheimer Memorandum, the USPTO set forth its revised examination procedure in view of *Berkheimer v. HP Inc.*, 881 F.3d 1360 (Fed. Cir. 2018). Consistent with the corresponding Federal Circuit decision, the Berkheimer Memo clarifies that:

> In a step 2B analysis, an additional element (or combination of elements) is not well-understood, routine or conventional unless the examiner finds, and expressly supports a rejection in writing with, one or more of the following:
>
> 1. A citation to an express statement in the specification or to a statement made by an applicant during prosecution that demonstrates the well-understood, routine, conventional nature of the additional element(s). . . .

2. A citation to one or more of the court decisions discussed in MPEP § 2106.05(d)(II) as noting the well-understood, routine, conventional nature of the additional element(s).
3. A citation to a publication that demonstrates the well-understood, routine, conventional nature of the additional element(s). . . .
4. A statement that the examiner is taking official notice of the well-understood, routine, conventional nature of the additional element(s).

Berkheimer Memorandum at 3-4.

Assuming *arguendo* that the claims recite an abstract idea (which Appellant does not concede for the reasons set forth in detail above), the Examiner's allegation that the claims do not recite additional elements that are sufficient to amount to significantly more than the alleged abstract is now improper because the Examiner has not expressly supported the rejection (or at least the foregoing allegation) consistent with the Federal Circuit's holding in *Berkheimer v. HP Inc.* and as required by the corresponding revisions to examination procedure set forth in the Berkheimer Memo (and briefly addressed above). To the extent that the Examiner maintains the rejection and proffers either one of items 1 through 4 above, Applicant respectfully requests that any next office action on the merits be made Non-Final to give Applicant an opportunity to respond to the rejection based on the revised examination procedure set forth in the Berkheimer Memo.

Notwithstanding the foregoing, the rejection of claims 1, 7, 11-13, 19, and 21-25 under 35 U.S.C. 101 is further improper because the claims as a whole amount to significantly more than the alleged judicial exception.

Since the Supreme Court's decision in *Alice*, the courts and USPTO Guidance have (and continue to) refine the contours of the now well-known two-part *Alice/Mayo* test (*i.e.*, Step 2B). For example, an inventive concept that amounts to significantly more than an alleged abstract idea may be found in an unconventional combination of conventional claim elements.

In *BASCOM Global Internet v. AT&T Mobility LLC*, 827 F.3d 1341 (Fed. Cir. 2016), the Federal Circuit found the claims recited significantly more because, taken collectively, the additional limitations of the claims amounted to significantly more than an abstract concept. While the Court found the claims in *BASCOM* recited "generic computer, network, and Internet

components, none of which is inventive by itself," the Federal Circuit emphasized "the inventive concept inquiry *requires more than recognizing that each claim element, by itself, was known in the art*" because "an inventive concept can be found in the non-conventional and non-generic arrangement of known, conventional pieces." *See, e.g., BASCOM*, 827 F.3d at 1350. The court further found the claims recited "a specific and discrete implementation of the abstract idea" and while the abstract idea was a known concept (filtering online content), its particularly claimed arrangement of elements amounted to a technical improvement over prior ways of performing the abstract idea. As such, the Court found the invention in *BASCOM* was not claiming the abstract idea simply applied to the Internet, but instead claimed a technology-based solution.

The present claims are similar to those in *BASCOM* because the additional limitations, considered collectively, describe a specific and discrete implementation of processing natural language utterances received via an input device based on short-term knowledge (e.g. knowledge obtained during a single conversation). Even if processing natural language utterances is well-known and routine in the art (which Applicant expressly does not concede), the particular implementation including accumulating during a single conversation both a voice input and a non-voice input related to the voice input, generating short-term knowledge (e.g., knowledge obtained during a single conversation) based on the accumulated voice input and non-voice input, determining a context of the natural language utterance in the voice input based on the short-term knowledge, determining an interpretation of the utterance based on that determined context, and generating a response to the natural language utterance based on the determined interpretation of the utterance, amounts to a technical improvement over prior computer natural language understanding systems that enable computers to interact with humans in more natural ways. Therefore, the present claims recite a technology-based solution that amounts to significantly more than an abstract concept.

At least because the claims are not directed to an abstract idea, because the claims as a whole amount to significantly more than the alleged judicial exception, and/or because the Office Action has failed to establish otherwise, the rejection of claims 1, 7, 11-13, 19, and 21-25 under § 101 should be withdrawn.

Amazon/VB Assets
Exhibit 1003
Page 164

CONCLUSION

Having addressed each of the foregoing rejections, it is respectfully submitted that a full and complete response has been made to the outstanding Office Action and, as such, the application is in condition for allowance. Notice to that effect is respectfully requested.

If the Examiner believes, for any reason, that personal communication will expedite prosecution of this application, the Examiner is invited to telephone the undersigned at the number provided.

Respectfully submitted,

Date: **October 31, 2018**

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AMENDMENTS TO THE CLAIMS

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

LISTING OF CLAIMS:

1. (**Currently Amended**) A computer-implemented method of facilitating natural language system responses ~~based on~~ using short-term knowledge generated based on one or more prior multi-modal device interactions ~~obtained during a single conversation that lasts a predefined amount of time~~, the method being implemented by a computer system that includes one or more physical processors executing one or more computer program instructions which, when executed, perform the method, the method comprising:

receiving, by the computer system during ~~the single~~ a first conversation, a first voice input[[,]] comprising a first natural language utterance~~, from a first input device~~;

obtaining, by the computer system during the ~~single~~ first conversation, a user interface state ~~of~~ related to one or more non-voice inputs ~~relating to~~ associated with the first voice input, the one or more non-voice inputs comprising at least a first non-voice input~~, relating to the first voice input, from a non-voice input device~~;

generating, by the computer system, the short-term knowledge based on at least the first voice input and the first non-voice input;

determining, by the computer system, based on the short-term knowledge, a first context for the first natural language utterance;

determining, by the computer system, based on the first context, an interpretation of the first natural language utterance; and

generating, by the computer system, based on the interpretation of the first natural language utterance, a first response to the first natural language utterance.

2. (**Canceled**).

3. (**Withdrawn – Currently Amended**) The method of claim 1, wherein the first voice input is received via a first input device, the method further comprising:

receiving, at the computer system, a second natural language utterance ~~from~~ via the first input device;

determining, by the computer system, based on the short-term knowledge, whether the second natural language utterance corresponds to the first context;

determining, by the computer system, responsive to the second natural language utterance not corresponding to the first context, a second context for the second natural language utterance based on the short-term knowledge;

determining, by the computer system, based on the second context, an interpretation of the second natural language utterance; and

generating, by the computer system, based on the interpretation of the second natural language utterance, a second response to the second natural language utterance.

4. (**Withdrawn – Currently Amended**) The method of claim 1, wherein the first voice input is received via a first input device, the method further comprising:

tracking, by the computer system, contexts identified for multiple consecutive natural language user utterances to generate a context stack, the context stack including the contexts identified for the multiple consecutive natural language user utterances;

receiving, at the computer system, a third natural language utterance ~~from~~ via the first input device; and

determining, by the computer system, based on the short-term knowledge, whether the third natural language utterance corresponds to one or more individual ones of the contexts included in the context stack.

5. (**Withdrawn**) The method of claim 4, wherein determining whether the third natural language utterance corresponds to one or more individual ones of the contexts included in the context stack includes:

determining whether the third natural language utterance corresponds to a most recent context included in the context stack; and

responsive to the third natural language utterance not corresponding to the most recent context, determining whether the third natural language utterance corresponds to a second most recent context included in the context stack.

6. (**Withdrawn**) The method of claim 4, further comprising:

determining, by the computer system, responsive to the third natural language utterance not corresponding to one or more individual ones of the contexts included in the context stack, a third context for the third natural language utterance based on the short-term knowledge; and

determining, by the computer system, based on the third context, an interpretation of the third natural language utterance.

7. (**Original**) The method of claim 1, wherein determining the interpretation of the first natural language utterance comprises determining, based on the first context, an interpretation of one or more recognized words of the first natural language utterance.

8. (**Withdrawn – Currently Amended**) The method of claim 1, the method further comprising:

expiring, by the computer system, one or more items of short-term knowledge that are based on one or more natural language utterances received during conversations occurring prior to the first conversation ~~given time period~~.

9. (**Withdrawn**) The method of claim 8, further comprising:

accumulating, by the computer system, long-term knowledge based on the one or more items of short-term knowledge that are expired.

10. **(Withdrawn – Currently Amended)** The method of claim 1, the method further comprising:

accumulating, by the computer system, long-term knowledge, wherein the long-term knowledge is accumulated based on one or more natural language utterances received during conversations occurring prior to the first conversation, ~~given time period;~~ wherein the first context is determined based on the short-term knowledge and the long-term knowledge.

11. **(Original)** The method of claim 1, further comprising:

determining, by the computer system, based on the short-term knowledge, a manner in which the first natural language utterance is spoken, wherein the first response is generated based on the determined manner and the interpretation of the first natural language utterance.

12. **(Original)** The method of claim 11, wherein the manner in which the first natural language utterance is spoken includes at least one of a tone, a pace, an inflection, or a timing.

13. **(Currently Amended)** A system for facilitating natural language system responses ~~based on~~ via short-term knowledge generated based on one or more prior multi-modal device interactions ~~obtained during a single conversation that lasts a predefined time period~~, the system comprising:

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

receive, during ~~the single~~ a first conversation, a first voice input[[,]] comprising a first natural language utterance~~, from a first input device~~;

obtain, during the ~~single~~ first conversation, a user interface state ~~of~~ related to one or more non-voice inputs ~~relating to~~ associated with the first voice input ~~during the single conversation~~, the one or more non-voice inputs comprising at least a first non-voice input~~, relating to the first voice input, from a non-voice input device~~;

generate the short-term knowledge based on at least the first voice input and the first non-voice input;

determine, based on the short-term knowledge, a first context for the first natural language utterance;

determine, based on the first context, an interpretation of the first natural language utterance; and generate, based on the interpretation of the first natural language utterance, a first response to the first natural language utterance.

14. (**Canceled**).

15. (**Withdrawn – Currently Amended**) The system of claim 13, wherein the first voice input is received via a first input device, and wherein the one or more physical processors are further caused to:

receive a second natural language utterance ~~from~~ via the first input device;

determine, based on the short-term knowledge, whether the second natural language utterance corresponds to the first context;

determine, responsive to the second natural language utterance not corresponding to the first context, a second context for the second natural language utterance based on the short-term knowledge;

determine, based on the second context, an interpretation of the second natural language utterance; and

generate, based on the interpretation of the second natural language utterance, a second response to the second natural language utterance.

16. **(Withdrawn – Currently Amended)** The system of claim 13, wherein the first voice input is received via a first input device, and wherein the one or more physical processors are further caused to:

track contexts identified for multiple consecutive natural language user utterances to generate a context stack, the context stack including the contexts identified for the multiple consecutive natural language user utterances;

receive a third natural language utterance ~~from~~ via the first input device; and

determine, based on the short-term knowledge, whether the third natural language utterance corresponds to one or more individual ones of the contexts included in the context stack.

17. **(Withdrawn)** The system of claim 16, wherein determining whether the third natural language utterance corresponds to one or more individual ones of the contexts included in the context stack includes:

determining whether the third natural language utterance corresponds to a most recent context included in the context stack; and

responsive to the third natural language utterance not corresponding to the most recent context, determining whether the third natural language utterance corresponds to a second most recent context included in the context stack.

18. **(Withdrawn)** The system of claim 16, wherein the one or more physical processors are caused to:

determine, responsive to the third natural language utterance not corresponding to one or more individual ones of the contexts included in the context stack, a third context for the third natural language utterance based on the short-term knowledge; and

determine, based on the third context, an interpretation of the third natural language utterance.

19. (**Original**) The system of claim 13, wherein determining the interpretation of the first natural language utterance comprises determining, based on the first context, an interpretation of one or more recognized words of the first natural language utterance.

20. (**Withdrawn – Currently Amended**) The system of claim 13, wherein the one or more physical processors are caused to:

expire one or more items of accumulated short-term knowledge that are based on one or more natural language utterances received during conversations occurring prior to the first conversation ~~given time period~~; and

accumulate long-term knowledge based on the one or more items of accumulated short-term knowledge that are expired, wherein the first context is determined based on the short-term knowledge and the long-term knowledge.

21. (**Currently Amended**) The method of claim 1, wherein the first voice input is received via a first input device, the method further comprising:

receiving, by the computer system, a second voice input comprising the first natural language utterance via a second input device;

comparing, by the computer system, the first voice input with the second voice input; and

filtering, by the computer system, sound from the first voice input and the second voice input based on the comparison.

22. (**Previously Presented**) The method of claim 21, wherein the second input device is included with the first input device in a single device.

23. (**Previously Presented**) The method of claim 1, wherein generating the first response comprises generating, by the computer system, a non-voice response in a graphical user interface and/or a voice response via a speaker.

24. (**Currently Amended**) The method of claim 1, wherein the first natural language utterance relates to a request and the first response is intended to be responsive to the request, the method further comprising:

receiving, by the computer system, ~~an indication that~~ a second natural language utterance in response to the first response ~~is unresponsive to the request~~, wherein the second natural language utterance comprises a clarification related to the interpretation of the first natural language utterance; and

responsive to receipt of the second natural language utterance, generating, by the computer system, a second response to the second natural language utterance based on the interpretation of the first natural language utterance and the clarification related to the interpretation of the first natural language utterance ~~that prompts a user to provide further input relating to the request, the second response including one or more words from the natural language utterance~~.

25. (**Currently Amended**) The method of claim 1, wherein the first non-voice input is received via a non-voice input device ~~comprises~~ comprising a touch screen device, the method further comprising ~~and wherein receiving the non-voice input comprises~~:

receiving, by the computer system, information indicating a location on the touch screen device that received [[an]] the first non-voice input.

PTO/SB/06 (09-11)
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PATENT APPLICATION FEE DETERMINATION RECORD Substitute for Form PTO-875	Application or Docket Number 14/691,445	Filing Date 04/20/2015	☐ To be Mailed

ENTITY: ☐ LARGE ☑ SMALL ☐ MICRO

APPLICATION AS FILED - PART I

FOR	(Column 1) NUMBER FILED	(Column 2) NUMBER EXTRA		RATE ($)	FEE ($)
☐ BASIC FEE (37 CFR 1.16(a), (b), or (c))	N/A	N/A		N/A	
☐ SEARCH FEE (37 CFR 1.16(k), (i), or (m))	N/A	N/A		N/A	
☐ EXAMINATION FEE (37 CFR 1.16(o), (p), or (q))	N/A	N/A		N/A	
TOTAL CLAIMS (37 CFR 1.16(i))	minus 20 =	*		x $40 =	
INDEPENDENT CLAIMS (37 CFR 1.16(h))	minus 3 =	*		x $210 =	
☐ APPLICATION SIZE FEE (37 CFR 1.16(s))	If the specification and drawings exceed 100 sheets of paper, the application size fee due is $310 ($155 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	

APPLICATION AS AMENDED - PART II

		(Column 1)		(Column 2)	(Column 3)			
AMENDMENT	10/31/2018	CLAIMS REMAINING AFTER AMENDMENT		HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA		RATE ($)	ADDITIONAL FEE ($)
	Total (37 CFR 1.16(i))	* 23	Minus	** 23	= 0		x $50 =	0
	Independent (37 CFR 1.16(h))	* 2	Minus	*** 3	= 0		x $230 =	0
	☐ Application Size Fee (37 CFR 1.16(s))							
	☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))							
							TOTAL ADD'L FEE	0

		(Column 1)		(Column 2)	(Column 3)			
AMENDMENT		CLAIMS REMAINING AFTER AMENDMENT		HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA		RATE ($)	ADDITIONAL FEE ($)
	Total (37 CFR 1.16(i))	*	Minus	**	=		x $0 =	
	Independent (37 CFR 1.16(h))	*	Minus	***	=		x $0 =	
	☐ Application Size Fee (37 CFR 1.16(s))							
	☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))							
							TOTAL ADD'L FEE	

* If the entry in column 1 is less than the entry in column 2, write "0" in column 3.	SLIE
** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 20, enter "20".	/KAREN L VESTAL/
*** 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.	

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APPLICATION NUMBER	FILING or 371(c) DATE	GRP ART UNIT	FIL FEE REC'D	ATTY.DOCKET.NO	TOT CLAIMS	IND CLAIMS
14/691,445	04/20/2015	2658	930	62KC-218492	20	2

CONFIRMATION NO. 8351

CORRECTED FILING RECEIPT

133759
Sheppard Mullin Richter & Hampton LLP
650 Town Center Drive, 4th Floor
Costa Media, CA 92626



Date Mailed: 08/27/2018

Receipt is acknowledged of this non-provisional patent application. The application will be taken up for examination in due course. Applicant will be notified as to the results of the examination. Any correspondence concerning the application must include the following identification information: the U.S. APPLICATION NUMBER, FILING DATE, NAME OF APPLICANT, and TITLE OF INVENTION. Fees transmitted by check or draft are subject to collection. Please verify the accuracy of the data presented on this receipt. **If an error is noted on this Filing Receipt, please submit a written request for a Filing Receipt Correction. Please provide a copy of this Filing Receipt with the changes noted thereon. If you received a "Notice to File Missing Parts" for this application, please submit any corrections to this Filing Receipt with your reply to the Notice. When the USPTO processes the reply to the Notice, the USPTO will generate another Filing Receipt incorporating the requested corrections**

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Assignment For Published Patent Application

VoiceBox Technologies Corporation

Power of Attorney: The patent practitioners associated with Customer Number 133759

Domestic Priority data as claimed by applicant

This application is a CON of 13/987,645 08/19/2013 PAT 9015049
which is a DIV of 13/251,712 10/03/2011 PAT 8515765
which is a CON of 11/580,926 10/16/2006 PAT 8073681

Foreign Applications for which priority is claimed (You may be eligible to benefit from the **Patent Prosecution Highway** program at the USPTO. Please see http://www.uspto.gov for more information.) - None.
Foreign application information must be provided in an Application Data Sheet in order to constitute a claim to foreign priority. See 37 CFR 1.55 and 1.76.

Permission to Access Application via Priority Document Exchange: Yes

Permission to Access Search Results: No

Applicant may provide or rescind an authorization for access using Form PTO/SB/39 or Form PTO/SB/69 as appropriate.

If Required, Foreign Filing License Granted: 04/30/2015

The country code and number of your priority application, to be used for filing abroad under the Paris Convention, is **US 14/691,445**

Projected Publication Date: Not Applicable

Non-Publication Request: No

Early Publication Request: No
**** SMALL ENTITY ****
Title

SYSTEM AND METHOD FOR A COOPERATIVE CONVERSATIONAL VOICE USER INTERFACE

Preliminary Class

704

Statement under 37 CFR 1.55 or 1.78 for AIA (First Inventor to File) Transition Applications: No

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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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This license is to be retained by the licensee and may be used at any time on or after the effective date thereof unless it is revoked. This license is automatically transferred to any related applications(s) filed under 37 CFR 1.53(d). This license is not retroactive.

The grant of a license does not in any way lessen the responsibility of a licensee for the security of the subject matter as imposed by any Government contract or the provisions of existing laws relating to espionage and the national security or the export of technical data. Licensees should apprise themselves of current regulations especially with respect to certain countries, of other agencies, particularly the Office of Defense Trade Controls, Department of State (with respect to Arms, Munitions and Implements of War (22 CFR 121-128)); the Bureau of Industry and Security, Department of Commerce (15 CFR parts 730-774); the Office of Foreign AssetsControl, Department of Treasury (31 CFR Parts 500+) and the Department of Energy.

NOT GRANTED

No license under 35 U.S.C. 184 has been granted at this time, if the phrase "IF REQUIRED, FOREIGN FILING LICENSE GRANTED" DOES NOT appear on this form. Applicant may still petition for a license under 37 CFR 5.12, if a license is desired before the expiration of 6 months from the filing date of the application. If 6 months has lapsed from the filing date of this application and the licensee has not received any indication of a secrecy order under 35 U.S.C. 181, the licensee may foreign file the application pursuant to 37 CFR 5.15(b).

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APPLICATION NUMBER	FILING OR 371(C) DATE	FIRST NAMED APPLICANT	ATTY. DOCKET NO./TITLE
14/691,445	04/20/2015	Larry BALDWIN	62KC-218492

CONFIRMATION NO. 8351

133759
Sheppard Mullin Richter & Hampton LLP
650 Town Center Drive, 4th Floor
Costa Mesa, CA 92626

POA ACCEPTANCE LETTER

OC000000101830769

Date Mailed: 08/27/2018

NOTICE OF ACCEPTANCE OF POWER OF ATTORNEY

This is in response to the Power of Attorney filed 08/23/2018.

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**.

/byemane/

Doc Code: PA..
Document Description: Power of Attorney

PTO/AIA/82A (07-13)
Approved for use through 11/30/2014. OMB 0651-0051
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TRANSMITTAL FOR POWER OF ATTORNEY TO ONE OR MORE REGISTERED PRACTITIONERS

NOTE: This form is to be submitted with the Power of Attorney by Applicant form (PTO/AIA/82B) to identify the application to which the Power of Attorney is directed, in accordance with 37 CFR 1.5, unless the application number and filing date are identified in the Power of Attorney by Applicant form. If neither form PTO/AIA/82A nor form PTO/AIA82B identifies the application to which the Power of Attorney is directed, the Power of Attorney will not be recognized in the application.

Application Number	14/691,445
Filing Date	April 20, 2015
First Named Inventor	Larry BALDWIN
Title	SYSTEM AND METHOD FOR A COOPERATIVE CONVERSATIONAL VOICE USER INTERFACE
Art Unit	2658
Examiner Name	Eric L. Yen
Attorney Docket Number	62KC-218492

SIGNATURE of Applicant or Patent Practitioner

Signature	/Hean L. Koo/	Date (Optional)	August 23, 2018
Name	Hean L. Koo	Registration Number	61,214
Title (if Applicant is a juristic entity)			
Applicant Name (if Applicant is a juristic entity)			

NOTE: This form must be signed in accordance with 37 CFR 1.33. See 37 CFR 1.4(d) for signature requirements and certifications. If more than one applicant, use multiple forms.

☐ *Total of _____ forms are submitted.

This collection of information is required by 37 CFR 1.131, 1.32, and 1.33. 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 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.

Doc Code: PA..
Document Description: Power of Attorney

PTO/AIA/82B (07-13)
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POWER OF ATTORNEY BY APPLICANT

I hereby revoke all previous powers of attorney given in the application identified in either the attached transmittal letter or the boxes below.

Application Number	Filing Date
See the Transmittal Letter	

(Note: The boxes above may be left blank if information is provided on form PTO/AIA/82A.)

☑ I hereby appoint the Patent Practitioner(s) associated with the following Customer Number as my/our attorney(s) or agent(s), and to transact all business in the United States Patent and Trademark Office connected therewith for the application referenced in the attached transmittal letter (form PTO/AIA/82A) or identified above: 133759

OR

☐ I hereby appoint Practitioner(s) named in the attached list (form PTO/AIA/82C) as my/our attorney(s) or agent(s), and to transact all business in the United States Patent and Trademark Office connected therewith for the patent application referenced in the attached transmittal letter (form PTO/AIA/82A) or identified above. (Note: Complete form PTO/AIA/82C.)

Please recognize or change the correspondence address for the application identified in the attached transmittal letter or the boxes above to:

☑ The address associated with the above-mentioned Customer Number

OR

☐ The address associated with Customer Number:

OR

☐ Firm or Individual Name					
Address					
City		State		Zip	
Country					
Telephone		Email			

I am the Applicant (if the Applicant is a juristic entity, list the Applicant name in the box):

VB Assets, LLC

☐ Inventor or Joint Inventor (title not required below)

☐ Legal Representative of a Deceased or Legally Incapacitated Inventor (title not required below)

☑ Assignee or Person to Whom the Inventor is Under an Obligation to Assign (provide signer's title if applicant is a juristic entity)

☐ Person Who Otherwise Shows Sufficient Proprietary Interest (e.g., a petition under 37 CFR 1.46(b)(2) was granted in the application or is concurrently being filed with this document) (provide signer's title if applicant is a juristic entity)

SIGNATURE of Applicant for Patent

The undersigned (whose title is supplied below) is authorized to act on behalf of the applicant (e.g., where the applicant is a juristic entity).

Signature	/Michael Ryle Kennewick/	Date (Optional)	Aug 15, 2018
Name	Michael Ryle Kennewick		
Title	Chief Executive Officer of VB Assets, LLC		

NOTE: Signature - This form must be signed by the applicant in accordance with 37 CFR 1.33. See 37 CFR 1.4 for signature requirements and certifications. If more than one applicant, use multiple forms.

☐ Total of forms are submitted.

This collection of information is required by 37 CFR 1.131, 1.32, and 1.33. 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 3 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

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STATEMENT UNDER 37 CFR 3.73(c)

Applicant/Patent Owner: VB Assets, LLC

Application No./Patent No.: 14/691,445 Filed/Issue Date: April 20, 2015

Titled: SYSTEM AND METHOD FOR A COOPERATIVE CONVERSATIONAL VOICE USER INTERFACE

VB Assets, 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: Larry BALDWIN et al. To: VoiceBox Technologies, Inc.

      The document was recorded in the United States Patent and Trademark Office at

      Reel 035454, Frame 0971, or for which a copy thereof is attached.

   2. From: VoiceBox Technologies, Inc. To: VoiceBox Technologies Corporation

      The document was recorded in the United States Patent and Trademark Office at

      Reel 035455, Frame 0047, or for which a copy thereof is attached.

This collection of information is required by 37 CFR 3.73(b). The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

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STATEMENT UNDER 37 CFR 3.73(c)

3. From: VoiceBox Technologies Corporation To: VB Assets, LLC

The document was recorded in the United States Patent and Trademark Office at
Reel 046456, Frame 0128, or for which a copy thereof is attached.

4. From: _____ To: _____

The document was recorded in the United States Patent and Trademark Office at
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5. 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.

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.

/Hean L. Koo/	August 23, 2018
Signature	Date
Hean L. Koo	61,214
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.
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.

INFORMATION DISCLOSURE STATEMENT BY APPLICANT		
	Application Number	14/691,445
	Filing Date	4/20/2015
	First Named Inventor	Larry BALDWIN
	Art Unit	2658
Page 1 of 1	**Matter Number**	62KC-218492

GENERAL
Pursuant to 37 C.F.R. 1.97 and 1.98 and to the duty of disclosure set forth in 37 C.F.R. 1.56, the Examiner in charge of the above-identified application is requested to consider and make of record the references listed herewith. A copy of each listed reference, other than U.S. patents/applications and references cited in a parent application, is enclosed. Although the information submitted herewith may be "material" to the Examiner's consideration of the subject application, this submission is not intended to constitute an admission that such information is "prior art" as to the claimed invention. In accordance with 37 C.F.R. 1.97(g), the filing of this Information Disclosure Statement shall not be construed to mean that a search has been made.

TIMING
In accordance with 37 CFR 1.97(c), this Information Disclosure Statement is being filed after the period specified in 37 CFR 1.97(b) and before the mailing date of a Final Action under 37 CFR 1.113, a Notice of Allowance under 37 CFR 1.311, or an Action that otherwise closes prosecution in the application.

CERTIFICATION STATEMENT
No certification statement is required. This Information Disclosure Statement is being filed in accordance with 37 CFR 1.97(c) and is accompanied by the fee set forth in 37 CFR 1.17(p).

FEE
This Information Disclosure Statement is being filed in accordance with 37 CFR 1.97(c), and is not accompanied by one of the certification statements of 37 CFR 1.97(e). Therefore, this Information Disclosure Statement is subject to the $120 (small entity) fee set forth in 37 CFR 1.17(p). This fee is provided herewith.

ADDITIONAL COMMENTS
U.S. Patent Application Publications Cite No. 6 and Foreign Patent Documents Cite No. 1 were cited in a search report by a foreign patent office in a counterpart foreign application. Submission of an English language version of the search report that indicates the degree of relevance found by the foreign office is provided.

SIGNATURE			
Signature	/ Hean L. Koo /	Date	2018-08-23
Name	Hean L. Koo	Registration Number	61214

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PTO/SB/08a (02-18)
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INFORMATION DISCLOSURE STATEMENT BY APPLICANT
(Not for submission under 37 CFR 1.99)

Application Number	14691445
Filing Date	2015-04-20
First Named Inventor	Larry BALDWIN
Art Unit	2658
Examiner Name	Eric L. Yen
Attorney Docket Number	62KC-218492

U.S.PATENTS Remove

Examiner Initial*	Cite No	Patent Number	Kind Code[1]	Issue Date	Name of Patentee or Applicant of cited Document	Pages,Columns,Lines where Relevant Passages or Relevant Figures Appear
	1	7031908		2006-04-18	HUANG XUEDONG D	
	2	7380250		2008-05-27	SCHECHTER GREG D	
	3	7512906		2009-03-31	BAIER JOHN JOSEPH	

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	1	20040102977		2004-05-27	METZLER BENJAMIN T	
	2	20070060114		2007-03-15	RAMER JOREY	
	3	20070067310		2007-03-22	GUPTA PUNEET	

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	14691445
	Filing Date	2015-04-20
	First Named Inventor	Larry BALDWIN
	Art Unit	2658
	Examiner Name	Eric L. Yen
	Attorney Docket Number	62KC-218492

	4	20070106499		2007-05-10	DAHLGREN KATHLEEN		
	5	20080126284		2008-05-29	FORBES SCOTT C		
	6	20080189187		2008-08-07	HAO BIAO		
	7	20100191856		2010-07-29	GUPTA APURV		
	8	20100312547		2010-12-09	VAN OS MARCEL		
	9	20140337007		2014-11-13	WAIBEL NAOMI AOKI		

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Examiner Initial*	Cite No	Foreign Document Number[3]	Country Code[2] i	Kind Code[4]	Publication Date	Name of Patentee or Applicant of cited Document	Pages,Columns,Lines where Relevant Passages or Relevant Figures Appear	T[5]
	1	0129742	WO		2001-04-26	TELLME NETWORKS INC		

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NON-PATENT LITERATURE DOCUMENTS Remove

Examiner Initials*	Cite No	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc), date, pages(s), volume-issue number(s), publisher, city and/or country where published.	T[5]

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	14691445
	Filing Date	2015-04-20
	First Named Inventor	Larry BALDWIN
	Art Unit	2658
	Examiner Name	Eric L. Yen
	Attorney Docket Number	62KC-218492

	1		

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EXAMINER SIGNATURE

Examiner Signature		Date Considered	

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

[1] See Kind Codes of USPTO Patent Documents at www.USPTO.GOV or MPEP 901.04. [2] Enter office that issued the document, by the two-letter code (WIPO Standard ST.3). [3] For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. [4] Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible. [5] Applicant is to place a check mark here if English language translation is attached.

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	14691445
	Filing Date	2015-04-20
	First Named Inventor	Larry BALDWIN
	Art Unit	2658
	Examiner Name	Eric L. Yen
	Attorney Docket Number	62KC-218492

CERTIFICATION STATEMENT

Please see 37 CFR 1.97 and 1.98 to make the appropriate selection(s):

That each item of information contained in the information disclosure statement was first cited in any communication from a foreign patent office in a counterpart foreign application not more than three months prior to the filing of the information disclosure statement. See 37 CFR 1.97(e)(1).

OR

☐ That no item of information contained in the information disclosure statement was cited in a communication from a foreign patent office in a counterpart foreign application, and, to the knowledge of the person signing the certification after making reasonable inquiry, no item of information contained in the information disclosure statement was known to any individual designated in 37 CFR 1.56(c) more than three months prior to the filing of the information disclosure statement. See 37 CFR 1.97(e)(2).

See attached certification statement.

☒ The fee set forth in 37 CFR 1.17 (p) has been submitted herewith.

☒ A certification statement is not submitted herewith.

SIGNATURE

A signature of the applicant or representative is required in accordance with CFR 1.33, 10.18. Please see CFR 1.4(d) for the form of the signature.

Signature	/Hean L. Koo/	Date (YYYY-MM-DD)	2018-08-23
Name/Print	Hean L. Koo	Registration Number	61214

This collection of information is required by 37 CFR 1.97 and 1.98. 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 1 hour 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.**

Privacy Act Statement

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The information provided by you in this form will be subject to the following routine uses:

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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.

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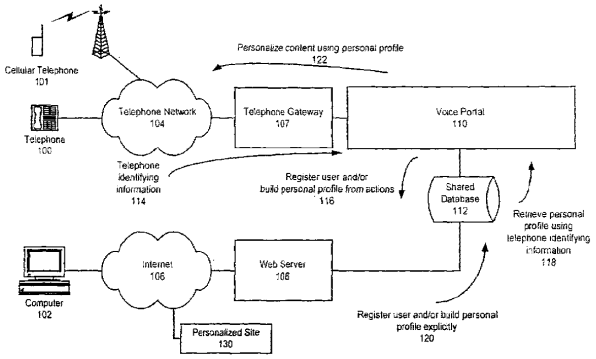
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(54) Title: METHOD AND APPARATUS FOR ELECTRONIC COMMERCE USING A TELEPHONE INTERFACE



(57) Abstract: A voice portal supporting telephone to web server commerce is described. The voice portal allows users to access web servers using a hypertext transfer protocol (HTTP), optionally including the use of a secure sockets layer (SSL) protocol, to complete commercial transactions. Additionally, embodiments of the invention can employ a one word commerce model that abstracts the particular model used by various electronic commerce vendors' web sites. The one word commerce model permits a user to identify a product and signal her/his purchase intentions with a single word, phrase, or touch-tone command. The voice portal can then complete the transaction supplying the electronic commerce vendor necessary information about the purchaser, e.g. her/his address, telephone number, electronic mail address, credit card information, etc. As needed, the voice portal can prompt the purchaser for information. Because the voice portal can maintain a record of this information independent from a particular vendor, the collected information can automatically be re-used when making purchases from other vendors. Further, embodiments of the invention can provide a record of commerce transactions in the form of voice receipts. The voice receipts can include vendor specific status information. Selective password protection of the commerce features are afforded by some embodiments of the invention to reduce the likelihood of unauthorized transactions. Additionally, embodiments of the invention may employ a range of personalization techniques to assist purchasers in selecting items as well as in the presentation of suggested items.

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METHOD AND APPARATUS FOR ELECTRONIC COMMERCE USING A TELEPHONE INTERFACE

BACKGROUND OF THE INVENTION

Field of the Invention

This disclosure relates to the field of electronic commerce. In particular, the invention relates to technologies for providing electronic commerce to users over a telephone interface. The disclosure also relates to identifying and registering users using telephone identifying information and personalizing the content, including the electronic commerce, presented to them using a profile selected using the telephone identifying information.

Description of the Related Art

The following describes various techniques used in telephone systems to provide enhanced user features. First, telephone identifying information will be discussed. Many telephone systems that support enhanced user features use telephone identifying information as a basic component. Then, a variety of example systems will be discussed that use telephone identifying information to provide enhanced user features will be discussed.

Amazon/VB Assets
Exhibit 1003
Page 193

1. Telephone Identifying Information

The advent of automatic number identification (ANI) and calling number identification (CNID, CLID, or CID) within the North American Numbering Plan (NANP) has supported the creation of a number of services that use these pieces of telephone identifying information. Comparable systems may be used in other numbering plans and countries to support similar services.

For example, when consumers receive credit cards in the mail, they have to call from their home telephone numbers to activate the cards. This is a typical use of ANI. In this instance, the credit card company matches the ANI information provided when the consumer calls to a previously provided telephone number. If the ANI matches the credit card company's records, the credit card company activates the card.

2. Examples of Telephone System Personalization

a. Personalization Generally

With the advent of widely available real-time delivery of telephone identifying information such as ANI, a number of systems have been developed to use that information. One of the most common uses of ANI is for credit card activation. However, previous systems have been single purpose and typically require reference to other information provided separately. For example, credit card activation lines require separately provided information, e.g. your home phone number from the application.

b. Building Personalized Content on the Web

Some systems allow a user to build personalized content over the web. One example is the myYahoo!™ service provided by Yahoo! of Santa Clara, California at <http://my.yahoo.com/>. The personalized content pages developed on the web are delivered over the web to users accessing the pages with computers. These systems rely on

Amazon/VB Assets
Exhibit 1003
Page 194

a username and password type system to identify the user rather than telephone identifying information and the delivery mechanisms is different.

c. Interactive Personalization

Still other systems allow users to personalize the content without entering special editing modes. For example, Amazon.com, of Seattle, Washington, keeps track of your purchases and preferences using cookies stored on a customer's web browser.

Some telephone systems provide limited customization capabilities. For example, voice mail systems from Octel, a division of Lucent Technologies, allow a user to set preferences for prompt length, but those settings must be made explicitly by each user. Further, customization is limited to a few options like prompt length and outgoing message selection. The user can not redefine the way the voice mail system works for her/him beyond those narrow customization options. Further, these customizations do not affect the kinds of content and further the presentation is not selected based on telephone identifying information.

d. Locale Selection

Services such as Amtrak's 1-800-USA-RAIL reservation line use telephone identifying information to select an initial region. For example, if you call Amtrak's reservation number in the Northeastern United States, the system presents options relating to the Boston-Washington line. However, if you call from California, the system presents information about travel between San Francisco and Los Angeles.

This can be accomplished by using the calling party's area code and/or exchange included with the telephone identifying information to select a region. The area codes and/or exchanges can then be paired to different scripts or default selections. For example, the area codes for New York City, e.g. "212", could be mapped to the Northeast Corridor

Amazon/VB Assets
Exhibit 1003
Page 195

while San Francisco, "415", could be mapped to the San Francisco-Los Angeles line. However this does not change the kind of content presented and it is not user-selected.

e. Time Appropriate Information Presentation

Several services provide information through the telephone. That information may be adapted based on the time of day or date.

Some systems provide the information irrespective of the telephone identifying information. One example is Moviefone™, 777-FILM in most locales. Moviefone™ uses the current time at the called number to present appropriate information. The called number can be obtained using the dialed number identification service (DNIS). Thus, if you call Moviefone™ in the San Francisco Bay Area at 10 o'clock in the morning, only movies starting after 10 o'clock in the morning in the San Francisco Bay Area will be presented to you. However, if you call the Philadelphia Moviefone™, +1 (215) 222-FILM, from California, you will hear the Philadelphia movie times in Eastern Time. Thus, at 10 o'clock in the morning Pacific Time, a call to the Philadelphia Moviefone™ will produce information for Philadelphia show times after one o'clock in the afternoon Eastern Time at Philadelphia area theatres.

f. Targeted Advertising

Some free long distance services provide customized advertising to support their services. One example is FreeWay™ offered by Broadpoint, of Landover, Maryland. <http://www.broadpoint.com/>. These services require an explicit user registration process, typically using a computer to access a web site, to provide the service with a profile. Once the profile is provided, the advertising is targeted to the particular person's explicitly provided demographic information. In some instances, the advertising may be targeted both based on the caller's demographics and their location. Thus, callers from the

Amazon/VB Assets
Exhibit 1003
Page 196

San Francisco Bay Area with a particular explicit demographic profile may be presented one ad, while callers from outside the San Francisco Bay Area may be presented with another ad. Another, similar, service is offered on by phone by UAccess, Inc., <http://www.uaccess.com/>, by calling +1 (800) UACCESS, and provides consumers targeted advertising based on profile information they enter.

g. Voice Character

Most telephone systems have a small number of voice actors. Continuing with the example of Moviefone™, one actor performs all of the menus and prompts. Other systems may use different voice actors for different subsystems.

These actors are typically selected on a system wide basis and as such, different voices, talents, speeds, characteristics, dialects, and other prosody aspects of the presentation are not user selectable.

h. Purchase Recommendations

Voice systems such as GALAXY from the Massachusetts Institute of Technology (MIT), Cambridge, Massachusetts, have been adapted to provide information about purchasing decisions for used cars. For example, GALAXY has been used to allow for interactive browsing of automobile classified ads. These voice systems are problem domain specific. Further, the systems are designed to locate vehicles matching a particular set of criterion, rather than making actual recommendations.

Other systems are web based. For example, Amazon.com will make book suggestions for users connected to the web via a computer. However, those suggestions are limited to a particular site, e.g. Amazon.com.

Amazon/VB Assets
Exhibit 1003
Page 197

i. Voice Login

Most telephone systems require a user to explicitly identify herself/himself by using a combination of a login identifier, e.g. credit card number, account number, etc., and a personal identification number (PIN). Some systems abbreviate this process by allowing a user calling from a particular phone to shortcut this process slightly. For example, callers using a phone number associated with a particular credit card might only be asked to enter the last four digits of their credit card number together with their billing zip code instead of all sixteen digits of the card number. Other products such as Nuance Verifier™ from Nuance Communications, Menlo Park, California, support voice login capabilities, e.g. you just speak instead of entering a password.

j. Initial Profile Generation from Database Lookups

Most systems that provide information over the telephone require users to explicitly answer one or more questions in one form or another, e.g. over the phone, the web, and/or in written form. These questions form a demographic and/or psychographic profile for the user. All of these systems require the user to explicitly provide her/his profile information.

3. Telephone Commerce Systems

Prior techniques for telephone commerce have required users to explicitly identify themselves and provide credit card, or other billing information, for each transaction. For example, Moviefone™ allows consumers to purchase tickets for movies via a telephone interface. To purchase the tickets, the user must explicitly key her/his credit card information into the Moviefone™ system. For verification purposes, Moviefone™ requires the presence of the credit card when the tickets are picked up at the theatre.

Amazon/VB Assets
Exhibit 1003
Page 198

Other automated systems operate similarly. Some systems record a user speaking her/his address either on tape, or in a computer memory, to allow for entry of the user's address information. These systems require offline processing by humans to key the voice entered data for order completion. Examples of these types of systems may include telephone operator base commerce, e.g. mail-order catalogs, and telephone based stock trading.

SUMMARY

A voice portal supporting telephone to web server commerce is described. The voice portal allows users to access web servers using a hypertext transfer protocol (HTTP), optionally including the use of a secure sockets layer (SSL) protocol, to complete commercial transactions. This allows the voice portal to complete transactions at non-voice enabled electronic commerce sites through a data connectivity engine supporting access to standard electronic commerce web sites.

Some embodiments of the invention employ a one word commerce model. This model abstracts the particular commerce model used by electronic commerce vendors, e.g. web site A uses a shopping cart model, web site B uses a one-click buy model, web site C uses a third purchase model. The one word commerce model permits a purchaser to identify a product and then signal her/his purchase intentions with a single word, phrase, or touch-tone command. Thus, the particular vendor's commerce – and fulfillment – model is irrelevant.

The voice portal can then complete the transaction by supplying the electronic commerce vendor all necessary information about the purchaser to complete the transaction. For example, the voice portal can provide the purchaser's address, telephone number, electronic mail address, credit card information, etc.

Amazon/VB Assets
Exhibit 1003
Page 199

As needed, the voice portal can prompt the purchaser for information. For example, the first time a purchaser uses the voice portal, her/his shipping address may not be known to the voice portal. The voice portal can maintain a record of this information apart from a particular vendor. Thus, information need not be repeatedly collected and can be automatically re-used for future purchases at different vendors.

Further, embodiments of the invention can provide a record of commerce transactions in the form of voice receipts. The voice receipts can include a vendor specific tracking and status information. For example, the voice receipt may include tracking information such as the shipping status from the web site of an electronic commerce vendor as well as details of the purchase. Similarly, the voice receipt for a stock trade request could include the time of execution. the execution price, and/or other merchant specific information. The voice receipts can be reviewed over the telephone interface and/or from a web site coupled to the voice portal.

Selective password protection of the commerce features are afforded by some embodiments of the invention to reduce the likelihood of unauthorized transactions. For example, some embodiments require the user to provide a password, or other identification number, to the voice portal for the first commerce transaction of each telephone session.

Additionally, embodiments of the invention may employ a range of personalization techniques to assist purchasers in selecting items as well as in the presentation of suggested items. For example, the voice portal may supply customized commerce suggestions based on the time of day, the time of the year, special events in the user's locale, etc.

Amazon/VB Assets
Exhibit 1003
Page 200

BRIEF DESCRIPTION OF THE FIGURES

Fig. 1 illustrates a system including embodiments of the invention used to provide personalized content to users of telephones according to telephone identifying information.

Fig. 2 illustrates the components of a voice portal supporting personalized content.

Fig. 3 is a process flow diagram supporting personalization and registration of and for users accessing a voice portal over a telephone interface.

Fig. 4 is a process flow diagram for personalizing a voice portal over a web based interface.

Fig. 5 is a process flow diagram for providing personalized content according to some embodiments of the invention.

Fig. 6 is a process flow diagram for conducting electronic commerce over a telephone interface according to some embodiments of the invention.

Amazon/VB Assets
Exhibit 1003
Page 201

DETAILED DESCRIPTION

A. Introduction

A voice portal supporting electronic commerce over a telephone interface is described. The voice portal allows users of telephones, including cellular telephones, to access a voice portal by dialing a phone number to purchase goods and services. The information provided over the voice portal may come from the World Wide Web (WWW), databases, third parties, and/or other sources.

The term voice portal refers to the capability of various embodiments of the invention to provide commerce capabilities over a telephone interface to a caller. The voice portal can receive dual-tone multi-frequency (DTMF or touch-tone) commands as well as spoken commands to further control the content presented and direct commerce transactions as well as the manner of presentation. The term audio request, or input, is used to refer to either a voice or touch-tone input, or a combination of the two types of input.

Embodiments of the invention use telephone identifying information to personalize caller interactions with the voice portal. This allows the system to present highly customized information to each caller based on a personal profile the system associates with the telephone identifying information.

The invention will be described in greater detail as follows. First, a number of definitions useful to understanding the invention are presented. Then, the hardware and software architecture is presented in the System Overview. Then, a series of sections describe the various personalization features provided by different embodiments of the invention. Then, a section describes the electronic commerce capabilities of the system.

Amazon/VB Assets
Exhibit 1003
Page 202

B. Definitions

1. Telephone Identifying Information

For the purposes of this application, the term telephone identifying information will be used to refer to ANI information, CID information, and/or some other technique for automatically identifying the source of a call and/or other call setup information. For example, telephone identifying information may include a dialed number identification service (DNIS). Similarly, CID information may include text data including the subscriber's name and/or address, e.g. "Jane Doe". Other examples of telephone identifying information might include the type of calling phone, e.g. cellular, pay phone, and/or hospital phone.

Additionally, the telephone identifying information may include wireless carrier specific identifying information, e.g. location of wireless phone now, etc. Also, signaling system seven (SS7) information may be included in the telephone identifying information.

2. User Profile

A user profile is a collection of information about a particular user. The user profile typically includes collections of different information as shown and described more fully in connection with Figure 6. Notably, the user profile contains a combination of explicitly made selections and implicitly made selections.

Explicitly made selections in the user profile stem from requests by the user to the system. For example, the user might add business news to the main topic list. Typically, explicit selections come in the form of a voice, or touch-tone command, to save a particular location, e.g. "Remember this", "Bookmark it", "shortcut this", pound (#) key touch-tone, etc., or through adjustments to the user profile made through the web interface using a computer.

Amazon/VB Assets
Exhibit 1003
Page 203

In contrast, implicit selections come about through the conduct and behavior of the user. For example, if the user repeatedly asks for the weather in Palo Alto, California, the system may automatically provide the Palo Alto weather report without further prompting. In other embodiments, the user may be prompted to confirm the system's implicit choice, e.g. the system might prompt the user "Would you like me to include Palo Alto in the standard weather report from now on?"

Additionally, the system may allow the user to customize the system to meet her/his needs better. For example, the user may be allowed to control the verbosity of prompts, the dialect used, and/or other settings for the system. These customizations can be made either explicitly or implicitly. For example if the user is providing commands before most prompts are finished, the system could recognize that a less verbose set of prompts is needed and implicitly set the user's prompting preference to briefer prompts.

3. Topics and Content

A topic is any collection of similar content. Topics may be arranged hierarchically as well. For example, a topic might be business news, while subtopics might include stock quotes, market report, and analyst reports. Within a topic different types of content are available. For example, in the stock quotes subtopic, the content might include stock quotes. The distinction between topics and the content within the topics is primarily one of degree in that each topic, or subtopic, will usually contain several pieces of content.

4. Qualified

The term qualified as it is used in this application refers to whether or not a particular user being presented an advertisement, or other material, meets the demographic and/or psychographic profile requirements for that advertisement, or content. For example, a San Francisco-based bookstore might request that all listeners to its advertisement be

Amazon/VB Assets
Exhibit 1003
Page 204

located in a particular part of the San Francisco Bay Area. Thus, a user of the system would be qualified if she lived in the designated part of the San Francisco Bay Area.

Different embodiments of the invention may qualify users of the system according to different requirements. For example, in some instances advertising, or content, is qualified solely based on telephone identifying information. In other embodiments the telephone identifying information is used in conjunction with other information such as an associated user profile, a reverse telephone number lookup for locale demographics, and/or other information.

5. Locale

As used in this application, the term locale refers to any geographic area. The geographic area may be a neighborhood, a city, a county, a metropolitan region, a state, a country, a continent, a group of countries, and/or some other collection of one or more geographic areas, e.g. all United State major metropolitan areas.

For this reason, a single user of the system may be considered to be in several locales. For example, a caller from Palo Alto, California, might be in the Palo Alto locale, a Silicon Valley locale, a San Francisco Bay Area locale, a Northern California locale, a California state locale, and a United States locale.

Thus, the telephone identifying information for a single telephone number can be mapped to a number of system-defined locales.

6. Voice Character

The term voice character as it is used in this application refers to all aspects of speech pronunciation including dialect, speed, volume, gender of speaker, pitch, language, voice talent used, actor, characteristics of speech, and/or other prosody values. Users can adjust the voice character of the system by changing their voice character settings.

Amazon/VB Assets
Exhibit 1003
Page 205

For example, an elderly user could select voice character settings that provide louder volume and slower speech. Similarly, a caller from the South could adjust the voice character settings to support a Southern dialect.

7. Demographic and Psychographic Profiles

Both demographic profiles and psychographic profiles contain information relating to a user. Demographic profiles typically include factual information, e.g. age, gender, marital status, income, etc. Psychographic profiles typically include information about behaviors, e.g. fun loving, analytical, compassionate, fast reader, slow reader, etc. As used in this application, the term demographic profile will be used to refer to both demographic and psychographic profiles.

C. System Overview

First, the hardware and software architecture of a system including an embodiment of the invention will be described with reference to Figures 1-2. Figure 1 illustrates a system including embodiments of the invention used to provide personalized content to users of telephones according to telephone identifying information. The system of Figure 1 can be used to allow users of standard telephones and cellular telephones to access a voice portal with personalized content from their telephones.

The following lists the elements of Figure 1 and describes their interconnections. Figure 1 includes a telephone 100, a cellular telephone 101, a computer 102, a telephone network 104, an Internet 106, a telephone gateway 107, a web server 108, a voice portal 110, a shared database 112 and a personalized site 130. The cellular telephone 101 and the telephone 100 are coupled in communication with the telephone network 104. The telephone network 104 is coupled in communication with the telephone gateway 107. The telephone gateway 107 is coupled in communication with the voice portal 110. The

Amazon/VB Assets
Exhibit 1003
Page 206

computer 102 is coupled in communication with the Internet 106. The Internet 106 is coupled in communication with the web server 108. The voice portal 110 and the web server 108 are coupled in communication with the shared database 112. The personalized site 130 is coupled in communication with the Internet 106.

The following describes each of the elements of Figure 1 in greater detail. The use of each of the elements will be described further in conjunction with the sections describing the personalization features.

The telephone 100 and the cellular telephone 101 are two different telephone interfaces to the voice portal 110. The telephone 100 and the cellular telephone 101 may be any sort of telephone and/or cellular telephone. For example the telephone 100 or the cellular telephone 101 may be a land line phone, a PBX telephone, a satellite phone, a wireless telephone, and/or any other type of communication device capable of providing voice communication and/or touch-tone signals over the telephone network 104. However, any audio signal carrying interface could be used.

The telephone network 104 may be the public switched telephone network (PSTN) and/or some other type of telephone network. For example, some embodiments of the invention may allow users with a voice over Internet Protocol (IP) phone to access the voice portal 110. The telephone network 104 is coupled to the telephone gateway 107 that allows the voice communications and/or touch-tone signals from the telephone network 104 to reach the voice portal 110 in usable form. Similarly, the telephone gateway 107 allows audio signals generated by the voice portal 110 to be sent over the telephone network 104 to respective telephones, e.g. the telephone 100. The telephone network 104 generally represents an audio signal carrying network.

The computer 102 is a computer such as a personal computer, a thin client computer, a server computer, a handheld computer, a set top box computer, and/or some

Amazon/VB Assets
Exhibit 1003
Page 207

other type of visual web browsing device. The computer 102 is coupled in communication with the Internet 106, e.g. by a dial-up connection, a digital subscriber loop (DSL), a cable modem, and/or some other type of connection. This allows the computer 102 to communicate with the web server 108. The computer 102 typically provides a visual interface to the WWW and the web server 108 using web browsing software such as Internet Explorer™ from Microsoft Corporation, Redmond, Washington.

Both the web server 108 and the voice portal 110 are capable of communicating with the shared database 112 to register users, build personal profiles implicitly and/or explicitly as will be described more fully below. The database 112 stores profiles for each user based on an association between one or more pieces of telephone identifying information and a particular user. Thus, the database may have a profile for a user Sarah Smith that is keyed to her home telephone number, e.g. 650-493-####. Additionally, Sarah could associate other numbers, e.g. work, cellular, etc., with her profile either implicitly, e.g. by repeatedly calling the voice portal 110 from those numbers, or explicitly, e.g. by adding those numbers to the system directly.

In some embodiments, an existing profile for a web-based portal is adapted for use by the voice portal 110 by associating one or more telephone numbers with the existing profile as stored in the shared database 112. In these embodiments, the existing profile may be further modified for use with the voice portal 110 to allow for different preferences between the web and the voice interfaces.

The call flow arrows 114-122 shown on Figure 1 will be described in greater detail below.

Figure 2 illustrates the components of a voice portal supporting personalized content. This could be used to support the voice portal 110 and provide personal content as described above.

Amazon/VB Assets
Exhibit 1003
Page 208

The following lists the elements of Figure 2 and describes their interconnections. The voice portal 110 is coupled in communication with the telephone gateway 107. The voice portal 110 includes a call manager 200, an execution engine 202, a data connectivity engine 220, an evaluation engine 222 and a streaming engine 224. Additionally Figure 2 includes elements that may be included in the voice portal 110, or which may be separate from, but coupled to, the voice portal 110. Thus Figure 2 also includes a recognition server 210, a text to speech server 214, an audio repository 212, the shared database 112, a database 226, the Internet 106, a database 228 and a web site 230. The call manager 200 within the voice portal 110 is coupled to the execution engine 202. The execution engine 202 is coupled to the recognition server 210, the text to speech server 214, the audio repository 212, data connectivity engine 220, the evaluation engine 222 and the streaming engine 224. The data connectivity engine 220 is coupled in communication with the shared database 112, the database 226 and the Internet 106. The Internet 106 is coupled in communication with database 228 and the web site 230.

The following describes each of the elements of Figure 2 in greater detail. The use of each of the elements will be described further in conjunction with the sections describing the personalization features.

Typically, the voice portal 110 is implemented using one or more computers. The computers may be server computers such as UNIX workstations, personal computers and/or some other type of computers. Each of the components of the voice portal 110 may be implemented on a single computer, multiple computers and/or in a distributed fashion. Thus, each of the components of the voice portal 110 is a functional unit that may be divided over multiple computers and/or multiple processors. The voice portal 110 represents an example of a telephone interface subsystem. Different components may be included in a telephone interface subsystem. For example, a telephone interface subsystem

Amazon/VB Assets
Exhibit 1003
Page 209

may include one or more of the following components: the call manager 200, the execution engine, the data connectivity 220. the evaluation engine 222, the streaming subsystem 224, the audio repository 212, the text to speech 214 and/or the recognition engine 210.

The call manager 200 is responsible for scheduling call and process flow among the various components of the voice portal 110. The call manager 200 sequences access to the execution engine 202. Similarly, the execution engine 202 handles access to the recognition server 210, the text to speech server 214, the audio repository 212, the data connectivity engine 220, the evaluation engine 222 and the streaming engine 224.

The recognition server 210 supports voice, or speech, recognition. The recognition server 210 may use Nuance 6™ recognition software from Nuance Communications, Menlo Park, California, and/or some other speech recognition product. The execution engine 202 provides necessary grammars to the recognition server 210 to assist in the recognition process. The results from the recognition server 210 can then be used by the execution engine 202 to further direct the call session. Additionally, the recognition server 110 may support voice login using products such as Nuance Verifier™ and/or other voice login and verification products.

The text to speech server 214 supports the conversion of text to synthesized speech for transmission over the telephone gateway 107. For example, the execution engine 202 could request that the phrase, "The temperature in Palo Alto, California, is currently 58 degrees and rising" be spoken to a caller. That phrase would be translated to speech by the text to speech server 214 for playback over the telephone network on the telephone (e.g. the telephone 100). Additionally the text to speech server 214 may respond using a selected dialect and/or other voice character settings appropriate for the caller.

Amazon/VB Assets
Exhibit 1003
Page 210

The audio repository 212 may include recorded sounds and/or voices. In some embodiments the audio repository 212 is coupled to one of the databases (e.g. the database 226, the database 228 and/or the shared database 112) for storage of audio files. Typically, the audio repository server 212 responds to requests from the execution engine 202 to play a specific sound or recording.

For example, the audio repository 212 may contain a standard voice greeting for callers to the voice portal 110, in which case the execution engine 202 could request play-back of that particular sound file. The selected sound file would then be delivered by the audio repository 212 through the call manager 200 and across the telephone gateway 107 to the caller on the telephone, e.g. the telephone 100. Additionally, the telephone gateway 107 may include digital signal processors (DSPs) that support the generation of sounds and/or audio mixing.

The execution engine 202 supports the execution of multiple threads with each thread operating one or more applications for a particular call to the voice portal 110. Thus, for example, if the user has called in to the voice portal 110, a thread may be started to provide her/him a voice interface to the system and for accessing other options.

In some embodiments of the invention an extensible markup language (XML)-style language is used to program applications. Each application is then written in the XML-style language and executed in a thread on the execution engine 202. In some embodiments, an XML-style language such as VoiceXML from the VoiceXML Forum, <http://www.voicexml.org/>, is extended for use by the execution engine 202 in the voice portal 110.

Additionally, the execution engine 202 may access the data connectivity engine 220 for access to databases and web sites (e.g. the shared database 112, the web site 230), the evaluation engine 222 for computing tasks and the streaming engine 224 for

Amazon/VB Assets
Exhibit 1003
Page 211

presentation of streaming media and audio. The streaming engine 224 may allow users of the voice portal 110 to access streaming audio content, or the audio portion of streaming video content, over the telephone interface. For example, a streaming media broadcast from ZDNet™ could be accessed by the streaming engine 224 for playback through the voice portal.

The data connectivity engine 220 supports access to a variety of databases including databases accessed across the Internet 106, e.g. the database 228, and also access to web sites over the Internet such as the web site 230. In some embodiments the data connectivity engine can access standard query language (SQL) databases, open database connectivity databases (ODBC), and/or other types of databases. The shared database 112 is represented separately from the other databases in Figure 2; however, the shared database 112 may in fact be part of one of the other databases, e.g. the database 226. Thus, the shared database 112 is distinguished from other databases accessed by the voice portal 110 in that it contains user profile information.

Having described the hardware and software architecture supporting various embodiments of the invention, the various personalization features provided by different embodiments of the invention will now be described.

D. Telephone Driven Profile Building

Turning to Figure 3, the process of creating a profile using a telephone interface will be described. This process will be described with reference to the call flow arrows shown on Figure 1 as well.

The voice portal 110 is able to flexibly handle multiple callers from a single telephone, e.g. Tom and Dick are roommates and both call from 650-493-####. Similarly, the voice portal 110 is able to handle a single caller that uses multiple telephones, e.g.

Amazon/VB Assets
Exhibit 1003
Page 212

Tom has a cell phone 650-245-####, his home phone 650-493-####, and a work phone 408-301-####. The manner in which the voice portal 110 can handle some of the above situations will be discussed throughout. In the example used while describing Figure 3, the process will be described using a caller Jane Smith as an exemplary caller who has never registered with the voice portal 110 from any telephone and an exemplary caller John Doe who has previously called the voice portal 110 from his telephone 100.

First, at step 300, telephone identifying information is received. This is shown in Figure 1 by call flow arrow 114 representing the transfer of telephone identifying information through the telephone gateway 107 to the voice portal 110. This step occurs after a user has placed a call to the voice portal 110 with a telephone, e.g. the telephone 100.

Next, at step 302, a determination is made as to whether the telephone identifying information corresponds to a known profile, e.g. is the user registered? Some examples may be illustrative. If Jane Smith uses the cellular telephone 101 to call the voice portal 110 for the first time, her telephone identifying information will not be associated with any existing unique profile in the shared database 112. Therefore, at step 302, the determination would be made that she is not registered and the process would continue at step 304. In contrast, John Doe has previously called the voice portal from the telephone 100 and so his telephone identifying information will be associated with a profile in the shared database 112 and the process would continue at step 306.

If, the telephone identifying information is not associated with an existing profile in the shared database 112, a new profile is created at step 304. The new profile may be initialized using a variety of information derived from the telephone identifying information and/or predetermined values for the voice portal 110. Thus, for example, when Jane Smith calls for the first time from the cellular telephone 101, an initial profile

Amazon/VB Assets
Exhibit 1003
Page 213

can be created using the calling number, e.g. 650-493-####, included in the telephone identifying information to select initial profile settings. The call flow arrow 116 shows this process on Figure 1. The use of the telephone identifying information to create an initial profile is discussed below in the section "Automatic Profile Initialization".

In some embodiments, the profile is not initialized using the telephone identifying information. In other embodiments, the user may be explicitly queried by the voice portal 110 to create one or more components of the initial profile, e.g. "Please speak your first name", to allow for more personalized prompting by the voice portal 110. Once a profile is created, the process continues at step 306.

At step 306, the profile is retrieved from the shared database 112 as shown by the call flow arrow 118. The profile can be updated throughout the call based on the user's behavior and actions -- implicit preferences -- as well as explicit requests from the user to customize the voice portal 110. Once a profile is selected at step 306, the personalized content can be presented to the user as shown by the call flow arrow 122 in Figure 1.

For example, John Doe, who is calling from the telephone 100, already has a profile in the shared database 112. That profile may indicate that John prefers a southern dialect and likes to hear a quick stock market report immediately on call in. Thus, for John, his telephone identifying information serves to log him directly into the system and trigger the personalized behavior unique to him: a quick stock market report in a southern dialect. In contrast, a different caller, Sarah Brown, from a different telephone will be provided different personalized content based on that telephone identifying information.

The voice portal may support multiple callers from a single telephone. For example, Sarah Brown and John Doe may both use the telephone 100 to call the voice portal 110. In the case where two or more profiles are identified with the same telephone

Amazon/VB Assets
Exhibit 1003
Page 214

identifying information, the voice portal may prompt for a password or other unique identifier, either as voice or touch-tone, to select among the profiles.

However, as a general matter, the voice portal is configured to minimize the need for a caller to provide a password. Thus, during a single call session, the caller is typically only asked to provide her/his password a single time. However, some embodiments of the invention may require that a password always be used to complete commercial transactions and/or after the passage of a predetermined period, e.g. ten minutes since last password prompt. In some embodiments, the user may adjust her/his profile to allow login without a password for playback features.

Also, a single profile can be associated with multiple calling numbers. For example, the user Jane Doe could specify that both the telephone 100 and the cellular telephone 101 should be associated with her profile. Similarly, if Jane calls from a new telephone, e.g. pay phone, she can provide her existing telephone number and her password to access her profile. In some embodiments, whenever the user calls from a new telephone number, she/he is prompted as to whether to remember the number for future use. In some embodiments, additional telephone identifying information, e.g. this is a pay phone, is used so that the caller is not prompted to associated telephone numbers that are likely to be single time uses with her/his profile. Similarly, voice verification may be used to recognize a caller's voice instead of, or in addition to, using a password or other identification number.

Typical events that would require a password, or that the user be authenticated previously with a password, might include adding and removing items from the user profile through explicit commands as well as requests for specific personal information, e.g. that user's stock portfolio, bank account balances, etc.

Amazon/VB Assets
Exhibit 1003
Page 215

It is not necessary for callers to the voice portal 110 to explicitly specify their preferences using this embodiment of the invention. The callers' behaviors and actions are used by the voice portal 110 to adopt implicit preferences, sometimes after receiving confirmation. For example, behaviors and actions reflecting repeated access to a content in a particular topic, or a particular topic, may cause the voice portal 110 to automatically include the repeatedly requested content in the default message.

For example, if a caller from New York City repeatedly asks for the weather in San Francisco, the system can add the San Francisco weather to the standard weather report. Alternatively, the system may request confirmation before adding the weather report, e.g. "Would you like me to include San Francisco in the standard weather report?" Similarly, at the level of topics, users who repeatedly ask for information about business related issues may find that the system will adjust the main menu to include business. Similarly, if that same user never asks for sports scores, that option may drop off the main menu. In some embodiments, the system may ask for confirmation before modifying the menu choices, or the system may notify the user of a modification and/or allow a user to review/change past modifications. As a result, the structure and content of the call may change, e.g. San Francisco weather will be announced at the beginning of future calls and sports information may be omitted.

Through the use of this process, the need for a specialized editing mode of the type seen on customizable web portals is reduced. The user's actions and behaviors shape the options presented to her/him. Thus, reducing the need to explicitly pick topics and/or content in an editing mode. However, some embodiments of the invention may allow for explicit profile creation in an editing mode over the web, see below, and/or over the telephone. Also, users are typically permitted to add and remove topics and/or items at

Amazon/VB Assets
Exhibit 1003
Page 216

will with explicit commands, e.g. "Remember this", "Remove", "Add to my stock list", etc.

E. Web Driven Profile Building

Turning to Figure 4, the process of modifying a profile for use over a telephone interface over the web will be described. This process will be described with reference to the call flow arrows shown on Figure 1 as well.

The process shown in Figure 4 assumes that a profile has already been created, e.g. by calling for the first time as described above. However, in some embodiments of the invention, users may create profiles using the web interface by providing the telephone identifying information for their primary calling phone number and a password. As is the case with the telephone registration process described in step 304, the telephone identifying information provided, here the primary calling phone number, can be used to create the initial profile.

Starting at step 400, the profile is accessed using a computer (e.g. the computer 102) via a web interface. The web interface is provided by a web server (e.g. the web server 108) and allows for access to the shared database 112 as shown by the call flow arrow 120.

Once the user has signed in to access her/his profile on the computer, she/he can manually identify content and topics to build her/his profile at step 404. This can be supported by allowing the user to specify topics from a list of topics and then specifying per topic content from a list of content. For example, the topics might include business, sports, news, entertainment, and weather, to name a few. The user could include weather, news, and business in her/his main menu and then further customize the specific content to be presented within those topics. For example, within weather, the user might select the

Amazon/VB Assets
Exhibit 1003
Page 217

specific cities she/he wants listed in her/his weather menu and/or the cities for which the weather is automatically played.

Alternatively, at step 402, the user can identify a web location with personalized content to use in building her/his profile, e.g. a uniform resource indicator (URI). For example, Figure 1 includes the personalized site 130. The personalized site 130 could be a customized portal web page, e.g. myYahoo!, My Netscape, etc., a home page the user herself/himself has designed, and/or any other web page that includes content of interest to the user. The user can identify the personalized site with a uniform resource indicator (URI), including a login identifier and password if necessary, e.g. for myYahoo! The personalized site 130 can then be accessed and the pertinent user preferences, e.g. news, stocks, selected. Taking the example of a customized portal site, the main topics selected, e.g. horoscopes, and the content within, Sagittarius, could be adopted. However, the voice portal 110 may present its own content for that particular item, e.g. the version of the Sagittarius horoscope on the voice portal 110 not the version from the personalized site 130.

The processes of step 402 and step 404 can be used together allowing a user to quickly transfer preferences from a web portal to her/his voice portal while still supporting explicit personalization.

Alternatively, in some embodiments of the invention, an existing web portal profile is voice enabled for use by a voice portal through the association of telephone identifying information with the existing web portal. In this embodiment, at step 402, the telephone identifying information, e.g. the primary calling number, is associated with an existing web profile, e.g. myYahoo! profile, stored in the shared database 112 and that existing web profile is then usable from the voice portal 110 either using voice or touch-tone commands.

Amazon/VB Assets
Exhibit 1003
Page 218

Additionally, web sites like the personalized site 130 may be accessed using the voice portal 110 in some embodiments of the invention through the use of the data connectivity engine 220 as shown in Figure 2.

F. Profile Building Via Other Web Sites

Some embodiments of the invention may allow users of the voice portal 110 to add to their profile from other web sites. For example, if a user of the computer 102 is accessing a web site (e.g. the personalized site 130), the web site might include a link like "Add this to your voice portal." Thus, for example, from a service such as MapQuest™ or Ameritrade™, the user could click on a link to add a particular piece of content or a particular topic to their portal for the voice portal 110.

For example, a user could add her/his "QQQ" stock symbol to her/his profile on the voice portal 110 even though the voice portal 110 may be operated independently of the particular web site.

This type of web based profile building allows for widespread profile building for the voice portal 110 from a variety of Internet sites. Also, in some embodiments, the web browser software on the user's computer (e.g. the computer 102) can support an option to add a bookmark to the user's profile stored in the shared database 112 for the voice portal 110. For example, a menu option in the browser on the computer 102 might include "Add Page to Voice Portal Shortcuts" and upon selecting that menu option, the current web page would be added to the user's profile on the voice portal 110.

This would typically be accomplished by accessing a URI on the web server 108 that included the information to be added. At that point, the web server 108 might ask for a primary calling phone number and/or a password. In some embodiments, a cookie stored by the browser on the computer 102 may be used to obviate one or both of these steps.

Amazon/VB Assets
Exhibit 1003
Page 219

After the user provides the information, or it is accepted automatically, a confirmation page may be shown including a return link to the originating web page. Several example URI's for adding content are shown below:

```
<http://www.voiceportal.com/add.cgi?topic=stock%20quote&content=QQQ>
<http://www.voiceportal.com/add.cgi?shortcut=MapQuest&ref=www.mapquest.com/voice.vxml>
<http://www.voiceportal.com/add.cgi?shortcut=myYahoo&ref=my.yahoo.com/voice.vxml&login=jdoe>
```

These examples are illustrative of the various types of URI's that can be placed as links on web sites to allow users of the voice portal 110 to further customize their profile.

G. Locale Based Personalization

Turning to Figure 5, the basic personalization framework used by several embodiments of the invention is presented. At step 500, a request is made for content, or a topic. Then one or more of steps 502-510 take place, in parallel or sequence, and then the content is presented at step 512. Which of steps 502-510 occur for a given request may be determined based on the topic or content requested. For example, step 504 can be omitted when non-time dependent information is presented.

Turning to step 502, the customization of content based on the calling locale. The telephone identifying information includes information about the caller's locale independent of any user provided registration information. This information can be derived from telephone routing tables that provide a descriptive name for each area code/exchange combination within the North American Numbering Plan (NANP). Thus, the phone number 650-493-#### would be associated with "Palo Alto, California". Similarly, 650-592-#### would be associated with "San Carlos, California".

This information may be directly present in the telephone identifying information provided to the voice portal 110, or may be ascertained from a local exchange routing guide (LERG). For international callers outside the NANP, similar types of telephone

Amazon/VB Assets
Exhibit 1003
Page 220

identifying information can be mapped to locales within countries to the extent permitted by the particular numbering plan.

The city-state combination may correspond to multiple locales for the purposes of the voice portal 110. For example, a county-wide or multi-city locale can be defined that encompasses multiple area code/exchange combinations. Thus, a single caller may be in multiple locales.

Locale information can be further refined through the use of additional databases, e.g. city/state to zip code databases, street address to five digit zip code databases, reverse lookup databases that map phone numbers to street addresses, longitude-latitude conversion databases, and/or other databases that provide locale related information from telephone identifying information. Thus, for example, V and H coordinates might be determined using the telephone identifying information. Those can be further converted to a longitude and latitude to determine the locale. Alternatively, a reverse phone number database could be used to find a specific street address for the telephone identifying information.

Examples of the uses for the locale information include: providing locale-appropriate lottery results, providing driving directions to a requested destination, providing locale-appropriate weather reports, providing locale-appropriate show times for movies other events, e.g. cultural, governmental, etc., traffic reports, yellow page listings, and/or providing other locale-related information.

H. Time/Date Based Personalization

Turning to step 504, the customization of content based on the time and/or date will now be described. The telephone identifying information includes information about the caller's locale independent of any user provided registration information. This

Amazon/VB Assets
Exhibit 1003
Page 221

information can be derived from telephone routing tables that provide a descriptive name for each area code/exchange combination within the NANP. Thus, the phone number 650-493-#### would be associated with "Palo Alto, California" and thus the correct time zone, Pacific, could be selected as well.

This time zone may be directly present in the telephone identifying information provided to the voice portal 110, or may be ascertained from the LERG. For international callers outside the NANP, similar types of telephone identifying information can be mapped to locales within countries to the extent permitted by the particular numbering plan. Thus, callers from United Kingdom numbers would be mapped to British Standard Time.

The time zone information allows the voice portal 110 to customize the presentation of information based on the time in the caller's locale. Callers can use a single nationwide, or international, number to reach the voice portal 110, e.g. 800-###-####. The voice portal 110 will use the time zone information to adjust the content presented to each user.

Thus, during the lunch hour, the voice portal 110 might report a stock quote to the user while on a Friday evening, the voice portal 110 might suggest a movie. For example, "It is Friday night, would you be interested in seeing a movie?" A "yes" response by the caller will lead to the presentation of a list that is both time and date adapted and locale appropriate. For example, a caller from Palo Alto at six o'clock p.m. on a Friday would hear about show times after six o'clock p.m. in his local area.

If necessary, the voice portal 110 may connect the user to an appropriate transaction system to complete a user requested transaction such a the purchase of an airline ticket, a movie ticket, an audio CD, etc. However, in many instances, the voice portal 110 may be able to directly complete the transaction using the data connectivity

Amazon/VB Assets
Exhibit 1003
Page 222

engine 220 and access to the Internet 106 and/or one more databases (e.g. the database 226). This process can occur even if the caller has not explicitly provided the voice portal 110 her/his home location or the current time. For example, this personalized content might be presented immediately at after step 304 of Figure 3 in step 306.

Similarly, other time sensitive information can be presented such as airline schedules, cultural and other events, etc. Thus, for example a caller asking for flight times to New York from a 650-493-#### telephone number might be prompted to select one of the three local airports: San Francisco International, San Jose International, and Oakland International, and then the flight times to New York after the current time in the Pacific time zone would be presented.

Some additional examples include customizing the presentation of business reports based on whether or not the market is open; modifying the greeting prompt based on the time of day; and providing traffic information automatically during commute hours, but not at other times.

I. Targeted Advertising

Embodiments of the invention support the presentation of targeted advertising, or other content, to callers of the voice portal 110 as shown at step 508. The two primary types of targeted advertising supported by embodiments of the invention will be described. The different types of targeted advertising can be combined as well.

1. Based Solely on Telephone Identifying Information

Telephone identifying information can be used to reference demographic information about callers from a particular area. For example, if the telephone identifying information includes the calling number 650-493-####, corresponding to Palo Alto, California, general demographic information about callers from that particular region can

Amazon/VB Assets
Exhibit 1003
Page 223

be used to target the advertising, or other content. Further, if a reverse lookup database is used, the phone number can, in some instances, locate specific demographic information for a given household, or caller.

This personalization allows the targeting of advertising to qualified callers by the voice portal 112. For example, an advertiser of expensive luxury vehicles might request that its callers be qualified based on their income, or a particular psychographic attribute, e.g. fun-loving. In that case, the demographic profile corresponding to the telephone identifying information can be used to qualify the caller. Thus, callers from the relatively affluent city of Palo Alto, California might receive the advertising. Similarly, if a particular household meets the requirements based on a reverse lookup, those households can receive the advertising as well.

2. Based on Profile

Another source of information about the caller is the profile used by the shared database 112. This profile may indicate interests based on the explicit and implicit preferences, e.g. likes sports, and can be used in combination with the telephone identifying information to more closely tailor ads to the caller.

For example, if the caller has added movie and entertainment information to her/his profile, either explicitly or implicitly, advertising related to movies and entertainment could be favored over other qualified advertising based on the caller's profile. Other examples include providing brokerage, and other financial services, advertisements to callers who frequently check stock quotes and/or have a customized stock list.

Amazon/VB Assets
Exhibit 1003
Page 224

J. Adaptive Voice Character

Turning to step 508, the customization of content through adaptive voice character will now be described. The telephone identifying information includes information about the caller's locale independent of any user provided registration information. The locales may be associated with one or more standard voice character settings, e.g. for dialect, and also idiomatic speech. Thus, callers from California may receive different prompts and a different dialect from the voice portal then callers from Florida.

Similarly, the telephone identifying information may include information about the type of phone, e.g. pay phone, hospital phone, etc., that can be used to adjust the voice character, e.g. louder and slower speech.

Additionally, the caller's speaking voice may be used to refine the voice character of the system. Thus, callers with speech patterns from a particular region of the country may find that after several verbal interactions with the voice portal, the content being presented at step 512 is being spoken using a voice character more suited to their own speech patterns. Similarly, in response to callers who request that information be repeated several times, the voice character for those callers may be slowed and played back louder. Additional examples include allowing users to select different voice actors, different background music and/or sound effects, control the verbosity of prompts, etc.

K. Purchase Recommendations

Turning to step 510, the customization of content through purchase suggestions. Based on the caller's profile -- as retrieved through the telephone identifying information -- and/or demographic information from other sources, e.g. locale based and/or reverse lookup, the system can make purchasing suggestions.

Amazon/VB Assets
Exhibit 1003
Page 225

The suggestions could be based on the caller's locale and what others in that locale have purchased. In other embodiments, the suggestions may be based on the profile of the user relative to other user's purchases. In some embodiments, approaches such as collaborative filtering are used to generate recommendations.

Examples of recommendations may include particular goods and services, e.g. flowers for Mom a few days before Mother's Day. Further, the exact suggestion may vary based on the caller's past habits, e.g. in the past you bought chocolates so this year chocolates might be suggested again. Alternatively, if many people from your locale are buying a particular book that might be suggested as well. The particular purchase recommendation may relate to goods and services offered independently, by, and/or in affiliation with the operator of the voice portal 110.

L. Voice Login

As discussed above, the system may support the use of one or more passwords, either spoken or touch-tone for login and authentication purposes. The passwords provide for protection against modifications to a user's profile without authentication. Additionally, certain specific actions, e.g. making a purchase, listening to certain types of personalized content, etc., may require authentication.

Typically, the authentication system will support either a voice or a touch-tone password for users of the voice portal 110. This flexibility addresses situations where the voice password is not working due to line conditions and/or conditions of the calling telephone. Products such as Nuance Verifier™ and/or other voice login and verification products may be used to provide the voice login feature. In some embodiments, both types of authentication may be required.

Amazon/VB Assets
Exhibit 1003
Page 226

Once logged in, or authenticated, embodiments of the invention may minimize the need for the user to re-authenticate herself/himself, as described above. Additionally, the password, either voice and/or touch-tone, used for authentication for telephone sessions may be the same or different as any passwords used for authentication for web access to the profile customization options described in conjunction with Figure 4.

M. Automatic Profile Initialization

As discussed in conjunction with Figure 3, it may be desirable to initialize the profile using the telephone identifying information. The telephone identifying information can be used to select an appropriate demographic profile and list of topics based on the calling locale. In other embodiments, a reverse lookup of the calling number provided with the telephone identifying information is used to obtain a specific demographic profile for a caller and/or her/his household.

Then the demographic information derived from the locale and/or the reverse lookup are used to set initial profile values. For example, the user's income might be estimated based on the average income for the calling locale, e.g. Palo Alto, California, or from demographic information from the reverse lookup. Similarly, the caller's initial topics might be selected based on commonly selected topics for her/his locale and/or the preferences available based on the demographic information retrieved by the reverse lookup.

These initial values may be revised based on a caller's later actions. For example, if the initial estimate of a caller's age is too high, later actions may cause that information to be revised. Similarly, callers may be permitted to explicitly provide certain types of demographic information as needed. For example, the user might provide her/his birth

Amazon/VB Assets
Exhibit 1003
Page 227

date to a horoscope feature provided by the voice portal 110, in that instance, the birth date might be incorporated into the profile.

N. Electronic Commerce Features

The preceding discussion has focused on personalization of content for users accessing the voice portal 110. This section describes special commerce features within various embodiments of the invention. A transcript from a possible interaction between a user ("C") and the voice portal 110 ("S") will be provided. The transcript will be discussed segment by segment. In some instances, phrases will be included between angle brackets, e.g. "<>", in those cases an appropriate substitution with the indicated value(s) should be made. After the dialogue from the transcript is discussed the process will be described in greater detail with respect to Figure 6.

1. Sample Dialogue Transcript

1	S	<Introduction>
2	S	<Optional Sponsorship>
3	S	You can interrupt the system at any time.
4	S	If you need assistance, say "help".
5	S	Main Menu. Options: stocks, news, personal or travel.
6	C	Travel.
7	S	Welcome to the flight reservations system.
8	S	What city would you like to depart from? San Francisco, Oakland, or San Jose?
9	C	San Francisco.
10	S	San Francisco. What city are you flying to?
11	C	Las Vegas.
12	S	Las Vegas. On what date would you like to depart?
13	C	June first.
14	S	June first. Around what time would you like to depart?
15	C	7 p m
16	S	Seven p m. How many travelers?
17	C	one
18	S	One traveler. Will this be round trip or one way?
19	C	Round trip
20	S	Round trip. On what day would you like to return?
21	C	June seventh
22	S	June seventh. Around what time would you like to return?
23	C	Nine a m
24	S	Nine a m. One moment while I locate flights.

Transcript Segment 1

Amazon/VB Assets
Exhibit 1003
Page 228

Turning to the first segment of the transcript. The voice portal 110 introduces itself to the user at lines 1-5. Notice that sponsorship information can be inserted into the conversation, e.g. line 2. For example, the voice portal might offer a personalized advertisement, see above, at line 2. The sponsorship might also be personalized topically based on the subject matter of the purchase, e.g. travel.

In this example, the user is attempting to purchase an airline ticket. The user lives in Palo Alto, California, and so the personalization features of the system described above allow the system at line 8 to prompt the user with the most likely departure airports. Thus, the personalization features are easily combinable with the commerce features of embodiments of the invention. In appropriate circumstances, the list provided might be adjusted based on the user's present location as opposed to the user's home. For example, if the user were to call from a pay phone in Washington, D.C., the airports in the D.C. area might be listed in addition to, or instead of, the San Francisco area airports.

At lines 9-24 of the transcript, the user provides information to clarify her/his purchase requests. Airline tickets require a more elaborate dialogue than say music CDs because there is more information to specify.

In contrast, if at line 6 the user said, "Music", and that was a valid option, the system might ask for the artist or album name. Then, the user might be prompted to select from a short list of found items. For example, the user might say "98 Degrees" and the system might offer "There are three albums from 98 Degrees, please select 98 Degrees, 98 Degrees and Rising, or 98 Degrees Christmas." Upon selecting one or more of those albums, the conversation could then continue.

Amazon/VB Assets
Exhibit 1003
Page 229

Continuing with the transcript for the airline ticket purchase:

25 S	<Airline> is offering a special fare of $248 for flights to Las Vegas in June. To hear more about this offer, say "<Airline>". To hear a list of other flights, say "more flights".
26 C	<Airline>
27 S	<Airline> flight 2315, departs San Francisco on June 1st, at 7:14 p.m. and arrives in Las Vegas at 9:50 p.m. The return flight is <Airline> flight 7006, departing Las Vegas on June 7th, at 8:40 a.m., and arriving in San Francisco at 10:10 p.m.
28 S	To reserve this <Airline> flight, say "reserve it". To hear a list of other flights, say "more flights".
29 C	Reserve it.
30 S	Your <Airline> flight has been reserved. Your <Airline> confirmation number is <Confirmation Number>.
31 S	Remember, that you can view details of this transaction, as well as others, at voiceportal.com.
32 S	To purchase this ticket, please say "purchase", say "hold" to hold the reservation for twenty-four hours.
33 C	Purchase

Transcript Segment 2

Lines 25 through 33 of the transcript show the recommendation and reservation process. At line 25, the system is generating a recommendation. This recommendation may be based on a match between the user's requested schedule and the best fare for that schedule. Additionally, other preferences could be taken into account.

For example, between lines 24 and 25 of the dialogue, the system could access the user profile to determine that the user prefers to fly Southwest Airlines. That preference may be derived from either an implicit, or explicit, personalization, see above. As a result, the recommendation generated at line 25 may be based on that preference and as a result Southwest Airlines flights might be suggested first.

Also, between lines 29 and 30 of the dialogue the voice portal 110 can access the user profile corresponding to the telephone identifying information to assist in completing the transaction. More specifically, the user's full name, address, shipping information, credit card number, and/or other personal information can be retrieved from the user's profile. Also, embodiments of the invention can support other types of payments than credit cards, most generally any form of payment identifier can be used, e.g. automated check clearinghouse (ACH) information, electronic currency, credit card numbers, smart

Amazon/VB Assets
Exhibit 1003
Page 230

card payment certificate, and/or other suitable forms of payment and identification of that payment can be used.

This information can then be provided to the merchant to complete the transaction. If the information is not available in the user's profile, it can be obtained from the user. Users need not be re-prompted for information already in their profile, even for new merchants. Thus, if the user's full name and address are in the profile, no questions would have to be asked at this point of the example dialogue because only a name and address are needed to reserve an airline ticket.

In contrast, if that information was not known, the voice portal 110 could interactively obtain the necessary information prior to continuing at line 30 of the dialogue and reserving the ticket. If necessary, or appropriate, a human operator may be brought on the line to receive the information and update the user's profile. Typically, voice and/or touch tone responses may be used in conjunction with information about the user's calling locale as derived from telephone identifying information to update the information without the assistance of a human operator.

Once the user's profile contains adequate information to complete the required function, e.g. reserve an airline ticket, the voice portal 110 can complete the task. This might be done by accessing a database (e.g. the database 228) belonging to the airline over the Internet 106, or some other network or communication channel. For example, the reservation database for Southwest Airlines might be accessed directly using electronic data interchange (EDI) format, extensible markup language (XML), and/or some other protocol. Those same protocols may have been used to obtain the flight information from the database at line 25 of the dialogue.

In other instances, the execution engine 202 and the data connectivity engine 220 may access a web site 230, or a web server, and perform the necessary transactions.

Amazon/VB Assets
Exhibit 1003
Page 231

Specifically, the voice portal could respond to the purchase command by executing a request to a server using the HTTP protocol or the secure hypertext transfer protocol (HTTPS). The secure socket layers (SSL) protocol can be used to ensure the privacy and security of the transaction. For example, if Southwest Airlines has a web site (e.g. the web site 230) that supports electronic commerce using SSL, HTTPS and/or HTTP, the data connectivity engine 220 could supply the requisite information to the web site 230 to place a reservation and/or purchase tickets.

In these situations, the data connectivity engine 220 and the voice portal 110 acts in a similar fashion to a user's web browser. The voice portal 110 accesses the web site 230 for the user and provides information in appropriate fields from the user's profile. This interaction with a web site may occur while the user waits or in the background, with confirmation provided to the user at a later point.

In some instances, one or more web site descriptions may be developed to allow access by the data connectivity engine 220 to web sites for commerce purposes. The web site description may describe how to search for products and services. For example, a uniform resource indicator (URI) for the search engine and the format for search queries for a particular web site (e.g. the web site 230) might be included. The web site description may also specify how to parse search results. The web site descriptions may specify how to initiate a purchase transaction and as well as a mapping between user profile information and fields on the web site's forms. The web site description may specify how to parse confirmation and transaction results. The web site descriptions allow the data connectivity engine 220 to act as an automated agent for the user. Further, they also allow for the generation of a cross-merchant record of all purchases made with the voice portal 110, e.g. a voice receipt. Notification of the creation of a voice receipt is shown in line 31 of the sample transcript. These voice receipts may be accessible over the web as suggested

Amazon/VB Assets
Exhibit 1003
Page 232

by line 31 of the dialogue. Voice receipts may also be reviewed directly within the voice portal 110 in some embodiments of the invention.

The voice receipt may contain information about a purchase, e.g. product/service, description, time of purchase, merchant/vendor/provider name, price paid, credit card used, order number, confirmation number, status -- e.g. on backorder, shipped, 24 hours to purchase, awaiting trade execution, etc. -- and/or other information relating to the transaction.

Notably, the status information may be obtained through dynamic access to one or more merchant data sources. For example, if the voice receipt was for a trading request, the status information might be obtained from the brokerage company's computer systems by the data connectivity engine 220. The voice receipts offer a powerful management tool to users for tracking purchases made using the voice portal at multiple merchants. As in the case of this airline example, the voice receipt may include helpful information, e.g. the confirmation number, in a secure easily accessible location, obviating the need to manually record it with pen and paper at the time of the transaction.

In this example with airline tickets, a distinction is made between reserving the tickets and purchasing them. This distinction is specific to this type of product because airlines allow customers to reserve tickets for twenty-four hours before purchasing them. At lines 31-33 of the dialogue, the user requests the purchase of the airline ticket.

34 S	In order to complete this transaction using one your credit cards on file, we need to confirm your identity. Please speak or touch-tone your password. If you prefer to use a different credit card, please speak or touch-tone that credit card number now.
35 C	<Password>
36 S	We have confirmed your identity. Which credit card would you like to use? <Card1> <Card2>, or <Card3>
37 C	<Card2>
38 S	Thank you, now processing your transaction.
39 S	<Musical Interlude>
40 S	Your ticket has now been purchased using your <Card2> credit card. You can review details of this transaction as well as others at voiceportal.com or by requesting "Receipts" from the main menu.

Transcript Segment 3

Amazon/VB Assets
Exhibit 1003
Page 233

In this example, this is the first transaction for this telephone session, as such the voice portal 110 requests password confirmation from the user before allowing the purchase to be completed. In some embodiments of the invention, the user is prompted for a password for all purchases. In other embodiments, a password is only requested for the first purchase in each telephone session. In other embodiments, the password is requested a single time in each session for all purposes. In some embodiments of the invention, users of wireless telephones may, as a default setting, not be required to provide a password since it is assumed that the wireless telephone is not shared by multiple users.

The ability to quickly reference credit card information already on file improves transaction speed by eliminating the need for the user to re-provide information. This same approach can be used to select shipping addresses. For example, the system might prompt, "Do you want this order sent to your billing address, home address or work address?" to allow the user to select a shipping address for delivery of products.

The commerce model employed by the voice portal 110 is designed to allow purchases using a single command, "Purchase", or similar phrases. In other words, the neither a password, a credit card selection, need be required from the user. Thus, the user input must specify a product selection and the user must issue the "Purchase" command.

Accordingly, the voice portal need not maintain a shopping cart, or similar construct for a user, store, or session. Further, the commerce model of the voice portal 110 is independent of the commerce model used by any merchant. Thus, the voice portal 110 may enable its users to buy items from web sites that use a shopping cart model using the one word purchase commerce model of the voice portal 110. Thus, the purchase of multiple CDs at a music store by a user of the voice portal 110 can each be treated as separate purchases. Further, for each CD, all order information may be provided to the merchant by the voice portal 110 as outlined above.

Amazon/VB Assets
Exhibit 1003
Page 234

The order fulfillment process used by a given merchant may group related purchases from a user over a predetermined time period, e.g. session, day, week, month, etc. For example, the voice portal 110 might combine all CD purchases made in a single session into a single order in the merchant's computer systems. Alternatively, the merchant may combine the separate orders for fulfillment purposes.

Similarly, if desirable, the voice portal 110 may group distinct purchases from a single merchant within a predetermined time period, e.g. session, day, week, month, etc., into a single voice receipt with, if appropriate, status information for the individual items and/or the group of items as a whole.

Additionally, the voice portal 110 may support a number of additional electronic commerce features. For example, accessory services may be provided relative to a purchase, e.g. status change notifications for a product. For example, the voice portal 110 might prompt, "For twenty-five cents, we can notify you if your flight is delayed or changed, say 'notify me', to request this service." Similarly, the voice portal 110 might prompt, "For ten cents, we can send you an alpha-numeric page when your trade is executed, say 'page me', to request this service."

In some instances, there may be no charge for the accessory service. The accessory service may be available irrespective of whether a particular merchant/vendor supports a feature. For example, a brokerage firm might provide e-mail trade confirmations. However, the voice portal 110 may use its interface to the brokerage systems to independently provide other features, e.g. pager notification.

Similarly, the voice portal 110 may recommend related products, e.g. cross-sell. So in the example above of purchasing hotel tickets to Las Vegas, the system dialogue might prompt the user: "Our records indicate that <Convention> is being held in Las Vegas during your stay and hotel availability is low, would you like to book a hotel room now?"

Amazon/VB Assets
Exhibit 1003
Page 235

If the user says yes, the dialogue can unfold much as it did for the purchase of the airline ticket.

2. Process Detail

Figure 6 is a process flow diagram for conducting electronic commerce over a telephone interface according to some embodiments of the invention. The process of Figure 6 could be used by the voice portal 110 to provide electronic commerce over a telephone interface. Throughout the discussion of Figure 6, it will be assumed that the user has been identified by the voice portal 110, as in Figure 1, e.g. using the telephone identifying information 114. Alternatively, some embodiments of the invention may use alternative means to identify the caller to the voice portal, e.g. an explicit login process.

First, at step 600, an audio request is received to initiate a transaction. This request may take the form of the user requesting a specific topic within the voice portal 110, e.g. travel, stock trading, music store, etc., or a more specific request, e.g. the user might say "I want to buy the new CD from 98 Degrees." Other audio input formats, including touch-tone are possible.

Next, at step 602, the voice portal 110 conducts an audio dialogue with the user to more specifically identify the product or service they wish to purchase. For the purposes of this discussion, a product will be considered either a product or a service. For example, if the user has entered the travel category, a dialogue like the example above for airline tickets might unfold. In contrast, in music, or some other type of, store, the user might be prompted to provide search terms, or other product identifiers. Once, the voice portal 110 has identified a product with sufficient specificity, any of steps 604-608 may occur. Steps 604-608 may occur in parallel, in sequence, based on user requests, and/or asynchronously in the background.

Amazon/VB Assets
Exhibit 1003
Page 236

For example, the user might automatically be presented a recommendation at step 606, e.g. a specific product like the CD "98 Degrees and Rising" or the specially priced airline ticket. Meanwhile, price comparisons for that product at different merchants could occur in the background at step 604. Also, a list of

The dialogue process of step 602 and the processes of steps 604-608 may occur iteratively until the user has identified a product she/he wishes to purchase. Thus in the airline ticket purchase example above, if the user was not satisfied with the recommendation, the user could request a list of flights at step 608. If she/he was still not satisfied, she/he could return to step 602 and adjust her/his request.

At step 610, a purchase confirmation is received from the user for the identified product. The confirmation from the user typically takes the form of a single word or command phrase such as "Purchase" or "Buy It", or a similar phrase. Because the user's identifying information is already available based on the associated profile for the telephone identifying information, it is not necessary to input names, addresses, and credit card numbers typically. If telephone identifying information is unavailable, then the user may be required to login and identify herself/himself. However, the provision of address information and credit card information, etc., would still be automated.

Periodically, for security purposes a password, or other identifier, may be requested from the user in conjunction with step 610. For example, the first purchase of each telephone session might require a password identifier.

At step 612, the order is then placed with the merchant. The order may be placed through a number of electronic means. Notably, the order may be placed directly through a general purpose electronic commerce web site (e.g. the web site 230) using SSL and/or HTTPS with the voice portal 110 acting as a browser on behalf of the user. The voice portal 110 can fill out forms on the web site using information from the user profile. In

Amazon/VB Assets
Exhibit 1003
Page 237

other embodiments, XML, EDI, and/or other proprietary or non-proprietary formats are used to place the order with the merchant. These same techniques can be used at steps 604-608 to access information about products and services available for sale. Thus, it is not necessary for merchants to specially design their electronic commerce sites to support the voice portal 110 or the purchase model used by the voice portal 110. However, for efficiency reasons a particular web site may provide a custom mechanism for the voice portal 110 to conduct commerce via HTTP, HTTPS and/or SSL as well as a custom data exchange format for obtaining information and placing orders.

Additionally, a voice receipt can be generated for the transaction at step 612. The voice receipt includes information about the transaction as described above. When appropriate, status information can be included as part of the voice receipt. The status information can be dynamically obtained from the appropriate merchant for inclusion in the voice receipt when it is reviewed. For example, an order for CDs might have shipping status information extracted directly from the merchant at the time the voice receipt is reviewed. The voice receipts may be reviewed on a web site for the voice portal 110 and/or on the voice portal 110 itself, e.g. over the telephone

The process of Figure 6 omits data collection steps that may, in some instances, be necessary to complete certain types of orders. For example, basic information such as name, address, shipping address, and credit card number are needed for many transactions. That information can be collected as needed for various purposes throughout the entire voice portal 110. Thus, an earlier request for driving directions may have provided the user's address to the voice portal 110. As part of step 610, additional data can be collected either using audio input and output to a computer or to a human operator. The user of the voice portal 110 may not even be aware that a human operator is receiving her/his input for entry into her/his profile. In addition, reverse lookup information can be used to derive

Amazon/VB Assets
Exhibit 1003
Page 238

the user's name and address or assist in verification of the user's input. The voice portal 110 minimizes the need for re-entry of data by maximizing usage of user profile information across different merchants/vendors.

Still other embodiments of the invention allow a user to signal on a web site to have the vendor contact them to complete the transaction by telephone. This may allow for better support of customers who are uncomfortable making purchases over the Internet and/or make it easier for customers to make purchases from new vendors. For example, if Jane Doe already has a profile established with the voice portal 110, then she can circumvent the purchase process at a particular merchant by clicking on a link to have the voice portal 110 call her. In some instances, the user may be asked to provide her/his phone number on the web site.

Still other information that is needed may be product/service specific, e.g. type of seating, pant size, etc. That information may be obtained as part of the dialogue at step 602 and/or stored as user preferences by the voice portal 110.

In some embodiments of the invention, a list of items may be presented to a user, e.g. a top *n* list of books, music, etc. The voice portal 110 may pause briefly between items in the list to receive a purchase request, e.g. "Buy It" or a touch-tone signal. Thus, the purchase model is extended to handle purchases from a list of items. This may also be helpful when the user has requested a search and wants to purchase one of the items provided in the result list.

O. Conclusion

Thus, the voice portal 110 can serve as a telephone to HTTP, HTTPS, and/or SSL gateway for commerce purposes. Further, the voice portal 110 supports a one word purchase commerce model that greatly reduces the overhead of completing transactions

Amazon/VB Assets
Exhibit 1003
Page 239

with multiple vendors using the telephone interface. Further, the model abstracts the particular purchase/transaction/vending model used by the vendor in favor of a uniform interface provided by the voice portal 110. Typical embodiments of the invention may support one or more words, phrases, or DTMF signals for use as the purchase command in the one word purchase model.

A number of different personalization features provided by embodiments of the invention have been described, those features can be combined in a number of ways to provide personalized commerce services.

In some embodiments, voice portal 110 can be hardware based, software based, or a combination of the two. In some embodiments, voice portal 110 is comprised of one or more computer programs that are included in one or more computer usable media such as CD-ROMs, floppy disks, or other media. In some embodiments, call manager programs, execution engine programs, data connectivity engine programs, evaluation engine programs, streaming subsystem programs, recognition server programs, and/or text to speech programs are included in one or more computer usable media.

Some embodiments of the invention are included in an electromagnetic wave form. The electromagnetic waveform comprises information such as call manager programs, execution engine programs, data connectivity engine programs, evaluation engine programs, streaming subsystem programs, recognition server programs, and/or text to speech programs. The electromagnetic waveform may include the programs accessed over a network.

The foregoing description of various embodiments of the invention has been presented for purposes of illustration and description. It is not intended to limit the invention to the precise forms disclosed. Many modifications and equivalent arrangements will be apparent.

Amazon/VB Assets
Exhibit 1003
Page 240

CLAIMS

What is claimed is:

1. A method of providing an electronic commerce transaction from the Internet to a telephone using a computer system, the computer system including a telephone interface system coupled in communications with an Internet access system, the telephone interface system being coupled in communications with the telephone, the method comprising:

receiving an audio request over the telephone interface system, the audio request corresponding to a product for sale from a merchant, the merchant providing electronic commerce on the Internet using a second computer system;

responsive to the audio purchase request, performing the following

sending a first request to the second computer system over the Internet access system, the first request corresponding to a request for information about the product,

receiving a first response from the second computer system over the Internet access system, the first response corresponding to an information about the product,

providing an audio response over the telephone interface system, the audio response corresponding to the information, and

receiving an audio confirmation over the telephone interface system; and

responsive to the audio confirmation, performing the following

sending a second request to the second computer system over the Internet access system, the second request corresponding to a request to purchase or order the product from the merchant;

Amazon/VB Assets
Exhibit 1003
Page 241

receiving a second response from the second computer system over the Internet access system, the first response corresponding to a confirmation of the first request; and

providing a second audio response over the telephone interface system, the second audio response indicating completion of the electronic commerce transaction.

2. The method of claim 1, wherein the telephone interface system receives a telephone identifying information, the method further comprising:

accessing a user profile corresponding to the telephone identifying information, the user profile corresponding to information about a user; and

including information from the user profile in at least one of the first request and the second request.

3. The method of claim 2, further comprising:

providing a third audio request over the telephone interface system, the third audio request corresponding to a request for at least one of a name, an address, a credit card number, a credit card expiration date, an electronic mail address, and a telephone number;

receiving an audio information response over the telephone interface system, the audio information response corresponding to at least one of a name, an address, a credit card number, a credit card expiration date, an electronic mail address, and a telephone number; and

Amazon/VB Assets
Exhibit 1003
Page 242

including the corresponding at least one of a name, an address, a credit card number, a credit card expiration date, an electronic mail address, and a telephone number in the user profile.

4. The method of claim 1, further comprising responsive to the second response, generating a voice receipt, the voice receipt corresponding to information about the electronic commerce transaction.

5. The method of claim 4, wherein the voice receipt includes at least one of a name of the product, a description of the product, a name of the merchant, a contact information for the merchant, a price paid for the product, an order number, a confirmation number, and a status.

6. The method of claim 4, further comprising:

receiving an audio request, the audio request corresponding to a request to review the voice receipt; and

responsive to the audio request, providing a second audio response over the telephone interface, the second audio response corresponding to information from the voice receipt.

7. The method of claim 1, wherein the receiving the audio purchase request comprises receiving a verbal request for a product, performing voice recognition on the verbal request to determine the product.

8. The method of claim 1, wherein the receiving the audio purchase request comprises receiving a series of one or more touch tone signals and decoding the series of one or more touch tone signals to determine the product.

Amazon/VB Assets
Exhibit 1003
Page 243

9. The method of claim 1, wherein the receiving the audio purchase request comprises receiving a verbal request for a merchant, performing voice recognition on the verbal request to determine the merchant.

10. The method of claim 1, wherein the receiving the audio purchase request comprises receiving a series of one or more touch tone signals and decoding the series of one or more touch tone signals to determine the merchant.

11. The method of any one of the preceding claims wherein the audio request is a purchase request.

12. A computer system to provide an electronic commerce transaction from the Internet to a telephone, the computer system comprising:

an Internet interface including at least one program to access a second computer system using one or more of a SSL protocol, a HTTP, and a HTTPS;

a telephone interface to send and receive audio signals to and from the telephone and to receive a telephone identifying information corresponding to the telephone; and

a control subsystem to control the Internet interface and the telephone interface, the control subsystem including at least one program for

processing an audio request to purchase a product from a merchant, the merchant providing electronic commerce on the Internet using the second computer system, and

completing the electronic commerce transaction for the product with the merchant over the Internet interface responsive to an audio confirmation.

Amazon/VB Assets
Exhibit 1003
Page 244

13. The computer system of claim 12, wherein the at least one program in the control subsystem further for accessing a user profile corresponding to the telephone identifying information, the user profile corresponding to information about a user and wherein the completing further comprises providing at least a portion of the user profile to the merchant over the Internet interface.

14. The computer system of claim 12, wherein the at least one program in the control subsystem further for generating a voice receipt responsive to the completing, the voice receipt corresponding to information about the electronic commerce transaction.

15. A computer system performing an electronic commerce transaction over a telephone, the computer system receiving a telephone identifying information associated with the telephone, the electronic commerce transaction performed over the Internet, the computer system comprising:

means for receiving an audio request to initiate the electronic commerce transaction;

means for selecting a product from a merchant using an audio dialogue, the merchant providing electronic commerce on the Internet using a second computer system;

means for receiving audio confirmation of the electronic commerce transaction of the product; and

means for completing the electronic commerce transaction over the Internet with the second computer system.

16. The computer system of claim 15, wherein the means for completing further comprises:

Amazon/VB Assets
Exhibit 1003
Page 245

means for accessing a user profile corresponding to the telephone identifying information, the user profile corresponding to information about a user;

means for providing at least a portion of the user profile to the second computer system over the Internet to complete the electronic commerce transaction.

17. The computer system of claim 15, further comprising means for providing a voice receipt of the electronic commerce transaction, the voice receipt corresponding to a record of the electronic commerce transaction.

18. The computer system of claim 15, wherein the means for selecting comprises:

means for comparing prices for the product at a plurality of merchants;

means for providing a list of a predetermined number of merchants from the plurality of merchants over the telephone, the predetermined number of merchants offering the product at a lower price than other merchants in the plurality of merchants; and

means for receiving an audio selection of one of the merchants in the list, the selection corresponding to the merchant.

19. A method of ordering an item over a telephone, the telephone coupled to a computer system by a telephone interface, the computer system supporting access to an Internet for completing commerce transactions, the method comprising:

presenting information about the item in audio format over the telephone interface using the computer system; and

responsive to a single audio response received by the computer system over the telephone interface:

Amazon/VB Assets
Exhibit 1003
Page 246

retrieving telephone identifying information associated with the telephone to identify a profile associated with the purchaser; and

sending a request to order the item, the request including information from the profile about the purchaser to a second computer system on the Internet, the second computer system operated by a merchant selling the item.

20. The method of claim 19, wherein the request is sent to the second computer system over the Internet using a secure hypertext transfer protocol (HTTPS) and the request includes a payment identifier from the user profile.

21. The method of claim 2 or 19, wherein the profile includes at least one of a name, an address, a credit card number, a credit card expiration date, an electronic mail address, and a telephone number.

22. The method of claim 2 or 19, wherein the profile includes information obtained from a reverse directory lookup on the telephone identifying information.

23. The method of claim 2 or 19, wherein the second computer system includes a web server providing an HTML order form, and wherein the request to order the item comprises HTML form data corresponding to information from the profile.

24. The method of claim 2 or 19, wherein the second computer system includes a web server supporting an HTTP protocol, and wherein the request to order the item comprises data corresponding to information from the profile sent using the HTTP protocol.

25. The method of claim 1 or 19, wherein computer system communicates with the second computer system over the Internet using one or more of a secure sockets layer

Amazon/VB Assets
Exhibit 1003
Page 247

(SSL) protocol, a hypertext transfer protocol (HTTP), and a secure hypertext transfer protocol (HTTPS).

26. The method of claim 25, wherein the request to order the item includes at least one of hypertext markup language (HTML) data and extensible markup language (XML) data sent to the second computer system using HTTPS.

27. The method of claim 25, wherein the second computer system includes a web server providing an HTML order form, and wherein the request to order the item comprises HTML form data corresponding to an order for the product.

28. The method of claim 19, further comprising after the request to order the item, generating a voice receipt, the voice receipt corresponding to information about the order of the item.

29. The method of claim 28, wherein the voice receipt includes at least one of a name of the item, a description of the item, a name of the merchant, a contact information for the merchant, a price paid for the item, an order number, a confirmation number, and a status.

30. The method of claim 4 or 28, wherein the voice receipt includes a status, the status corresponding to information retrieved from the second computer system about the order of the item.

31. A method of completing a purchase of an item over a telephone, the telephone coupled to a first computer system by a telephone interface, the first computer system supporting access to an Internet, the method comprising:

Amazon/VB Assets
Exhibit 1003
Page 248

receiving a signal from a second computer system over the Internet, the signal corresponding to a request to place a telephone call to a user at a telephone number to complete the purchase of the item;

calling the user over the telephone at the telephone number using the telephone interface using the first computer system;

conducting an audio dialogue over the telephone interface with the user using the first computer system to obtain at least one of a name, an address, a credit card number, a credit card expiration date, an electronic mail address, a telephone number, a confirmation of the purchase, and a password; and

completing the purchase of the item by sending a message to the second computer over the Internet, the message including at least a portion of personal identifying information obtained in the audio dialogue.

32. The method of claim 31, wherein the conducting the audio dialogue comprises:

identifying a user profile associated with the telephone number;

making an audio request, the audio request corresponding to a request for a password from the user;

receiving an audio response, the audio response corresponding to a password from the user; and

wherein the completing occurs responsive to verification of the password provided by the user against the password in the user profile.

33. A method of completing a purchase from a list over a telephone, the telephone coupled to a first computer system by a telephone interface, the telephone supplying telephone identifying information to the first computer system over the telephone

Amazon/VB Assets
Exhibit 1003
Page 249

interface, the first computer system supporting access to an Internet, the list including a plurality of items, the method comprising:

identifying a user profile associated with the telephone identifying information;

using the computer to present each of the plurality of items in the list over the telephone interface; and

responsive to an audio response, completing a purchase of a most recently presented item on a second computer system coupled in communication with the first computer system over the Internet using the user profile.

34. The method of claim 33, wherein a pause of a predetermined amount of time is inserted between the presentation of each item.

35. A method of storing information received over a telephone interface in a data storage coupled to a computer, the telephone coupled to the computer by a telephone interface, the method comprising:

using the computer to prompt a user for information over the telephone interface;

receiving an audio signal over the telephone interface;

sending the audio signal from the computer to an audio interface, the audio interface for presenting the audio signal to a human;

receiving a data signal on the computer, the data signal corresponding to a speech recognition result for the audio signal by a human; and

responsive to receiving the data signal, updating the data storage to include the speech recognition result.

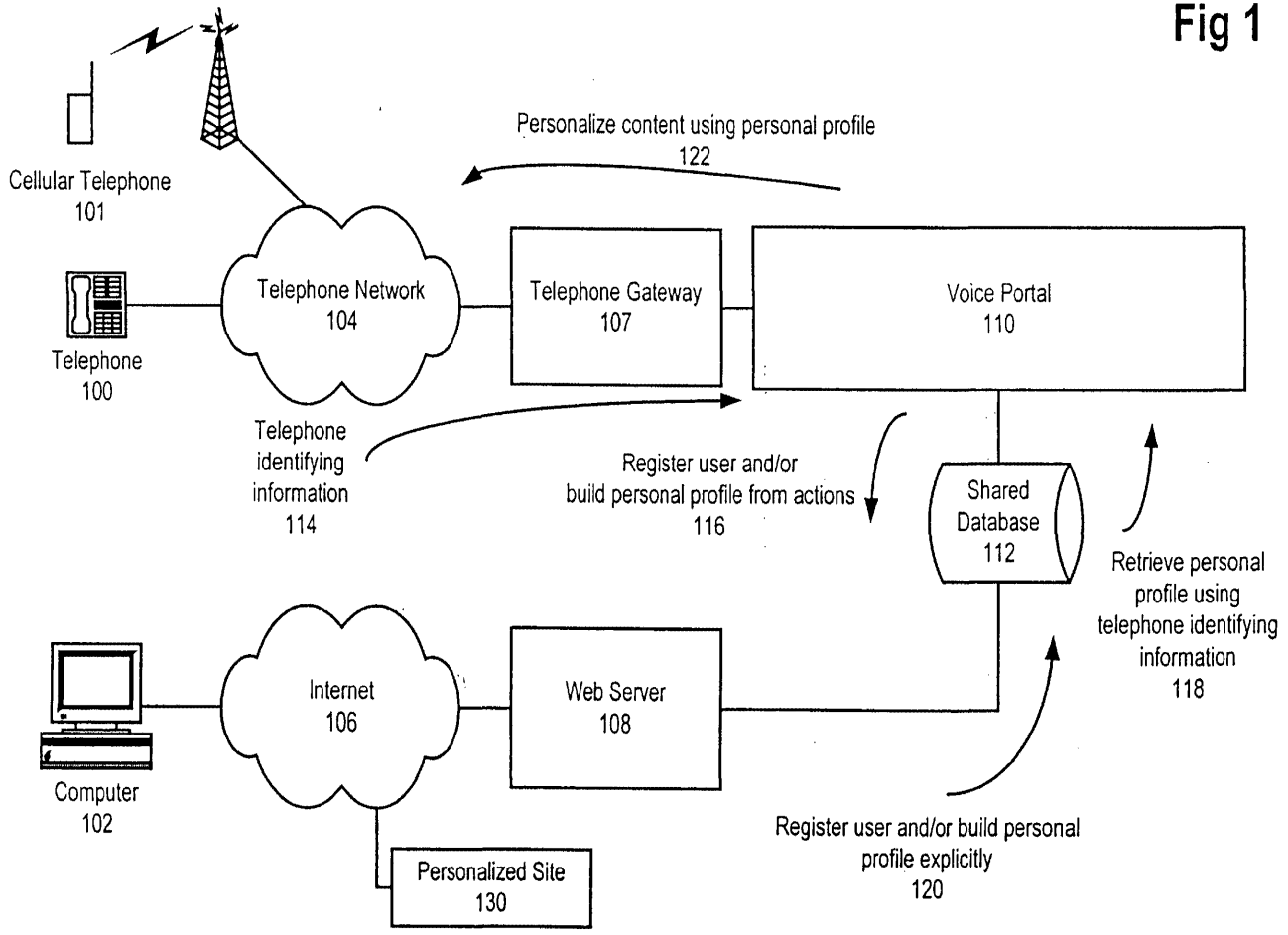
36. The method of claim 35, wherein the speech recognition result indicates that the human could not process the audio signal, the method further comprising repeating the

Amazon/VB Assets
Exhibit 1003
Page 250

method until the speech recognition result no longer indicates that the human could not process the audio signal.

Amazon/VB Assets
Exhibit 1003
Page 251

Fig 1



Amazon/VB Assets
Exhibit 1003
Page 252

Fig 2

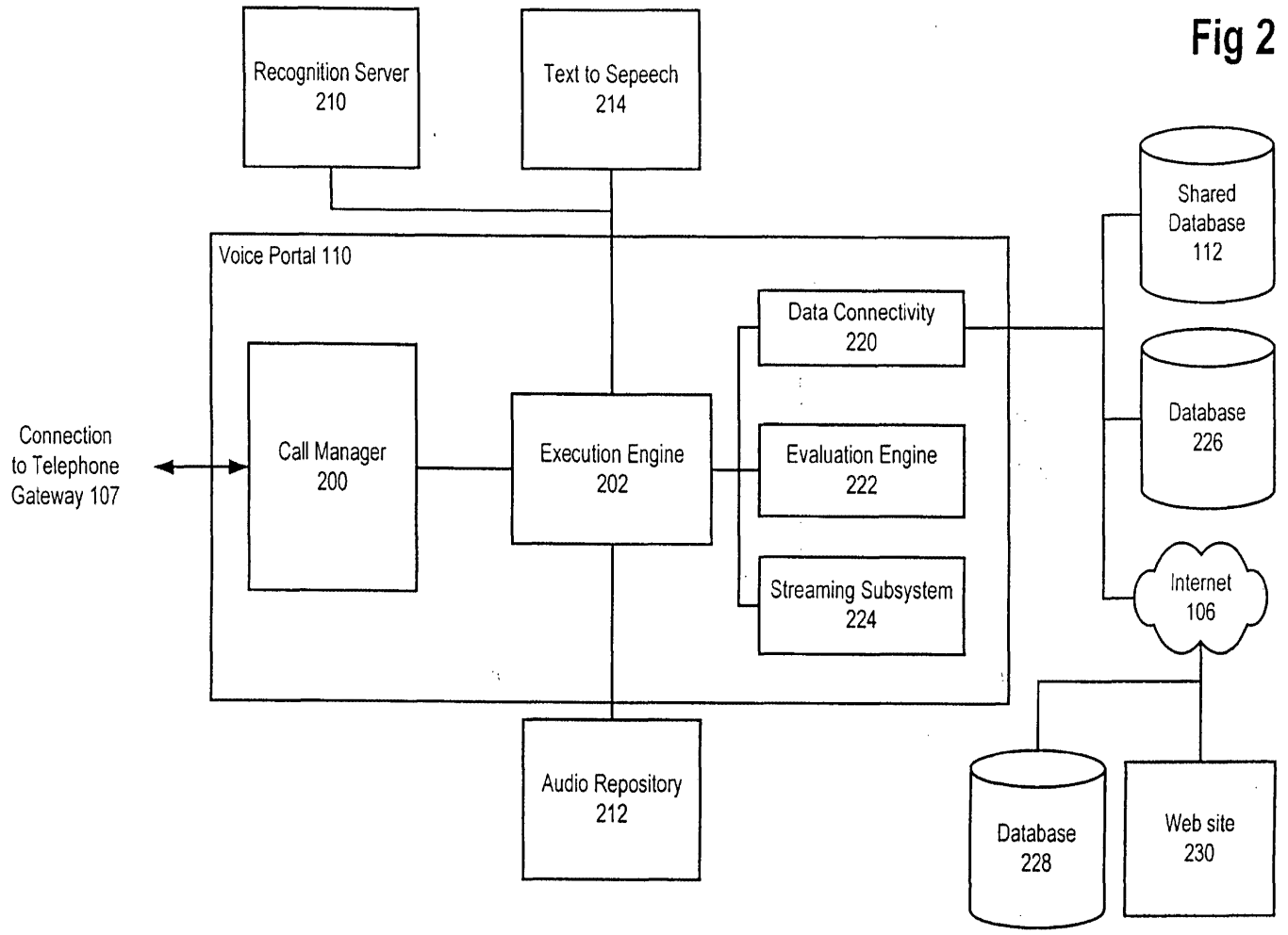

Recognition Server
210
Text to Sepeech
214
Shared
Database
112
Voice Portal 110
Data Connectivity
220
Database
226
Connection
to Telephone
Gateway 107
Call Manager
200
Execution Engine
202
Evaluation Engine
222
Streaming Subsystem
224
Internet
106
Audio Repository
212
Database
228
Web site
230

Fig 3

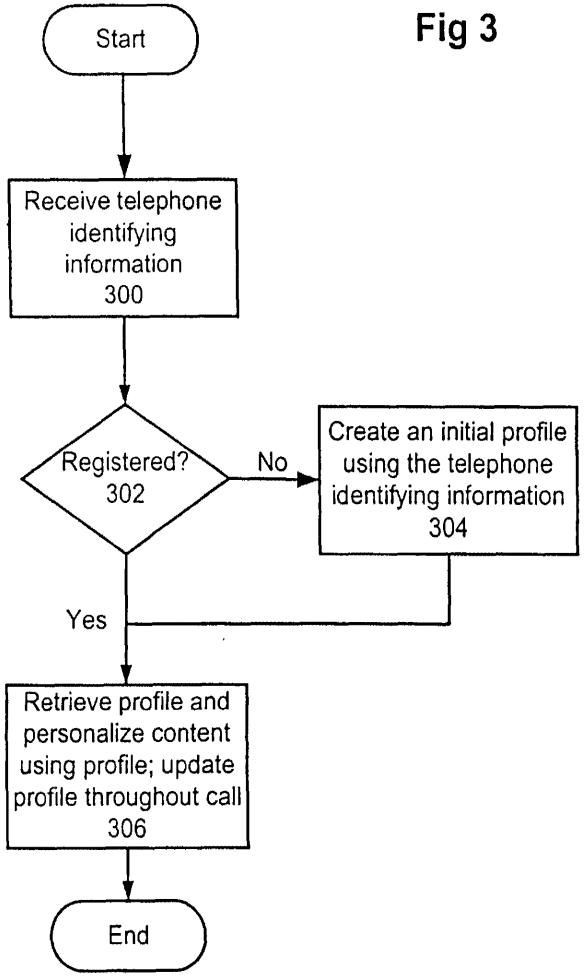
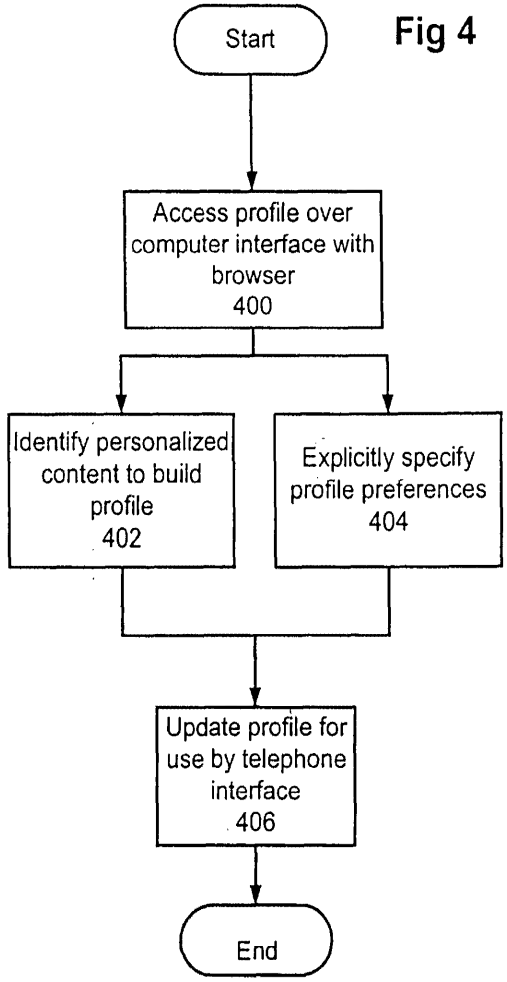
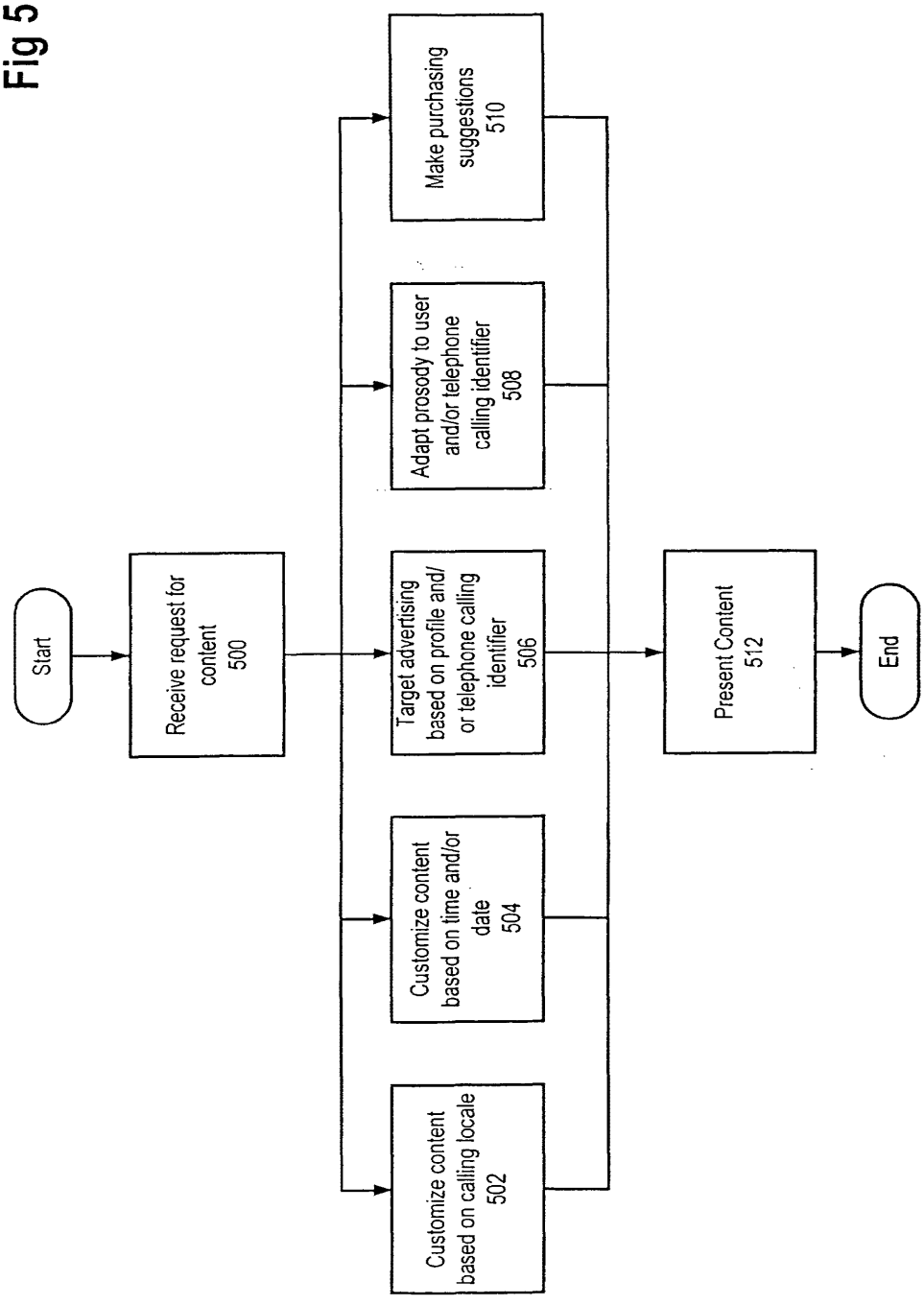

Start
Receive telephone identifying information 300
Registered? 302
No
Create an initial profile using the telephone identifying information 304
Yes
Retrieve profile and personalize content using profile; update profile throughout call 306
End

Fig 4


Start
Access profile over computer interface with browser 400
Identify personalized content to build profile 402
Explicitly specify profile preferences 404
Update profile for use by telephone interface 406
End

Amazon/VB Assets
Exhibit 1003
Page 255

Fig 5



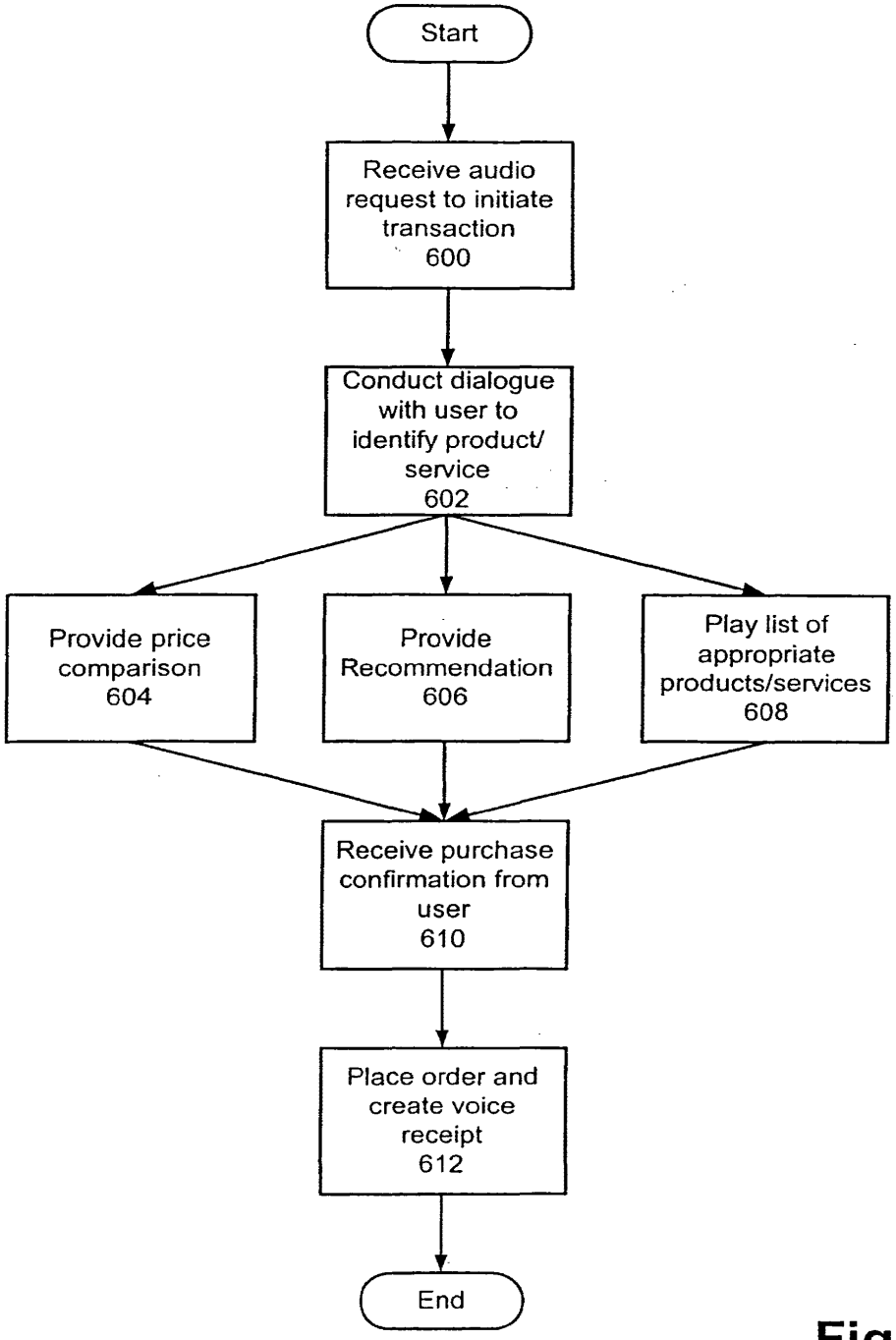


Fig 6

Amazon/VB Assets
Exhibit 1003
Page 256

Electronic Patent Application Fee Transmittal

Application Number:	14691445
Filing Date:	20-Apr-2015
Title of Invention:	SYSTEM AND METHOD FOR A COOPERATIVE CONVERSATIONAL VOICE USER INTERFACE
First Named Inventor/Applicant Name:	Larry BALDWIN
Filer:	Hean Lee Koo/Susan Trader
Attorney Docket Number:	62KC-218492

Filed as Small Entity

Filing Fees for Utility under 35 USC 111(a)

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($)
Miscellaneous:				
SUBMISSION- INFORMATION DISCLOSURE STMT	2806	1	120	120
		Total in USD ($)		**120**

Electronic Acknowledgement Receipt	
EFS ID:	33514416
Application Number:	14691445
International Application Number:	
Confirmation Number:	8351
Title of Invention:	SYSTEM AND METHOD FOR A COOPERATIVE CONVERSATIONAL VOICE USER INTERFACE
First Named Inventor/Applicant Name:	Larry BALDWIN
Customer Number:	133759
Filer:	Hean Lee Koo/Susan Trader
Filer Authorized By:	Hean Lee Koo
Attorney Docket Number:	62KC-218492
Receipt Date:	23-AUG-2018
Filing Date:	20-APR-2015
Time Stamp:	13:42:50
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	DA
Payment was successfully received in RAM	$120
RAM confirmation Number	082318INTEFSW00016161504561
Deposit Account	
Authorized User	
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File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Request for Corrected Filing Receipt	62KC-218492_Request_Change.pdf	101674 17c9b363e52c41f1526a66e5678b834563915f34	no	1
Warnings:					
Information:					
2	Application Data Sheet	62KC-218492_Corrected_ADS.pdf	130975 b90fb9be3a807eabe9d38a7d1597956c702b5038	no	8
Warnings:					
Information:					
This is not an USPTO supplied ADS fillable form					
3	Power of Attorney	62KC-218492_POA.pdf	1083771 c1d9e726e18768dee0396b23853e48e2dfa4fd5e	no	2
Warnings:					
Information:					
4	Assignee showing of ownership per 37 CFR 3.73	62KC-218492_Statement.pdf	77620 ab76a0a10aa6088f71111aa83252d7ec74069f39	no	3
Warnings:					
Information:					
5	Transmittal Letter	62KC-218492_Transmittal-Letter.pdf	11040 119558de455be47f506cfabae8312929cf136929	no	1
Warnings:					
Information:					
6	Information Disclosure Statement (IDS) Form (SB08)	62KC-218492_PTO_IDS-Form.pdf	1053447 b96be6bde3eb5cf5ab0677f41d9a8734e3716d70	no	5
Warnings:					

Information:					
7	Other Reference-Patent/App/Search documents	45HV-253032_ESR_01-04-18.pdf	5827852 45bec5d9e522c51c57d35ea3c25aefddedbdf87c	no	8
Warnings:					
Information:					
8	Foreign Reference	62KC-218492-Foreign-001.pdf	2398371 86bfa90bb47e2ecf5f2074850bb12c2f66034e7c	no	66
Warnings:					
Information:					
9	Fee Worksheet (SB06)	fee-info.pdf	30281 c3686ed86f738003b8f6fe6180c3e19dc9074c4b	no	2
Warnings:					
Information:					
		Total Files Size (in bytes):	10715031		

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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
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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

INVENTORS :	Larry BALDWIN *et al.*	CONFIRMATION NO. :	8351
SERIAL NUMBER :	14/691,445	EXAMINER :	Eric L. Yen
FILING DATE :	April 20, 2015	GROUP ART UNIT :	2658
FOR :	SYSTEM AND METHOD FOR A COOPERATIVE CONVERSATIONAL VOICE USER INTERFACE		

REQUEST CHANGE OF APPLICANT NAME

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

Sir:

Applicant respectfully requests that the applicant name be changed to the following:

VB Assets, LLC
13407 NE 37th Place
Bellevue, Washington 98005

A corrected Application Data Sheet, a Power of Attorney, and a Statement Under 37 CFR 3.73(c) are being filed concurrently herewith.

Respectfully submitted,

SHEPPARD MULLIN RICHTER & HAMPTON LLP

By /Hean L. Koo/
Hean L. Koo
Registration No.: 61,214

Customer No.
133759

2099 Pennsylvania Avenue, NW, Suite 100
Washington, D.C. 20006-6801
Telephone: (202) 747-2647

Dated: August 23, 2018

SMRH:227916325.1

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Application Data Sheet 37 CFR 1.76	Attorney Docket Number	62KC-218492
	Application Number	14/691,445
Title of Invention	SYSTEM AND METHOD FOR A COOPERATIVE CONVERSATIONAL VOICE USER INTERFACE	

The application data sheet is part of the provisional or nonprovisional application for which it is being submitted. The following form contains the bibliographic data arranged in a format specified by the United States Patent and Trademark Office as outlined in 37 CFR 1.76.
This document may be completed electronically and submitted to the Office in electronic format using the Electronic Filing System (EFS) or the document may be printed and included in a paper filed application.

Secrecy Order 37 CFR 5.2

☐ Portions or all of the application associated with this Application Data Sheet may fall under a Secrecy Order pursuant to 37 CFR 5.2 (Paper filers only. Applications that fall under Secrecy Order may not be filed electronically.)

Inventor Information:

Inventor 1 Remove

Legal Name

Prefix	Given Name	Middle Name	Family Name	Suffix
	Larry		BALDWIN	

Residence Information (Select One) ◉ US Residency ○ Non US Residency ○ Active US Military Service

City	Maple Valley	State/Province	WA	Country of Residence	US

Mailing Address of Inventor:

Address 1	25498 S.E. 274th Place		
Address 2			
City	Maple Valley	State/Province	WA
Postal Code	98038	Country	US

Inventor 2 Remove

Legal Name

Prefix	Given Name	Middle Name	Family Name	Suffix
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Residence Information (Select One) ◉ US Residency ○ Non US Residency ○ Active US Military Service

City	Mercer Island	State/Province	WA	Country of Residence	US

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Address 2			
City	Mercer Island	State/Province	WA
Postal Code	98040	Country	US

Inventor 3 Remove

Legal Name

Prefix	Given Name	Middle Name	Family Name	Suffix
	Michael		TJALVE	

Residence Information (Select One) ◉ US Residency ○ Non US Residency ○ Active US Military Service

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Application Data Sheet 37 CFR 1.76	Attorney Docket Number	62KC-218492
	Application Number	14/691,445
Title of Invention	SYSTEM AND METHOD FOR A COOPERATIVE CONVERSATIONAL VOICE USER INTERFACE	

City	Bellevue	State/Province	WA	Country of Residence	US

Mailing Address of Inventor:

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Address 2			
City	Bellevue	State/Province	WA
Postal Code	98006	Country	US

Inventor 4 Remove

Legal Name

Prefix	Given Name	Middle Name	Family Name	Suffix
	Blane		EBERSOLD	

Residence Information (Select One) (•) US Residency ( ) Non US Residency ( ) Active US Military Service

City	Seattle	State/Province	WA	Country of Residence	US

Mailing Address of Inventor:

Address 1	4721 Admiral Way S.W.		
Address 2			
City	Seattle	State/Province	WA
Postal Code	98116	Country	US

Inventor 5 Remove

Legal Name

Prefix	Given Name	Middle Name	Family Name	Suffix
	Chris		WEIDER	

Residence Information (Select One) (•) US Residency ( ) Non US Residency ( ) Active US Military Service

City	Everett	State/Province	WA	Country of Residence	US

Mailing Address of Inventor:

Address 1	2618 Grand Avenue		
Address 2	#B-508		
City	Everett	State/Province	WA
Postal Code	98201	Country	US

All Inventors Must Be Listed - Additional Inventor Information blocks may be generated within this form by selecting the **Add** button. Add

Correspondence Information:

Enter either Customer Number or complete the Correspondence Information section below.
For further information see 37 CFR 1.33(a).

☐ **An Address is being provided for the correspondence Information of this application.**

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Application Data Sheet 37 CFR 1.76	Attorney Docket Number	62KC-218492
	Application Number	14/691,445
Title of Invention	SYSTEM AND METHOD FOR A COOPERATIVE CONVERSATIONAL VOICE USER INTERFACE	

Customer Number	133759		
Email Address	DMIPDocketing@sheppardmullin.com	Add Email	Remove Email

Application Information:

Title of the Invention	SYSTEM AND METHOD FOR A COOPERATIVE CONVERSATIONAL VOICE USER INTERFACE		
Attorney Docket Number	62KC-218492	**Small Entity Status Claimed**	☒
Application Type	Nonprovisional		
Subject Matter	Utility		
Total Number of Drawing Sheets (if any)	3	**Suggested Figure for Publication (if any)**	

Filing By Reference :

Only complete this section when filing an application by reference under 35 U.S.C. 111(c) and 37 CFR 1.57(a). Do not complete this section if application papers including a specification and any drawings are being filed. Any domestic benefit or foreign priority information must be provided in the appropriate section(s) below (i.e., "Domestic Benefit/National Stage Information" and "Foreign Priority Information").

For the purposes of a filing date under 37 CFR 1.53(b), the description and any drawings of the present application are replaced by this reference to the previously filed application, subject to conditions and requirements of 37 CFR 1.57(a).

Application number of the previously filed application	Filing date (YYYY-MM-DD)	Intellectual Property Authority or Country

Publication Information:

☐ Request Early Publication (Fee required at time of Request 37 CFR 1.219)

☐ **Request Not to Publish.** I hereby request that the attached application not be published under 35 U.S.C. 122(b) and certify that the invention disclosed in the attached application **has not and will not** be the subject of an application filed in another country, or under a multilateral international agreement, that requires publication at eighteen months after filing.

Representative Information:

Representative information should be provided for all practitioners having a power of attorney in the application. Providing this information in the Application Data Sheet does not constitute a power of attorney in the application (see 37 CFR 1.32).
Either enter Customer Number or complete the Representative Name section below. If both sections are completed the customer Number will be used for the Representative Information during processing.

Please Select One:	◉ Customer Number	○ US Patent Practitioner	○ Limited Recognition (37 CFR 11.9)
Customer Number	133759		

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Application Data Sheet 37 CFR 1.76	Attorney Docket Number	62KC-218492
	Application Number	14/691,445
Title of Invention	SYSTEM AND METHOD FOR A COOPERATIVE CONVERSATIONAL VOICE USER INTERFACE	

Domestic Benefit/National Stage Information:

This section allows for the applicant to either claim benefit under 35 U.S.C. 119(e), 120, 121, or 365(c) or indicate National Stage entry from a PCT application. Providing this information in the application data sheet constitutes the specific reference required by 35 U.S.C. 119(e) or 120, and 37 CFR 1.78.
When referring to the current application, please leave the application number blank.

Prior Application Status	Pending		Remove
Application Number	Continuity Type	Prior Application Number	Filing Date (YYYY-MM-DD)
	Continuation of	13/987645	2013-08-19

Prior Application Status	Patented				Remove
Application Number	Continuity Type	Prior Application Number	Filing Date (YYYY-MM-DD)	Patent Number	Issue Date (YYYY-MM-DD)
13/987645	Division of	13/251712	2011-10-03	8515765	2013-08-20

Prior Application Status	Patented				Remove
Application Number	Continuity Type	Prior Application Number	Filing Date (YYYY-MM-DD)	Patent Number	Issue Date (YYYY-MM-DD)
13/251712	Continuation of	11/580926	2006-10-16	8073681	2011-12-06

Additional Domestic Benefit/National Stage Data may be generated within this form by selecting the **Add** button.

Foreign Priority Information:

This section allows for the applicant to claim priority to a foreign application. Providing this information in the application data sheet constitutes the claim for priority as required by 35 U.S.C. 119(b) and 37 CFR 1.55(d). When priority is claimed to a foreign application that is eligible for retrieval under the priority document exchange program (PDX)[i] the information will be used by the Office to automatically attempt retrieval pursuant to 37 CFR 1.55(h)(1) and (2). Under the PDX program, applicant bears the ultimate responsibility for ensuring that a copy of the foreign application is received by the Office from the participating foreign intellectual property office, or a certified copy of the foreign priority application is filed, within the time period specified in 37 CFR 1.55(g)(1).

			Remove
Application Number	Country[i]	Filing Date (YYYY-MM-DD)	Access Code[i] (if applicable)

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Application Data Sheet 37 CFR 1.76	Attorney Docket Number	62KC-218492
	Application Number	14/691,445
Title of Invention	SYSTEM AND METHOD FOR A COOPERATIVE CONVERSATIONAL VOICE USER INTERFACE	

Statement under 37 CFR 1.55 or 1.78 for AIA (First Inventor to File) Transition Applications

☐ This application (1) claims priority to or the benefit of an application filed before March 16, 2013 and (2) also contains, or contained at any time, a claim to a claimed invention that has an effective filing date on or after March 16, 2013.
NOTE: By providing this statement under 37 CFR 1.55 or 1.78, this application, with a filing date on or after March 16, 2013, will be examined under the first inventor to file provisions of the AIA.

Authorization to Permit Access:

☒ Authorization to Permit Access to the Instant Application by the Participating Offices

If checked, the undersigned hereby grants the USPTO authority to provide the European Patent Office (EPO), the Japan Patent Office (JPO), the Korean Intellectual Property Office (KIPO), the World Intellectual Property Office (WIPO), and any other intellectual property offices in which a foreign application claiming priority to the instant patent application is filed access to the instant patent application. See 37 CFR 1.14(c) and (h). This box should not be checked if the applicant does not wish the EPO, JPO, KIPO, WIPO, or other intellectual property office in which a foreign application claiming priority to the instant patent application is filed to have access to the instant patent application.

In accordance with 37 CFR 1.14(h)(3), access will be provided to a copy of the instant patent application with respect to: 1) the instant patent application-as-filed; 2) any foreign application to which the instant patent application claims priority under 35 U.S.C. 119(a)-(d) if a copy of the foreign application that satisfies the certified copy requirement of 37 CFR 1.55 has been filed in the instant patent application; and 3) any U.S. application-as-filed from which benefit is sought in the instant patent application.

In accordance with 37 CFR 1.14(c), access may be provided to information concerning the date o f filing this Authorization.

Applicant Information:

Providing assignment information in this section does not substitute for compliance with any requirement of part 3 of Title 37 of CFR to have an assignment recorded by the Office.

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Application Data Sheet 37 CFR 1.76	Attorney Docket Number	62KC-218492
	Application Number	14/691,445
Title of Invention	SYSTEM AND METHOD FOR A COOPERATIVE CONVERSATIONAL VOICE USER INTERFACE	

Applicant 1

If the applicant is the inventor (or the remaining joint inventor or inventors under 37 CFR 1.45), this section should not be completed. The information to be provided in this section is the name and address of the legal representative who is the applicant under 37 CFR 1.43; or the name and address of the assignee, person to whom the inventor is under an obligation to assign the invention, or person who otherwise shows sufficient proprietary interest in the matter who is the applicant under 37 CFR 1.46. If the applicant is an applicant under 37 CFR 1.46 (assignee, person to whom the inventor is obligated to assign, or person who otherwise shows sufficient proprietary interest) together with one or more joint inventors, then the joint inventor or inventors who are also the applicant should be identified in this section.

Clear

◉ Assignee	○ Legal Representative under 35 U.S.C. 117	○ Joint Inventor
○ Person to whom the inventor is obligated to assign.	○ Person who shows sufficient proprietary interest	

If applicant is the legal representative, indicate the authority to file the patent application, the inventor is:

Name of the Deceased or Legally Incapacitated Inventor :

If the Applicant is an Organization check here. ☒

Organization Name	~~VoiceBox Technologies Corporation~~ VB Assets, LLC		
Mailing Address Information For Applicant:			
Address 1	~~14980 NE 24th Street~~ 13407 NE 37th Place		
Address 2	~~Suite 100~~		
City	Bellevue	**State/Province**	WA
Country	US	Postal Code	98005
Phone Number		Fax Number	
Email Address			

Additional Applicant Data may be generated within this form by selecting the Add button.

Assignee Information including Non-Applicant Assignee Information:

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Assignee 1

Complete this section if assignee information, including non-applicant assignee information, is desired to be included on the patent application publication . An assignee-applicant identified in the "Applicant Information" section will appear on the patent application publication as an applicant. For an assignee-applicant, complete this section only if identification as an assignee is also desired on the patent application publication.

If the Assignee or Non-Applicant Assignee is an Organization check here. ☐

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Application Data Sheet 37 CFR 1.76	Attorney Docket Number	62KC-218492
	Application Number	14/691,445
Title of Invention	SYSTEM AND METHOD FOR A COOPERATIVE CONVERSATIONAL VOICE USER INTERFACE	

Prefix	**Given Name**	Middle Name	**Family Name**	Suffix

Mailing Address Information For Assignee including Non-Applicant Assignee:

Address 1			
Address 2			
City		**State/Province**	
Country		Postal Code	
Phone Number		Fax Number	
Email Address			

Additional Assignee or Non-Applicant Assignee Data may be generated within this form by selecting the Add button.

Signature:

NOTE: This form must be signed in accordance with 37 CFR 1.33. See 37 CFR 1.4 for signature requirements and certifications.

Signature	/Hean L. Koo/			Date (YYYY-MM-DD)	2018-08-23
First Name	Hean	Last Name	Koo	Registration Number	61214

Additional Signature may be generated within this form by selecting the Add button.

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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 C o o p eration Treaty.

6. A record in this system of records may be disclosed, as a routine use, to another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c)).

7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (i.e., GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.

8. A record from this system of records may be disclosed, as a routine use, to the public after either publication of the application pursuant to 35 U.S.C. 122(b) or issuance of a patent pursuant to 35 U.S.C. 151. Further, a record may be disclosed, subject to the limitations of 37 CFR 1.14, as a routine use, to the public if the record was filed in an application which became abandoned or in which the proceedings were terminated and which application is referenced by either a published application, an application open to public inspections or an issued patent.

9. A record from this system of records may be disclosed, as a routine use, to a Federal, State, or local law enforcement agency, if the USPTO becomes aware of a violation or potential violation of law or regulation.

UNITED STATES PATENT AND TRADEMARK OFFICE

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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
14/691,445	04/20/2015	Larry BALDWIN	62KC-218492	8351

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UNITED STATES OF AMERICA

EXAMINER	
YEN, ERIC L	

ART UNIT	PAPER NUMBER
2658	

NOTIFICATION DATE	DELIVERY MODE
07/31/2018	ELECTRONIC

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

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

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

SheppardMullin_Pair@firsttofile.com
dmipdocketing@sheppardmullin.com

Office Action Summary	Application No. 14/691,445	Applicant(s) BALDWIN et al.	
	Examiner ERIC YEN	Art Unit 2658	AIA Status No

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTHS FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☑ Responsive to communication(s) filed on 7/12/18.

☐ A declaration(s)/affidavit(s) under **37 CFR 1.130(b)** was/were filed on _____.

2a)☐ This action is **FINAL.** 2b) ☑ This action is non-final.

3)☐ An election was made by the applicant in response to a restriction requirement set forth during the interview on _____; the restriction requirement and election have been incorporated into this action.

4)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims*

5) ☑ Claim(s) 1,7,11-13,19 and 21-25 is/are pending in the application.

5a) Of the above claim(s) _____ is/are withdrawn from consideration.

6) ☐ Claim(s) _____ is/are allowed.

7) ☑ Claim(s) 1,7,11-13,19 and 21-25 is/are rejected.

8) ☐ Claim(s) _____ is/are objected to.

9) ☐ Claim(s) _____ are subject to restriction and/or election requirement

* If any claims have been determined allowable, you may be eligible to benefit from the **Patent Prosecution Highway** program at a participating intellectual property office for the corresponding application. For more information, please see http://www.uspto.gov/patents/init_events/pph/index.jsp or send an inquiry to **PPHfeedback@uspto.gov.**

Application Papers

10)☐ The specification is objected to by the Examiner.

11)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

Certified copies:

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)).

** See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☑ Notice of References Cited (PTO-892)

2) ☑ Information Disclosure Statement(s) (PTO/SB/08a and/or PTO/SB/08b) Paper No(s)/Mail Date _____.

3) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date _____.

4) ☐ Other: _____.

DETAILED ACTION

Notice of Pre-AIA or AIA Status

1. The present application is being examined under the pre-AIA first to invent provisions.

Response to Amendment

1. In response to the Final Office Action mailed 10/12/17, applicant has submitted an amendment and Request for Continued Examination filed 7/12/18.

Claims 1, 3, 4, 13, 15, 16, 21, 22, have been amended. Claims 2, 14, have been cancelled.

Response to Arguments

1. Applicant's arguments with respect to the claims have been considered but are moot in view of the new ground(s) of rejection.

As per the 112 rejections:

Applicant's amendments/remarks have resolved some 112 issues but have also introduced others (see 112 rejections, below, for full detail).

Applicant's citations addressed the 112 1st paragraph issues pertaining to claims 1 and 13 and the amendments to claim 21 also address the 112 1st paragraph issues pertaining to claims 21-22

However, the previous 112, 1st paragraph rejections of claim 24 are maintained. While Applicant cited paragraph 59 and its accompanying table to support "receiving... an indication that the first response is unresponsive to the request" (i.e. receiving user speech stating that the voice user interface misunderstood the request to be a score

instead of a start time), the previous 112, 1st paragraph rejection stated that this portion of the Specification did not describe where the first response, in particular (i.e. the response generated based on the interpretation based on the context determined based on the short-term knowledge), is the response indicated to be unresponsive. Paragraph 59 and its table, at best, describes where some response is determined to be non-responsive but this does not specifically describe where a response based on an interpretation based on context based on short-term knowledge is the response determined to be non-responsive. Put another way, no part of paragraph 59 or its accompanying table describes where the "I've got the score for the Mariners game? 4-2 Mariners" response or any other response is generated according to the method of generating a first response claimed in claims 1 and 13.

Additionally, the 112 rejection of claim 24 further identified other features of claim 24 which are not supported by the original Specification.

Specifically, as stated in the last paragraph of the previous 112 rejection of claim 24, "claim 24 lacks written description and contains new matter, because no part of the Specification describes "receiving, by the computer system, an indication that the first response" (i.e. the response generated based on the interpretation determined based on the context determined based on the short-term knowledge) "is unresponsive to the request", and "generating, by the computer system, a second response that prompts a user to provide further input relating to the request, the second response including one or more words from the natural language utterance" (i.e. the first natural language utterance in the received voice input, which is the only natural language utterance in claim 1)"

No part of paragraph 59 or its accompanying table describes where the second response includes any part of the user's utterance. In fact, the table accompanying paragraph 59 specifically provides an example of where the second response does not include any part of the user's utterance (Neither "Oh" nor "7:05" is any part of the user's "can you get [mumbled…] Mariners […mumbled…]?" utterance) AND no part of paragraph 59 nor its accompanying table describes where the system prompts the user for any further input. In the example provided in paragraph 59 and its accompanying table, the user, by himself and without prompting, corrects the misinterpretation.

Therefore, Applicant's citation to paragraph 59 and its accompanying table is not sufficient to establish that written description support for the limitations of claim 24, and the 112 rejection of claim 24 is, therefore, maintained.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the first paragraph of 35 U.S.C. 112(a):

> (a) IN GENERAL.—The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same, and shall set forth the best mode contemplated by the inventor or joint inventor of carrying out the invention.

The following is a quotation of the first paragraph of pre-AIA 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same, and shall set forth the best mode contemplated by the inventor of carrying out his invention.

3. Claims 1, 7, 11-13, 19, 21-25, are rejected under 35 U.S.C. 112(a) or 35 U.S.C. 112 (pre-AIA), first paragraph, as failing to comply with the written description

requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor or a joint inventor, or for pre-AIA the inventor(s), at the time the application was filed, had possession of the claimed invention.

As per Claims 1 and 13:

Applicant's amendment to recite "short-term knowledge obtained during a single conversation that lasts a predefined amount of time/time period" introduces new matter into the claims.

No part of the Specification describes where conversations have a predefined duration such that they last for a predefined amount of time/time period.

Worth noting is that the original claims of this Application recited "one or more natural language utterances received during a predetermined time period". Even assuming this original recitation is supported by Applicant's description of "short-term session data may be expired after a psychologically appropriate amount of time", neither this original claim recitation nor any other part of the Specification describes where conversations last for a predefined amount of time.

More specifically, even assuming "psychologically appropriate amount of time" (the closest part of the Specification to any predefined amount of time) can be interpreted as a "predefined time period" or "predefined amount of time", no part of the Specification states that the conversation's duration is the same as the "psychologically appropriate amount of time". "Conversations lasting for a time shorter than the "psychologically appropriate amount of time" can still be received during that

"psychologically appropriate amount of time" even if the conversation only lasts for a fraction/portion of the "psychologically appropriate amount of time" (where the psychologically appropriate time is predefined, but the conversation's duration is not predefined).

Also, conversations do not inherently have predefined times. They typically/conventionally last for as long as the conversation participants are willing to talk, which is typically/conventionally not an amount of time that has been set/established prior to the conversation. While conversations can indeed be limited to a preset/"predefined" amount of time, no part of the Specification describes where the claimed "single conversation" has a duration (i.e. "lasts") which is a predefined amount of time/time period.

Therefore, Applicant's amendment to claim "a single conversation that lasts a predefined amount of time" in claim 1 and "a single conversation that lasts a predefined time period" in claim 13 introduces new matter.

Claim 24 recites "receiving… an indication that the first response is unresponsive to the request" and "generating, by the computer system, a second response that prompts a user to provide further input relating to the request, the second response including one or more words from the natural language utterance" which lacks written description and is thus new matter. See also Response to Arguments.

Paragraph 8 of the Specification describes where there may be incomplete or ambiguous requests which may lead to the system prompting the user for more

information, but this refers to inputs from the user being incomplete, and not responses from the system.

Paragraph 18 describes modeling responses to illicit completed requests, but this does not describe modeling a follow-up response after determining that an initially determined response (determined from interpretation, context, and short-term knowledge) is unresponsive.

Paragraph 31, like paragraph 8, describes where requests are incomplete, and not where the system formulates a response (based on interpretation based on context based on short-term knowledge) and assesses the response to be incomplete.

Paragraphs 37 and 38 describe a user asking follow up questions but each question involves the user asking something else and not indicating that the system response is inadequate (i.e. the system most likely answered the user's question about Seattle weather or the traffic report accurately but the user wants to know something else about a particular road or another place's weather).

The bottom of paragraph 38 further describes where knowledge does not provide enough information to disambiguate between possibilities, but this refers to whether the user's request has complete information and does not involve assessing whether the system response is responsive or not.

Paragraphs 53-57 describe framing responses in a particular manner but not assessing whether any of the responses are responsive to a user input or not. Additionally, these paragraphs do not describe where, in response to assessing a response as unresponsive, a user is prompted with a second response asking for further input, where the second response includes one or more words from the natural

language utterance. Paragraphs 53-57, in particular are directed to responses in general, and not to following up with the user to ask for further information.

Paragraph 57 describes where an initial interpretation is incorrect, but this refers to an analysis of the user's request or the system's understanding of the request, and does not refer to assessing the responsive nature of the system response.

Paragraph 59 describes where intelligent responses may nonetheless sometimes be incorrect, but this is described as a matter of fact, and not as an assessment made by the system or by the user. Additionally, no follow-up made by the system is made. The exchange depicted below paragraph 59 describes where the user speaks a correction to the system and not where the user is prompted by the system with a second response that contains words from the natural language utterance that produced the first response.

Therefore, claim 24 lacks written description and contains new matter, because no part of the Specification describes "receiving, by the computer system, an indication that the first response" (i.e. the response generated based on the interpretation determined based on the context determined based on the short-term knowledge) "is unresponsive to the request", and "generating, by the computer system, a second response that prompts a user to provide further input relating to the request, the second response including one or more words from the natural language utterance" (i.e. the first natural language utterance in the received voice input, which is the only natural language utterance in claim 1).

4. The following is a quotation of 35 U.S.C. 112(b):

> (b) CONCLUSION.—The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the inventor or a joint inventor regards as the invention.
>
> The following is a quotation of 35 U.S.C. 112 (pre-AIA), second paragraph: The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

5. Claim 25 is rejected under 35 U.S.C. 112(b) or 35 U.S.C. 112 (pre-AIA), second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which the inventor or a joint inventor, or for pre-AIA the applicant regards as the invention.

As per Claim 25:

Due to the amendment to claim 1 to recite "one or more non-voice inputs relating to the first voice input", "the non-voice input" in claim 25 is ambiguous when "one or more non-voice inputs" in claim 1 refers to more than one non-voice input (since there are multiple non-voice inputs and it is not clear which one "the non-voice input" in claim 25 is supposed to refer to when "one or more" refers to more than one).

It is also unclear, as claimed, if "the non-voice input" is supposed to refer to the "first non-voice input" in claim 1.

Additionally, claim 1 was amended to recite where non-voice input is obtained and not "received", and so "receiving the non-voice input" (even though receiving is semantically similar to obtaining) in claim 25 uses inconsistent terminology.

Claim Rejections - 35 USC § 101

6. 35 U.S.C. 101 reads as follows:

> Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

Claims 1, 7, 11-13, 19, 21-25 are rejected under 35 U.S.C. 101 because the claimed invention is directed to a judicial exception (i.e., a law of nature, a natural phenomenon, or an abstract idea) without significantly more. Claim(s) 1, 7, 11-13, 19, 21-25 is/are directed to an abstract idea. The claim(s) does/do not include additional elements that are sufficient to amount to significantly more than the judicial exception.

As per Claims 1 and 13, they are directed to an idea "of itself", similar to Content Extraction and Elec. Power, directed to collecting data, analyzing data, storing data, and similar to RecogniCorp and Digitech, directed to applying an algorithm to data to generate new data, where, under RecogniCorp, adding one abstract idea to another is still abstract.

"facilitating natural language system responses based on short-term knowledge obtained during a single conversation that lasts a predefined amount of time"/"facilitating natural language system responses based on short-term knowledge obtained during a single conversation that lasts a predefined time period" in the preambles of claims 1 and 13 are directed to collecting data (obtaining/collecting short-term knowledge data) and applying an algorithm to data to generate new data (applying a natural language understanding and conversation response generation algorithm to short-term knowledge data to generate response data).

The "receiving/receive... during the single conversation, a first voice input, comprising a first natural language utterance" limitation is directed to collecting data.

The "obtaining... during the single conversation, a user interface state of one or more non-voice inputs relating to the first voice input during the single conversation, the one or more non-voice inputs comprising at least a first non-voice input, relating to the first voice input" limitation is directed to collecting data and analyzing data (analyzing a non-voice input data to determine user interface state data)

"generating... short-term knowledge based on the first voice input and the first non-voice input" is directed to storing data (storing voice input data and non-voice input data as short-term knowledge data) and applying an algorithm to data to generate new data (applying a knowledge generating algorithm to voice input data and non-voice input data to generate short-term knowledge data).

"determining... based on the short-term knowledge, a first context for the first natural language utterance" is directed to applying an algorithm to data to generate new data (applying a context-determining algorithm to first natural language utterance data and short-term knowledge data to generate context data) and analyzing data (analyzing natural language utterance data using short-term knowledge data to determine context data)

"determining... based on the first context, an interpretation of the first natural language utterance" is directed to analyzing data (analyzing a natural language utterance data to determine interpretation data) and applying an algorithm to data to generate new data (applying an interpretation algorithm to context data and natural language utterance data to generate interpretation data)

"generating... based on the interpretation of the first natural language utterance, a first response to the first natural language utterance" is directed to applying an

algorithm to data to generate new data (applying an algorithm to interpretation data to determine how to respond and to generate response data)

Claims 1 and 13 are, therefore, directed to an abstract idea including the combination of the above-discussed abstract steps, where, under RecogniCorp, adding one abstract idea to another is still abstract.

The remaining limitations ("computer-implemented", "computer system that includes one or more physical processors executing one or more computer program instructions which, when executed, perform the method", "by the computer system", "from a first input device", "from a non-voice input device", "A system", "one or more physical processors programmed with one or more computer program instructions which, when executed, cause the one or more physical processors to", "from a first input voice", "from a non-voice input device") are directed to generic computer implementation where, under Alice, generic computer implementation of an abstract idea is not sufficient to make an abstract idea patentable.

As per Claims 7 and 19, they are directed to analyzing data and applying an algorithm to data to generate new data.

"The system" in claim 19 is directed to generic computer implementation.

As per Claim 11, it is directed to analyzing data (analyzing natural language utterance data using short-term knowledge data to determine speaking manner data) and applying an algorithm to data to generate new data (applying a manner-determining algorithm to short-term knowledge data and natural language utterance data to

generate manner data and applying a response generating algorithm to the manner data and to interpretation data to generate response data).

"by the computer system" is directed to generic computer implementation.

As per Claim 12, it is directed to limiting data to particular content (limiting manner data to tone data, pace data, inflection data or timing data) where, under Elec. Power, limiting collected data to particular content did not make collecting data any less abstract (see also SAP v. InvestPic which states that limiting analyzing and displaying of data to particular content also does not make those processes any less abstract). The limitations of claim 12 thus do not make the limitations of its parent claims any less abstract.

As per Claim 21:

"receiving… a second voice input comprising the natural language utterance" is directed to collecting data.

"comparing… the first voice input with the second voice input" is directed to comparing data (Berkheimer)

"filtering… sound from the first voice input and the second voice input based on the comparison" is directed to manipulating data (IV v Cap One [2017]) and applying an algorithm to data to generate new data (applying a filter algorithm [typically a math function] to audio data and to the comparison data to generate filtered sound data)

"by the computer system" and "via a second input device" is directed to generic computer implementation.

As per Claim 22, the prior art also teaches where multiple microphones are part of a single conventional device (i.e. a microphone array).

2004/0220800 "conventional microphone array system… having a plurality of microphones", paragraph 19.

Claim 22 is thus directed to a well-understood, routine, and conventional additional element of a single device (a microphone array) including multiple input devices (microphones)

As per Claim 23, "generating the first response" is directed to applying an algorithm to data to generate new data, and "generating… a non-voice response in a graphical user interface" is directed to displaying data, and "generating… a voice response" is directed to applying an algorithm to data to generate new data (i.e. generating voice response data by applying a response generating algorithm to interpretation data).

"by the computer system" is directed to generic computer implementation.

Also, even assuming "in a graphical user interface" is an additional element (instead of part of abstract displaying of data), "in a graphical user interface" and "via a speaker" are directed to well-understood, routine, and conventional output of display data and audio data. See **2004/0204939** ("Input device… include one or more conventional mechanisms that permit an operator to input information… keyboard, a mouse, a pen, a number pad, a microphone and/or biometric mechanisms, etc. Output

device… one or more conventional mechanisms that output information to the operator, including a display, a printer, speakers, etc.", paragraph 41;)

As per Claim 24, "wherein the natural language utterance relates to a request and the first response is intended to be responsive to the request" is directed to limiting data to particular content.

"receiving… an indication that the first response is unresponsive to the request" is directed to collecting data, and to analyzing data (analyzing a response to thereby receive indication data indicating that the response is unresponsive)

"generating… a second response that prompts a user to provide further input relating to the request, the second response including one or more words from the natural language utterance" is directed to applying an algorithm to data to generate new data (applying a response generating algorithm to natural language utterance word data and to the unresponsive indication data to generate further-input-prompting response data), and to displaying data (generating a displayed response prompting the user for further input).

"by the computer system" is directed to generic computer implementation.

As per Claim 25, "receiving the non-voice input" and "receiving… information indicating a location… that received an input" is directed to collecting data.

"by the computer system" is directed to generic computer implementation.

"wherein the non-voice input device comprises a touch screen device", "on the touch screen device" is directed to a well-understood, routine, and conventional touch screen additional element.

2002/0178003 "user interface... includes a microphone to receive voice instructions... may also include other conventional user interface elements, such as a keyboard, a keypad, a mouse or rollerball, a thumbwheel, a touchscreen, a touchpad... display may be any conventional... CRT... LCD... other display", paragraph 26;

Allowable Subject Matter

1. The following is a statement of reasons for the indication of allowable subject matter:

The prior art of record does not teach or suggest the combination of all limitations in independent claims 1 and 13.

In addition to what is suggested by Kennewick, Smith, and Perkins (see Final Office Action mailed 10/12/17):

The prior art further teaches multi-modal inputs that receive voice input and non-voice input that relates to the voice input (in a particular example, a multi-modal input where "fax this to him" is spoken and mouse click non-voice inputs that relate to "this" and "him" are also received via non-voice mouse input, where the speech and mouse clicks form a single multimodal input), substantively identical to the multimodal combination input concept in Applicant's example in Applicant's Remarks filed 7/12/18 (utterance "Give me directions to here" with a touch screen navigation device)

6975983 Figure 4; "fax… received via the speech modality… this… received by the speech modality in association with a mouse click event via the second modality… to… received via the speech modality… him… received by the speech modality in association with a mouse click event via the second modality", col. 8, lines 7-20;

The prior art also teaches continuing substantive dialog until a predetermined time period expires.

2005/0169441 "presenting includes: continuing to present the contact with the substantive dialog until a predetermined time period has expired", claim 4; "contacts may be customers, employees, or any party in need of the call handling system's services", paragraph 16;

The prior art also teaches a "predetermined period of conversation".

2002/0188455 "By executing this process for a predetermined period of conversation [or for a predetermined number of speeches included in the user's conversation]… words included in the conversation and their genres are accumulated in the speech DB", paragraph 85;

Regardless of whether the prior art does or does not teach where a single conversation/dialog lasts for a predefined time/period, the prior art does not reasonably suggest the combination of all limitations in claims 1 and 13 due to the quantity of references required to address every limitation and the complexity of the manner in which those references would need to be combined.

Double Patenting

1. For clarity of the record, NO double patenting rejections are required between the claims of this application and those of US 9,015,049 (Parent Patent 1) because the claims of Parent Patent 1 do not teach where short-term knowledge is generated based on both voice and non-voice inputs.

Also, while claims 11 of US 8,073,681 describe where an input including an utterance can be a multi-modal input that includes non-voice input, and while the independent claims teach where short-term knowledge is based on voice inputs, none of the claims teach where the short-term knowledge is further based on the non-voice input component of the multi-modal input (as opposed to the utterance voice input only).

Conclusion

2. Any inquiry concerning this communication or earlier communications from the examiner should be directed to ERIC YEN whose telephone number is (571)272-4249. The examiner can normally be reached on M-F 9:00-5:30PM.

Examiner interviews are available via telephone, in-person, and video conferencing using a USPTO supplied web-based collaboration tool. To schedule an interview, applicant is encouraged to use the USPTO Automated Interview Request (AIR) at http://www.uspto.gov/interviewpractice.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, RICHEMOND DORVIL can be reached on (571)272-7602. 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.

EY 7/26/18

/ERIC YEN/
Primary Examiner, Art Unit 2658

Notice of References Cited	Application/Control No. 14/691,445	Applicant(s)/Patent Under Reexamination BALDWIN et al.	
	Examiner ERIC YEN	Art Unit 2658	Page 1 of 1

U.S. PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Name	CPC Classification	US Classification
*	A	US-20040220800-A1	11-2004	Kong, Dong-geon	G10L21/0208	704/205
*	B	US-20040204939-A1	10-2004	Liu, Daben	G10L15/28	704/239
*	C	US-20020178003-A1	11-2002	Gehrke, James K.	G10L15/30	704/246
*	D	US-6975983-B1	12-2005	Fortescue; Nicholas David	G06F3/038	704/257
*	E	US-20050169441-A1	08-2005	Yacoub, Sherif	H04M3/4936	379/88.16
*	F	US-20020188455-A1	12-2002	Shioda, Takehiko	G10L17/26	704/275
	G					
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	M					

FOREIGN PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Country	Name	CPC 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.

Amazon/VB Assets
Exhibit 1003
Page 291

Index of Claims	Application/Control No.	Applicant(s)/Patent Under Reexamination
	14/691,445	BALDWIN et al.
	Examiner	Art Unit
	ERIC YEN	2658

✓	Rejected	-	Cancelled	N	Non-Elected	A	Appeal
=	Allowed	÷	Restricted	I	Interference	O	Objected

CLAIMS

☐ Claims renumbered in the same order as presented by applicant ☐ CPA ☐ T.D. ☐ R.1.47

CLAIM		DATE								
Final	Original	02/22/2017	05/03/2017	10/05/2017	07/26/2018					
	1	÷	✓	✓	✓					
	2	÷	✓	✓	-					
	3	÷	N	N	N					
	4	÷	N	N	N					
	5	÷	N	N	N					
	6	÷	N	N	N					
	7	÷	✓	✓	✓					
	8	÷	N	N	N					
	9	÷	N	N	N					
	10	÷	N	N	N					
	11	÷	✓	✓	✓					
	12	÷	✓	✓	✓					
	13	÷	✓	✓	✓					
	14	÷	✓	✓	-					
	15	÷	N	N	N					
	16	÷	N	N	N					
	17	÷	N	N	N					
	18	÷	N	N	N					
	19	÷	✓	✓	✓					
	20	÷	N	N	N					
	21			✓	✓					
	22			✓	✓					
	23			✓	✓					
	24			✓	✓					
	25			✓	✓					

Amazon/VB Assets
Exhibit 1003
Page 292

Search Notes	Application/Control No.	Applicant(s)/Patent Under Reexamination
	14/691,445	BALDWIN et al.
	Examiner	Art Unit
	ERIC YEN	2658

CPC - Searched*		
Symbol	Date	Examiner
G10L 15/22	5/3/17	EY
G06F 17/27, 17/2785	5/3/17	EY

CPC Combination Sets - Searched*		
Symbol	Date	Examiner

US Classification - Searched*			
Class	Subclass	Date	Examiner

* See search history printout included with this form or the SEARCH NOTES box below to determine the scope of the search.

Search Notes		
Search Notes	Date	Examiner
EAST Search (attached)	5/3/17	EY
EAST Search (attached)	10/5/17	EY
EAST Search (attached)	07/26/2018	EY

Interference Search			
US Class/CPC Symbol	US Subclass/CPC Group	Date	Examiner

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Exhibit 1003
Page 293

Doc code: IDS
Doc description: Information Disclosure Statement (IDS) Filed

PTO/SB/08a (03-15)
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INFORMATION DISCLOSURE STATEMENT BY APPLICANT
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Application Number	14691445
Filing Date	2015-04-20
First Named Inventor	Larry BALDWIN
Art Unit	2658
Examiner Name	Eric L. Yen
Attorney Docket Number	45HV-218492

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	1					

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Examiner Initial*	Cite No	Publication Number	Kind Code[1]	Publication Date	Name of Patentee or Applicant of cited Document	Pages,Columns,Lines where Relevant Passages or Relevant Figures Appear
	1	20090171912		2009-07-02	NASH MICHAEL PATRICK	
	2	20150066479		2015-03-05	PASUPALAK SAM	

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Examiner Initials*	Cite No	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc), date, pages(s), volume-issue number(s), publisher, city and/or country where published.	T[5]
	1		

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Examiner Signature	/ERIC YEN/	Date Considered	07/26/2018

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See attached certification statement.

☒ The fee set forth in 37 CFR 1.17 (p) has been submitted herewith.

A certification statement is not submitted herewith.

SIGNATURE

A signature of the applicant or representative is required in accordance with CFR 1.33, 10.18. Please see CFR 1.4(d) for the form of the signature.

Signature	/Hean L. Koo/	Date (YYYY-MM-DD)	2018-01-05
Name/Print	Hean L. Koo	Registration Number	61214

This collection of information is required by 37 CFR 1.97 and 1.98. 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 1 hour 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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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).

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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)).

7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (i.e., GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.

8. A record from this system of records may be disclosed, as a routine use, to the public after either publication of the application pursuant to 35 U.S.C. 122(b) or issuance of a patent pursuant to 35 U.S.C. 151. Further, a record may be disclosed, subject to the limitations of 37 CFR 1.14, as a routine use, to the public if the record was filed in an application which became abandoned or in which the proceedings were terminated and which application is referenced by either a published application, an application open to public inspections or an issued patent.

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EAST Search History

EAST Search History (Prior Art)

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
L1	1	14/691445 and (touch touchscreen$1)	US-PGPUB; USPAT; USOCR; EPO; JPO	OR	OFF	2018/07/26 09:20
L2	36	(G10L15/$ G10L2015/$).cpc. and ((touchscreen$1 touch-screen$1) with (conventional routine well-known))	US-PGPUB; USPAT; USOCR; EPO; JPO	OR	OFF	2018/07/26 09:21
L3	1	("20040220800").pn.	US-PGPUB; USPAT; USOCR; EPO; JPO	OR	OFF	2018/07/26 09:45
L4	2	("20040220800" "20040204939").pn.	US-PGPUB; USPAT; USOCR; EPO; JPO	OR	OFF	2018/07/26 09:48
L5	3	("20040220800" "20040204939" "20020178003").pn.	US-PGPUB; USPAT; USOCR; EPO; JPO	OR	OFF	2018/07/26 09:51
L6	138	(G10L15/$ G10L2015/$).cpc. and ((conversation$1 dialog$3) with ((predetermined predefined) adj (time$1 length$1 duration$1)))	US-PGPUB; USPAT; USOCR; EPO; JPO	OR	OFF	2018/07/26 10:01
L7	29	(G10L15/$ G10L2015/$).cpc. and ((conversation$1 dialog$3) with ((predetermined predefined) with duration$1))	US-PGPUB; USPAT; USOCR; EPO; JPO	OR	OFF	2018/07/26 10:46
L8	0	(G10L15/$ G10L2015/$).cpc. and ((multimodal multi-modal) with (there this))	US-PGPUB; USPAT; USOCR; EPO; JPO	OR	OFF	2018/07/26 10:47
L9	173	(G10L15/$ G10L2015/$).cpc. and ((multimodal multi-modal) with (touch) with (speech voice))	US-PGPUB; USPAT; USOCR; EPO; JPO	OR	OFF	2018/07/26 10:47
L10	254	(G10L15/$ G10L2015/$).cpc. and ((multimodal multi-modal) with (touch))	US-PGPUB; USPAT; USOCR; EPO; JPO	OR	OFF	2018/07/26 10:48
L13	199	(G10L15/$ G10L2015/$).cpc. and ((multimodal multi-modal) with (click$4))	US-PGPUB; USPAT; USOCR; EPO; JPO	OR	OFF	2018/07/26 11:26
L14	2467	(G10L15/$ G10L2015/$).cpc. and ((conversation$1 dialog$3) near5 (duration$1 time$1))	US-PGPUB; USPAT; USOCR; EPO; JPO	OR	OFF	2018/07/26 11:43

L15	118	(G10L15/$ G10L2015/$).cpc. and ((conversation$1 dialog$3) near5 (duration$1 time$1) near5 limit$4)	US-PGPUB; USPAT; USOCR; EPO; JPO	OR	OFF	2018/07/26 11:49
L16	137	(G10L15/$ G10L2015/$).cpc. and ((conversation$1 dialog$3) near5 (duration$1 time$1) near5 (fixed predetermined predefined))	US-PGPUB; USPAT; USOCR; EPO; JPO	OR	OFF	2018/07/26 11:51
L17	1	"20050169441".pn. and time$1	US-PGPUB; USPAT; USOCR; EPO; JPO	OR	OFF	2018/07/26 11:53
L19	7	(G10L15/$ G10L2015/$).cpc. and ((conversation$1 dialog$3) near5 ("time limit"))	US-PGPUB; USPAT; USOCR; EPO; JPO	OR	OFF	2018/07/26 11:57
L20	8	(G10L15/$ G10L2015/$).cpc. and ((conversation$1 dialog$3) near5 (limit) near5 (duration time))	US-PGPUB; USPAT; USOCR; EPO; JPO	OR	OFF	2018/07/26 11:58
L21	1	(G10L15/$ G10L2015/$).cpc. and ((conversation$1 dialog$3) near5 lasts near5 (duration$1 time$1 period$1))	US-PGPUB; USPAT; USOCR; EPO; JPO	OR	OFF	2018/07/26 11:59
L22	69	(G10L15/$ G10L2015/$).cpc. and ((conversation$1 dialog$3) near5 (period$1) near5 (predetermined predefined limited fixed))	US-PGPUB; USPAT; USOCR; EPO; JPO	OR	OFF	2018/07/26 11:59
L23	1	"20050169441".pn. and expir$4	US-PGPUB; USPAT; USOCR; EPO; JPO	OR	OFF	2018/07/26 12:06
L24	6	("20040220800" "20040204939" "20020178003" "6975983" "20050169441" "20020188455").pn.	US-PGPUB; USPAT; USOCR; EPO; JPO	OR	OFF	2018/07/26 12:11

7/26/2018 12:22:54 PM
C:\Users\eyen\Documents\EAST\Workspaces\14691445R.wsp

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Page 299

Doc code: IDS
Doc description: Information Disclosure Statement (IDS) Filed

PTO/SB/08a (03-15)
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Application Number	14691445
Filing Date	2015-04-20
First Named Inventor	Larry BALDWIN
Art Unit	2658
Examiner Name	Eric L. Yen
Attorney Docket Number	45HV-218492

U.S.PATENTS Remove

Examiner Initial*	Cite No	Patent Number	Kind Code[1]	Issue Date	Name of Patentee or Applicant of cited Document	Pages,Columns,Lines where Relevant Passages or Relevant Figures Appear
	1	6243679		2001-06-05	Mehryar Mohri	
	2	6591185		2003-07-08	Ari Israel Polidi	
	3	8326599		2012-12-04	Nadi Tomeh	
	4	8612205		2013-12-17	Gregory Alan Hanneman	
	5	8612206		2013-12-17	Achraf Chalabi	

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Examiner Initial*	Cite No	Publication Number	Kind Code[1]	Publication Date	Name of Patentee or Applicant of cited Document	Pages,Columns,Lines where Relevant Passages or Relevant Figures Appear
	1	20030069880		2003-04-10	Tom Harrison	

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	2	20040093567		2004-05-13	Yves Schabes	
	3	20050222763		2005-10-06	Robert Uyeki	
	4	20050234637		2005-10-20	Michael Obradovich	
	5	20060046740		2006-03-02	Karen Johnson	
	6	20060253247		2006-11-09	Andrew de Silva	
	7	20070050279		2007-03-01	Qingfeng Huang	
	8	20080014908		2008-01-17	Abraham Vasant	
	9	20080086455		2008-04-10	Adrienne C. Meisels	
	10	20080269958		2008-10-30	Dimitar Petrov Filev	
	11	20090197582		2009-08-06	Robert C. Lewis	
	12	20120041753		2012-02-16	Marc Dymetman	

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	Attorney Docket Number	45HV-218492

	13	20120265528		2012-10-18	Thomas Robert Gruber			

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Examiner Initial*	Cite No	Foreign Document Number[3]	Country Code[2] i	Kind Code[4]	Publication Date	Name of Patentee or Applicant of cited Document	Pages,Columns,Lines where Relevant Passages or Relevant Figures Appear	T[5]
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	1		

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	Examiner Name	Eric L. Yen
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CERTIFICATION STATEMENT

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See attached certification statement.

☒ The fee set forth in 37 CFR 1.17 (p) has been submitted herewith.

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SIGNATURE

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Signature	/Hean L. Koo/	Date (YYYY-MM-DD)	2017-10-19
Name/Print	Hean L. Koo	Registration Number	61214

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Attorney Docket Number	45HV-218492

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	1	1860496A	CN		2006-11-08			
	2	2012518847	JP		2012-08-16			
	3	H08263258	JP		1996-10-11	Hitachi Ltd		

/ERIC YEN/ 07/26/2018

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INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	14691445
	Filing Date	2015-04-20
	First Named Inventor	Larry BALDWIN
	Art Unit	2658
	Examiner Name	Eric L. Yen
	Attorney Docket Number	45HV-218492

	4	2005010702A2	WO		2005-02-03	Google, Inc.		

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EXAMINER SIGNATURE

Examiner Signature	/ERIC YEN/	Date Considered	07/26/2018

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[1] See Kind Codes of USPTO Patent Documents at www.USPTO.GOV or MPEP 901.04. [2] Enter office that issued the document, by the two-letter code (WIPO Standard ST.3). [3] For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. [4] Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible. [5] Applicant is to place a check mark here if English language translation is attached.

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	Filing Date	2015-04-20
	First Named Inventor	Larry BALDWIN
	Art Unit	2658
	Examiner Name	Eric L. Yen
	Attorney Docket Number	45HV-218492

CERTIFICATION STATEMENT

Please see 37 CFR 1.97 and 1.98 to make the appropriate selection(s):

☒ That each item of information contained in the information disclosure statement was first cited in any communication from a foreign patent office in a counterpart foreign application not more than three months prior to the filing of the information disclosure statement. See 37 CFR 1.97(e)(1).

OR

☐ That no item of information contained in the information disclosure statement was cited in a communication from a foreign patent office in a counterpart foreign application, and, to the knowledge of the person signing the certification after making reasonable inquiry, no item of information contained in the information disclosure statement was known to any individual designated in 37 CFR 1.56(c) more than three months prior to the filing of the information disclosure statement. See 37 CFR 1.97(e)(2).

See attached certification statement.

☒ The fee set forth in 37 CFR 1.17 (p) has been submitted herewith.

A certification statement is not submitted herewith.

SIGNATURE

A signature of the applicant or representative is required in accordance with CFR 1.33, 10.18. Please see CFR 1.4(d) for the form of the signature.

Signature	/Hean L. Koo/	Date (YYYY-MM-DD)	2017-10-19
Name/Print	Hean L. Koo	Registration Number	61214

This collection of information is required by 37 CFR 1.97 and 1.98. 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 1 hour 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.**

/ERIC YEN/ 07/26/2018

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The Privacy Act of 1974 (P.L. 93-579) requires that you be given certain information in connection with your submission of the attached form related to a patent application or patent. Accordingly, pursuant to the requirements of the Act, please be advised that: (1) the general authority for the collection of this information is 35 U.S.C. 2(b)(2); (2) furnishing of the information solicited is voluntary; and (3) the principal purpose for which the information is used by the U.S. Patent and Trademark Office is to process and/or examine your submission related to a patent application or patent. If you do not furnish the requested information, the U.S. Patent and Trademark Office may not be able to process and/or examine your submission, which may result in termination of proceedings or abandonment of the application or expiration of the patent.

The information provided by you in this form will be subject to the following routine uses:

1. The information on this form will be treated confidentially to the extent allowed under the Freedom of Information Act (5 U.S.C. 552) and the Privacy Act (5 U.S.C. 552a). Records from this system of records may be disclosed to the Department of Justice to determine whether the Freedom of Information Act requires disclosure of these record s.

2. A record from this system of records may be disclosed, as a routine use, in the course of presenting evidence to a court, magistrate, or administrative tribunal, including disclosures to opposing counsel in the course of settlement negotiations.

3. A record in this system of records may be disclosed, as a routine use, to a Member of Congress submitting a request involving an individual, to whom the record pertains, when the individual has requested assistance from the Member with respect to the subject matter of the record.

4. A record in this system of records may be disclosed, as a routine use, to a contractor of the Agency having need for the information in order to perform a contract. Recipients of information shall be required to comply with the requirements of the Privacy Act of 1974, as amended, pursuant to 5 U.S.C. 552a(m).

5. A record related to an International Application filed under the Patent Cooperation Treaty in this system of records may be disclosed, as a routine use, to the International Bureau of the World Intellectual Property Organization, pursuant to the Patent Cooperation Treaty.

6. A record in this system of records may be disclosed, as a routine use, to another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c)).

7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (i.e., GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.

8. A record from this system of records may be disclosed, as a routine use, to the public after either publication of the application pursuant to 35 U.S.C. 122(b) or issuance of a patent pursuant to 35 U.S.C. 151. Further, a record may be disclosed, subject to the limitations of 37 CFR 1.14, as a routine use, to the public if the record was filed in an application which became abandoned or in which the proceedings were terminated and which application is referenced by either a published application, an application open to public inspections or an issued patent.

9. A record from this system of records may be disclosed, as a routine use, to a Federal, State, or local law enforcement agency, if the USPTO becomes aware of a violation or potential violation of law or regulation.

/ERIC YEN/ 07/26/2018

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Doc code: IDS
Doc description: Information Disclosure Statement (IDS) Filed

PTO/SB/08a (03-15)
Approved for use through 07/31/2016. OMB 0651-0031
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
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INFORMATION DISCLOSURE STATEMENT BY APPLICANT
(Not for submission under 37 CFR 1.99)

Application Number	14691445
Filing Date	2015-04-20
First Named Inventor	Larry BALDWIN
Art Unit	2658
Examiner Name	Eric L. Yen
Attorney Docket Number	45HV-218492

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Examiner Initial*	Cite No	Patent Number	Kind Code[1]	Issue Date	Name of Patentee or Applicant of cited Document	Pages,Columns,Lines where Relevant Passages or Relevant Figures Appear
	1	5331554		1994-07-19	GRAHAM JAMES M	

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Examiner Initial*	Cite No	Publication Number	Kind Code[1]	Publication Date	Name of Patentee or Applicant of cited Document	Pages,Columns,Lines where Relevant Passages or Relevant Figures Appear
	1	20080270135		2008-10-30	GOEL VAIBHAVA	
	2	20090030686		2009-01-29	WENG FULIANG	
	3	20090055176		2009-02-26	HU JUNLING	
	4	20090157382		2009-06-18	BAR SHMUEL	
	5	20100023331		2010-01-28	DUTA NICOLAE	

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	Application Number	14691445
	Filing Date	2015-04-20
	First Named Inventor	Larry BALDWIN
	Art Unit	2658
	Examiner Name	Eric L. Yen
	Attorney Docket Number	45HV-218492

	6	20100268536		2010-10-21	SUENDERMANN DAVID			

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Examiner Initial*	Cite No	Foreign Document Number[3]	Country Code[2]	Kind Code[4]	Publication Date	Name of Patentee or Applicant of cited Document	Pages,Columns,Lines where Relevant Passages or Relevant Figures Appear	T[5]
	1							

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Examiner Initials*	Cite No	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc), date, pages(s), volume-issue number(s), publisher, city and/or country where published.	T[5]
	1		

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EXAMINER SIGNATURE

Examiner Signature	/ERIC YEN/	Date Considered	07/26/2018

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

[1] See Kind Codes of USPTO Patent Documents at www.USPTO.GOV or MPEP 901.04. [2] Enter office that issued the document, by the two-letter code (WIPO Standard ST.3). [3] For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. [4] Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible. [5] Applicant is to place a check mark here if English language translation is attached.

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See attached certification statement.

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A certification statement is not submitted herewith.

SIGNATURE

A signature of the applicant or representative is required in accordance with CFR 1.33, 10.18. Please see CFR 1.4(d) for the form of the signature.

Signature	/Hean L. Koo/	Date (YYYY-MM-DD)	2018-01-05
Name/Print	Hean L. Koo	Registration Number	61214

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/ERIC YEN/

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/ERIC YEN/ 07/26/2018

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PATENT APPLICATION FEE DETERMINATION RECORD Substitute for Form PTO-875	Application or Docket Number 14/691,445	Filing Date 04/20/2015	☐ To be Mailed

ENTITY: ☐ LARGE ☒ SMALL ☐ MICRO

APPLICATION AS FILED – PART I

FOR	(Column 1) NUMBER FILED	(Column 2) NUMBER EXTRA	RATE ($)	FEE ($)
☐ BASIC FEE (37 CFR 1.16(a), (b), or (c))	N/A	N/A	N/A	
☐ SEARCH FEE (37 CFR 1.16(k), (i), or (m))	N/A	N/A	N/A	
☐ EXAMINATION FEE (37 CFR 1.16(o), (p), or (q))	N/A	N/A	N/A	
TOTAL CLAIMS (37 CFR 1.16(i))	minus 20 =	*	X $ =	
INDEPENDENT CLAIMS (37 CFR 1.16(h))	minus 3 =	*	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 $310 ($155 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	

APPLICATION AS AMENDED – PART II

AMENDMENT **07/12/2018**

	(Column 1) CLAIMS REMAINING AFTER AMENDMENT		(Column 2) HIGHEST NUMBER PREVIOUSLY PAID FOR	(Column 3) PRESENT EXTRA	RATE ($)	ADDITIONAL FEE ($)
Total (37 CFR 1.16(i))	* 23	Minus	** 23	= 0	X $50 =	0
Independent (37 CFR 1.16(h))	* 2	Minus	***3	= 0	X $230 =	0
☐ Application Size Fee (37 CFR 1.16(s))						
☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))						
					TOTAL ADD'L FEE	0

AMENDMENT

	(Column 1) CLAIMS REMAINING AFTER AMENDMENT		(Column 2) HIGHEST NUMBER PREVIOUSLY PAID FOR	(Column 3) PRESENT EXTRA	RATE ($)	ADDITIONAL FEE ($)
Total (37 CFR 1.16(i))	*	Minus	**	=	X $ =	
Independent (37 CFR 1.16(h))	*	Minus	***	=	X $ =	
☐ Application Size Fee (37 CFR 1.16(s))						
☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))						
					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.

LIE
TARA WITCHER

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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U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
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PATENT APPLICATION FEE DETERMINATION RECORD Substitute for Form PTO-875	Application or Docket Number 14/691,445	Filing Date 04/20/2015	☐ To be Mailed

ENTITY: ☐ LARGE ☒ SMALL ☐ MICRO

APPLICATION AS FILED – PART I

FOR	(Column 1) NUMBER FILED	(Column 2) NUMBER EXTRA	RATE ($)	FEE ($)
☐ BASIC FEE (37 CFR 1.16(a), (b), or (c))	N/A	N/A	N/A	
☐ SEARCH FEE (37 CFR 1.16(k), (i), or (m))	N/A	N/A	N/A	
☐ EXAMINATION FEE (37 CFR 1.16(o), (p), or (q))	N/A	N/A	N/A	
TOTAL CLAIMS (37 CFR 1.16(i))	minus 20 =	*	X $ =	
INDEPENDENT CLAIMS (37 CFR 1.16(h))	minus 3 =	*	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 $310 ($155 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	

APPLICATION AS AMENDED – PART II

AMENDMENT	07/12/2018	(Column 1) CLAIMS REMAINING AFTER AMENDMENT		(Column 2) HIGHEST NUMBER PREVIOUSLY PAID FOR	(Column 3) PRESENT EXTRA	RATE ($)	ADDITIONAL FEE ($)
	Total (37 CFR 1.16(i))	* 23	Minus	** 25	= 0	X $50 =	0
	Independent (37 CFR 1.16(h))	* 2	Minus	***3	= 0	X $230 =	0
	☐ Application Size Fee (37 CFR 1.16(s))						
	☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))						
						TOTAL ADD'L FEE	0

AMENDMENT		(Column 1) CLAIMS REMAINING AFTER AMENDMENT		(Column 2) HIGHEST NUMBER PREVIOUSLY PAID FOR	(Column 3) PRESENT EXTRA	RATE ($)	ADDITIONAL FEE ($)
	Total (37 CFR 1.16(i))	*	Minus	**	=	X $ =	
	Independent (37 CFR 1.16(h))	*	Minus	***	=	X $ =	
	☐ Application Size Fee (37 CFR 1.16(s))						
	☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))						
						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.

LIE
TARA WITCHER

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Request for Continued Examination (RCE) Transmittal

Address to:
Mail Stop RCE
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Application Number	14/691,445
Filing Date	April 20, 2015
First Named Inventor	Larry Baldwin
Art Unit	2658
Examiner Name	Eric L. Yen
Attorney Docket Number	62KC-218492

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, to any international application that does not compy with the requirements of 35 U.S.C 371, 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 Petition for one month extension of time

2. Miscellaneous

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

   b. ☐ Other _____

3. Fees The RCE fee under 37 CFR 1.17(e) is required by 37 CFR 1.114 when the RCE is filed.

   a. ☑ The Director is hereby authorized to charge the following fees, any underpayment of fees, or credit any overpayments, to Deposit Account No. 504561.

      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	/Hean L. Koo/	Date	July 12, 2018
Name (Print/Type)	Hean L. Koo	Registration No.	61214

CERTIFICATE OF MAILING OR TRANSMISSION

I hereby certify that this correspondence is being deposited with the United States Postal Service with sufficient postage as first class mail in an envelope addressed to: Mail Stop RCE, Commissioner for Patents, P. O. Box 1450, Alexandria, VA 22313-1450 or facsimile transmitted to the U.S. Patent and Trademark Office on the date shown below.

Signature			
Name (Print/Type)		Date	

This collection of information is required by 37 CFR 1.114. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Mail Stop RCE, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

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

PTO/SB/30 (07-14)
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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.

Instruction Sheet for RCEs

(not to be submitted to the USPTO)

NOTES:

An RCE is not a new application, and filing an RCE will not result in an application being accorded a new filing date.

Filing Qualifications:

The application must be a utility or plant application filed on or after June 8, 1995. The application cannot be a provisional application, a utility or plant application filed before June 8, 1995, an international application that does not comply with the requirements of 35 U.S.C. 371, a design application, or a patent under reexamination. See 37 CFR 1.114(e). An international application does not comply with the requirements of 35 U.S.C. 371 until the requirements under 35 U.S.C. 371(c), including the requirement for the inventor's oath or declaration under 35 U.S.C. 371(c)(4), have been complied with.

Filing Requirements:

Prosecution in the application must be closed. Prosecution is closed if the application is under appeal, or the last Office action is a final action, a notice of allowance, or an action that otherwise closes prosecution in the application (e.g., an Office action under *Ex parte Quayle*). See 37 CFR 1.114(b).

A submission and a fee are required at the time the RCE is filed. If reply to an Office action under 35 U.S.C. 132 is outstanding (e.g., the application is under final rejection), the submission must meet the reply requirements of 37 CFR 1.111. If there is no outstanding Office action, the submission can be an information disclosure statement, an amendment, new arguments, or new evidence. See 37 CFR 1.114(c). The submission may be a previously filed amendment (e.g., an amendment after final rejection).

WARNINGS:

Request for Suspension of Action:

All RCE filing requirements must be met before suspension of action is granted. A request for a suspension of action under 37 C FR 1.103(c) does not satisfy the submission requirement and does not permit the filing of the required submission to be suspended.

Improper RCE will NOT toll Any Time Period:

Before Appeal - If the RCE is improper (e.g., prosecution in the application is not closed or the submission or fee has not been filed) and the application is not under appeal, the time period set forth in the last Office action will continue to run and the application will be abandoned after the statutory time period has expired if a reply to the Office action is not timely filed. No additional time will be given to correct the improper RCE.

Under Appeal - If the RCE is improper (e.g., the submission or the fee has not been filed) and the application is under appeal, the improper RCE is effective to withdraw the appeal. Withdrawal of the appeal results in the allowance or abandonment of the application depending on the status of the claims. If there are no allowed claims, the application is abandoned. If there is at least one allowed claim, the application will be passed to issue on the allowed claim(s). See MPEP 1215.01.

See MPEP 706.07(h) for further information on the RCE practice.

Privacy Act Statement

The **Privacy Act of 1974 (P.L. 93-579)** requires that you be given certain information in connection with your submission of the attached form related to a patent application or patent. Accordingly, pursuant to the requirements of the Act, please be advised that: (1) the general authority for the collection of this information is 35 U.S.C. 2(b)(2); (2) furnishing of the information solicited is voluntary; and (3) the principal purpose for which the information is used by the U.S. Patent and Trademark Office is to process and/or examine your submission related to a patent application or patent. If you do not furnish the requested information, the U.S. Patent and Trademark Office may not be able to process and/or examine your submission, which may result in termination of proceedings or abandonment of the application or expiration of the patent.

The information provided by you in this form will be subject to the following routine uses:

1. The information on this form will be treated confidentially to the extent allowed under the Freedom of Information Act (5 U.S.C. 552) and the Privacy Act (5 U.S.C 552a). Records from this system of records may be disclosed to the Department of Justice to determine whether disclosure of these records is required by the Freedom of Information Act.
2. A record from this system of records may be disclosed, as a routine use, in the course of presenting evidence to a court, magistrate, or administrative tribunal, including disclosures to opposing counsel in the course of settlement negotiations.
3. A record in this system of records may be disclosed, as a routine use, to a Member of Congress submitting a request involving an individual, to whom the record pertains, when the individual has requested assistance from the Member with respect to the subject matter of the record.
4. A record in this system of records may be disclosed, as a routine use, to a contractor of the Agency having need for the information in order to perform a contract. Recipients of information shall be required to comply with the requirements of the Privacy Act of 1974, as amended, pursuant to 5 U.S.C. 552a(m).
5. A record related to an International Application filed under the Patent Cooperation Treaty in this system of records may be disclosed, as a routine use, to the International Bureau of the World Intellectual Property Organization, pursuant to the Patent Cooperation Treaty.
6. A record in this system of records may be disclosed, as a routine use, to another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c)).
7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (*i.e.*, GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.
8. A record from this system of records may be disclosed, as a routine use, to the public after either publication of the application pursuant to 35 U.S.C. 122(b) or issuance of a patent pursuant to 35 U.S.C. 151. Further, a record may be disclosed, subject to the limitations of 37 CFR 1.14, as a routine use, to the public if the record was filed in an application which became abandoned or in which the proceedings were terminated and which application is referenced by either a published application, an application open to public inspection or an issued patent.
9. A record from this system of records may be disclosed, as a routine use, to a Federal, State, or local law enforcement agency, if the USPTO becomes aware of a violation or potential violation of law or regulation.

Electronic Patent Application Fee Transmittal

Application Number:	14691445
Filing Date:	20-Apr-2015
Title of Invention:	SYSTEM AND METHOD FOR A COOPERATIVE CONVERSATIONAL VOICE USER INTERFACE
First Named Inventor/Applicant Name:	Larry BALDWIN
Filer:	Hean Lee Koo/Diane Bogusz
Attorney Docket Number:	45HV-218492

Filed as Small Entity

Filing Fees for Utility under 35 USC 111(a)

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($)
Extension - 1 month with $0 paid	2251	1	100	100
Miscellaneous:				
RCE- 1ST REQUEST	2801	1	650	650
		Total in USD ($)		**750**

Electronic Acknowledgement Receipt	
EFS ID:	33165866
Application Number:	14691445
International Application Number:	
Confirmation Number:	8351
Title of Invention:	SYSTEM AND METHOD FOR A COOPERATIVE CONVERSATIONAL VOICE USER INTERFACE
First Named Inventor/Applicant Name:	Larry BALDWIN
Customer Number:	133759
Filer:	Hean Lee Koo/Diane Bogusz
Filer Authorized By:	Hean Lee Koo
Attorney Docket Number:	45HV-218492
Receipt Date:	12-JUL-2018
Filing Date:	20-APR-2015
Time Stamp:	17:56:20
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	DA
Payment was successfully received in RAM	$750
RAM confirmation Number	071318INTEFSW00004661504561
Deposit Account	
Authorized User	
The Director of the USPTO is hereby authorized to charge indicated fees and credit any overpayment as follows:	

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Extension of Time	218492_EOT.pdf	163528 6f58870d15d1d21e692113ca26db8f239ea8dc96	no	2
Warnings:					
Information:					
2		218492_RESPONSE_7-12-18.pdf	69938 62568baf0458106d8284540776badb1b17d6e5d6	yes	11

	Multipart Description/PDF files in .zip description		
	Document Description	**Start**	**End**
	Amendment Submitted/Entered with Filing of CPA/RCE	1	1
	Claims	2	7
	Applicant Arguments/Remarks Made in an Amendment	8	11

Warnings:					
Information:					
3	Request for Continued Examination (RCE)	218492_____RCE_sb0030.pdf	120105 dffca9a982ee7552172 4e8f019e2cc971a8c3689	no	3
Warnings:					
This is not a USPTO supplied RCE SB30 form.					
Information:					
4	Fee Worksheet (SB06)	fee-info.pdf	32497 0e6243fa75c9b98b1bd08c33ca9be3de67c1915f	no	2
Warnings:					
Information:					
		Total Files Size (in bytes):	386068		

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

New Applications Under 35 U.S.C. 111

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

National Stage of an International Application under 35 U.S.C. 371

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

New International Application Filed with the USPTO as a Receiving Office

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

PTO/AIA/22 (03-13)
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PETITION FOR EXTENSION OF TIME UNDER 37 CFR 1.136(a)

Docket Number (Optional): 45HV-218492

Application Number: 14/691,445

Filed: APRIL 20, 2015

For: SYSTEM AND METHOD FOR A COOPERATIVE CONVERSATIONAL VOICE USER INTERFACE

Art Unit: 2658

Examiner: Eric L. Yen

This is a request under the provisions of 37 CFR 1.136(a) to extend the period for filing a reply in the above-identified application.

The requested extension and fee are as follows (check time period desired and enter the appropriate fee below):

		Fee	Small Entity Fee	Micro Entity Fee	
☑	One month (37 CFR 1.17(a)(1))	$200	$100	$50	$ 100
☐	Two months (37 CFR 1.17(a)(2))	$600	$300	$150	$
☐	Three months (37 CFR 1.17(a)(3))	$1,400	$700	$350	$
☐	Four months (37 CFR 1.17(a)(4))	$2,200	$1,100	$550	$
☐	Five months (37 CFR 1.17(a)(5))	$3,000	$1,500	$750	$

☐ Applicant asserts small entity status. See 37 CFR 1.27.

☐ Applicant certifies micro entity status. See 37 CFR 1.29.
Form PTO/SB/15A or B or equivalent must either be enclosed or have been submitted previously.

☐ A check in the amount of the fee is enclosed.

☐ Payment by credit card. Form PTO-2038 is attached.

☐ The Director has already been authorized to charge fees in this application to a Deposit Account.

☑ The Director is hereby authorized to charge any fees which may be required, or credit any overpayment, to Deposit Account Number 501067.

☐ Payment made via EFS-Web.

WARNING: Information on this form may become public. Credit card information should not be included on this form. Provide credit card information and authorization on PTO-2038.

I am the

☐ applicant.

☐ attorney or agent of record. Registration number _____.

☑ attorney or agent acting under 37 CFR 1.34. Registration number 61214.

/Hean L. Koo/ — Signature

July 12, 2018 — Date

Hean L. Koo — Typed or printed name

202 747 2647 — Telephone Number

NOTE: This form must be signed in accordance with 37 CFR 1.33. See 37 CFR 1.4 for signature requirements and certifications. Submit multiple forms if more than one signature is required, see below*.

☐ * Total of _____ forms are submitted.

This collection of information is required by 37 CFR 1.136(a). 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 6 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 PCT, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

Privacy Act Statement

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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.

THE UNITED STATES PATENT & TRADEMARK OFFICE

IN RE PATENT APPLICATION OF:	)	Larry Baldwin *et al.*
SERIAL NO.:	)	14/691,445
FILING DATE:	)	April 20, 2015
ATTORNEY DOCKET NO.:	)	62KC-218492
CONFIRMATION NO.:	)	8351
EXAMINER:	)	Eric L. Yen
ART UNIT:	)	2658
FOR:	)	SYSTEM AND METHOD FOR A COOPERATIVE CONVERSATIONAL VOICE USER INTERFACE

Response to Final Office Action Mailed October 12, 2017

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

Dear Sir:

In response to the Final Office Action Mailed October 12, 2017 ("Final Action"), and further to the Notice of Appeal filed April 12, 2018, please amend the above-identified application as follows:

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

Remarks begin on page **8** 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 Deposit Account No. 501067 (**Ref. No. 62KC-218492**).

AMENDMENT TO THE CLAIMS

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

LISTING OF CLAIMS:

1. (Currently Amended) A computer-implemented method of facilitating natural language system responses based on short-term knowledge~~, wherein the short-term knowledge is based on voice and non-voice inputs received during~~ obtained during a single conversation that lasts a ~~given time period~~ predefined amount of time, the method being implemented by a computer system that includes one or more physical processors executing one or more computer program instructions which, when executed, perform the method, the method comprising:

receiving, by the computer system during the single conversation, a first voice input, comprising a first natural language utterance, from [[an]] a first input device;

obtaining, by the computer system during the single conversation, a user interface state of one or more non-voice inputs relating to the first voice input, the one or more non-voice inputs comprising at least ~~receiving, by the computer system,~~ a first non-voice input, relating to the first voice input, from ~~via~~ a non-voice input device;

generating, by the computer system, the short-term knowledge based on the first voice input and the first non-voice input;

determining, by the computer system, based on the short-term knowledge, a first context for the first natural language utterance;

determining, by the computer system, based on the first context, an interpretation of the first natural language utterance; and

generating, by the computer system, based on the interpretation of the first natural language utterance, a first response to the first natural language utterance.

2. (Canceled).

3. (Withdrawn-Currently Amended) The method of claim 1, further comprising: receiving, at the computer system, a second natural language utterance from the first input device; determining, by the computer system, based on the short-term knowledge, whether the second natural language utterance corresponds to the first context; determining, by the computer system,

responsive to the second natural language utterance not corresponding to the first context, a second context for the second natural language utterance based on the short-term knowledge; determining, by the computer system, based on the second context, an interpretation of the second natural language utterance; and generating, by the computer system, based on the interpretation of the second natural language utterance, a second response to the second natural language utterance.

4. (Withdrawn-Currently Amended) The method of claim 1, further comprising: tracking, by the computer system, contexts identified for multiple consecutive natural language user utterances to generate a context stack, the context stack including the contexts identified for the multiple consecutive natural language user utterances; receiving, at the computer system, a third natural language utterance from the first input device; determining, by the computer system, based on the short-term knowledge, whether the third natural language utterance corresponds to one or more individual ones of the contexts included in the context stack.

5. (Withdrawn) The method of claim 4, wherein determining whether the third natural language utterance corresponds to one or more individual ones of the contexts included in the context stack includes: determining whether the third natural language utterance corresponds to a most recent context included in the context stack; and responsive to the third natural language utterance not corresponding to the most recent context, determining whether the third natural language utterance corresponds to a second most recent context included in the context stack.

6. (Withdrawn) The method of claim 4, further comprising: determining, by the computer system, responsive to the third natural language utterance not corresponding to one or more individual ones of the contexts included in the context stack, a third context for the third natural language utterance based on the short-term knowledge; and determining, by the computer system, based on the third context, an interpretation of the third natural language utterance.

7. (Original) The method of claim 1, wherein determining the interpretation of the first natural language utterance comprises determining, based on the first context, an interpretation of one or more recognized words of the first natural language utterance.

8. (Withdrawn) The method of claim 1, further comprising: expiring, by the computer system, one or more items of short-term knowledge that are based on one or more natural language utterances received prior to the given time period.

9. (Withdrawn) The method of claim 8, further comprising: accumulating, by the computer system, long-term knowledge based on the one or more items of short-term knowledge that are expired.

10. (Withdrawn) The method of claim 1, further comprising: accumulating, by the computer system, long-term knowledge, wherein the long-term knowledge is accumulated based on one or more natural language utterances received prior to the given time period; wherein the first context is determined based on the short-term knowledge and the long-term knowledge.

11. (Original) The method of claim 1, further comprising: determining, by the computer system, based on the short-term knowledge, a manner in which the first natural language utterance is spoken, wherein the first response is generated based on the determined manner and the interpretation of the first natural language utterance.

12. (Original) The method of claim 11, wherein the manner in which the first natural language utterance is spoken includes at least one of a tone, a pace, an inflection, or a timing.

13. (Currently Amended) A system for facilitating natural language system responses based on short-term knowledge~~, wherein the short-term knowledge is based on voice and non-voice inputs received during~~ obtained during a single conversation that lasts a predefined ~~given~~ time period, the system comprising:

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

receive, during the single conversation, ~~by the computer system,~~ a first voice input, comprising a first natural language utterance, from [[an]] a first input device;

Amazon/VB Assets
Exhibit 1003
Page 328

obtain, during the single conversation, a user interface state of one or more non-voice inputs relating to the first voice input during the single conversation, the one or more non-voice inputs comprising at least ~~receiving, by the computer system,~~ a first non-voice input, relating to the first voice input, from ~~via~~ a non-voice input device;

generate~~, by the computer system,~~ the short-term knowledge based on the first voice input and the first non-voice input;

determine, based on the short-term knowledge, a first context for the first natural language utterance;

determine, based on the first context, an interpretation of the first natural language utterance; and generate, based on the interpretation of the first natural language utterance, a first response to the first natural language utterance.

14. (Canceled).

15. (Withdrawn-Currently Amended) The system of claim 13, wherein the one or more physical processors are caused to: receive a second natural language utterance from the first input device; determine, based on the short-term knowledge, whether the second natural language utterance corresponds to the first context; determine, responsive to the second natural language utterance not corresponding to the first context, a second context for the second natural language utterance based on the short-term knowledge; determine, based on the second context, an interpretation of the second natural language utterance; and generate, based on the interpretation of the second natural language utterance, a second response to the second natural language utterance.

16. (Withdrawn-Currently Amended) The system of claim 13, wherein the one or more physical processors are caused to: track contexts identified for multiple consecutive natural language user utterances to generate a context stack, the context stack including the contexts identified for the multiple consecutive natural language user utterances; receive a third natural language utterance from the first input device; determine, based on the short-term knowledge, whether the third natural language utterance corresponds to one or more individual ones of the contexts included in the context stack.

17. (Withdrawn) The system of claim 16, wherein determining whether the third natural language utterance corresponds to one or more individual ones of the contexts included in the context stack includes: determining whether the third natural language utterance corresponds to a most recent context included in the context stack; and responsive to the third natural language utterance not corresponding to the most recent context, determining whether the third natural language utterance corresponds to a second most recent context included in the context stack.

18. (Withdrawn) The system of claim 16, wherein the one or more physical processors are caused to: determine, responsive to the third natural language utterance not corresponding to one or more individual ones of the contexts included in the context stack, a third context for the third natural language utterance based on the short-term knowledge; and determine, based on the third context, an interpretation of the third natural language utterance.

19. (Original) The system of claim 13, wherein determining the interpretation of the first natural language utterance comprises determining, based on the first context, an interpretation of one or more recognized words of the first natural language utterance.

20. (Withdrawn) The system of claim 13, wherein the one or more physical processors are caused to:

expire one or more items of accumulated short-term knowledge that are based on one or more natural language utterances received prior to the given time period; and accumulate long-term knowledge based on the one or more items of accumulated short-term knowledge that are expired, wherein the first context is determined based on the short-term knowledge and the long-term knowledge.

21. (Currently Amended) The method of claim 1, the method further comprising:

receiving, by the computer system, a second voice input comprising the natural language utterance via a second input device;

<u>comparing, by the computer system, the first voice input with the second voice input;</u>

filtering, by the computer system, sound from the first voice input and the second voice input based on the comparison.

~~determining, by the computer system, a first value of an audio characteristic of the first voice input;~~

~~determining, by the computer system, a second value of the audio characteristic of the second voice input; and~~

~~selecting, by the computer system, the voice input instead of the second voice input for processing based on the first value and the second value.~~

22. (Currently Amended) The method of claim 21, wherein the second input device is included with the first input device in a single device.

23. (Previously Presented) The method of claim 1, wherein generating the first response comprises generating, by the computer system, a non-voice response in a graphical user interface and/or a voice response via a speaker.

24. (Previously Presented) The method of claim 1, wherein the natural language utterance relates to a request and the first response is intended to be responsive to the request, the method further comprising:

receiving, by the computer system, an indication that the first response is unresponsive to the request; and

generating, by the computer system, a second response that prompts a user to provide further input relating to the request, the second response including one or more words from the natural language utterance.

25. (Previously Presented) The method of claim 1, wherein the non-voice input device comprises a touch screen device, and wherein receiving the non-voice input comprises:

receiving, by the computer system, information indicating a location on the touch screen device that received an input.

REMARKS

In response to the Final Office Action mailed October 12, 2017 ("Final Action") and further to the Notice of Appeal filed April 12, 2018, claims 1, 3, 4, 13, 15, 16, 21, and 22 have been amended. Claim 2 and 14 are canceled without prejudice or disclaimer. No claim has been added. Therefore, claims 1, 3-13, and 15-25 are now pending, of which claims 3-6, 8-10, 15-18, and 20 are withdrawn. Support for the amendments may be found throughout the as-filed Specification. Thus, no new matter is added. In view of the foregoing amendments and following comments, allowance of all the claims pending in the application is respectfully requested.

REJECTION UNDER 35 U.S.C. § 112

Claims 1-2, 7, 11-12, 13-14, 19, and 21-25 stand rejected under 35 U.S.C. § 112 (a) or 112 (pre-AIA) first paragraph as lacking written description support because the specification allegedly does not describe that the short-term knowledge is based on both voice and non-voice inputs. *Final Action* at 3. However, at least paragraphs 25, 42 and 43 of the as-filed Specification discloses:

> Input 105 may also be a multi-modal input, where at least part of the multi-modal input is an utterance. For example, the input device may include a combination of a microphone and a touch-screen device, and input 105 may include an utterance that includes a request relating to a portion of a display on the touch-screen device that the user is touching. [**paragraph 25**].
>
> …
>
> Short-term knowledge may accumulate during a single conversation…[**paragraph 42**].
>
> Input received during a single conversation may be retained in a Session Input Accumulator. The Session Input Accumulator may include cross-modality awareness, where **in addition** to accumulating input relating to user utterances, requests, locations, etc., the Session Input Accumulator may accumulate a current user interface state relating to other modal inputs to further build shared knowledge models and more accurate adaptive responses (e.g., **when a user utters a request relating to a portion of a touch-screen device**, as described above). For example, the Session Input Accumulator may accumulate inputs including recognition text for each utterance, a recorded speech file for each utterance, a list-item

> selection history, a graphical user interface manipulation history, or other input data. [**paragraph 43**].

At least the above passages expressly state that the short-term knowledge (obtained during the single conversation) may include both voice and non-voice inputs accumulated during the course of a single conversation and further that the non-voice and voice inputs may relate to one another. As such, the rejection is improper and must be withdrawn. It is noted that claims 2 and 14 are canceled, rendering the rejection of these claims moot.

Claims 21 and 22 stand rejected under 35 U.S.C. § 112 (a) or 112 (pre-AIA) first paragraph as lacking written description support because the specification allegedly does not describe determining audio characteristic values of two different inputs containing the same natural language utterance and selecting one or the other based on those audio characteristic values. *Final Action* at 3. Solely to expedite prosecution of this application, and expressly not acquiescing to the proprietary of the alleged rejection, the claims have been amended to clarify aspects of the claimed invention. As amended, the claims do not lack written description support. As such, withdrawal of the rejection is respectfully requested.

Claim 24 stands rejected under 35 U.S.C. § 112 (a) or 112 (pre-AIA) first paragraph as lacking written description support because the recitation of "receiving ... an indication that the first response is unresponsive to the request" allegedly lacks written description and is thus new matter. *Final Action* at 3. However, the Specification at least at paragraph 59 and accompanying table provides Written Description support for the claim.

Claims 1-2, 7, 11-12, 13-14, 19, 21-25 stand rejected under 35 U.S.C. 112(b) or 35 U.S.C. 112 (pre-AIA), second paragraph, as allegedly being indefinite because of alleged lack of antecedent basis. *Final Action* at 6. Solely to expedite prosecution of this application, and expressly not acquiescing to the proprietary of the alleged rejection, the claims have been amended to clarify aspects of the claimed invention. As amended, the claims do not lack antecedent basis. As such, withdrawal of the rejection is respectfully requested. It is noted that claims 2 and 14 are canceled, rendering the rejection of these claims moot.

REJECTION UNDER 35 U.S.C. § 103

Claims 1-2, 7, 13-14, and 19 stand rejected under 35 U.S.C. § 103 as allegedly being obvious over U.S. Patent Application Publication No. 2004/0044516 to Kennewick *et al.*

("Kennewick") in view of U.S. Patent No. 7,072,888 to Perkins ("Perkins"). *Office Action* at 3. Claims 11 and 12 stand rejected under 35 U.S.C. § 103 as allegedly being obvious over Kennewick and Perkins, and further in view of U.S. Patent Application Publication No. 2003/0167167 to Gong ("Gong"). *Office Action* at 27.

Applicant disagrees with the rejections for at least the reason that the references relied upon by the Examiner, even if properly combined as alleged, does not teach or suggest each and every feature of the claims prior to the foregoing amendment to the claims. Nonetheless, solely to expedite prosecution, and expressly not acquiescing to the propriety of the alleged rejection, the claims have been amended to clarify aspects of the claimed invention.

Independent 1 recites, *inter alia*, the features of:

> obtaining, by the computer system during the single conversation, a user interface state of one or more non-voice inputs relating to the first voice input, the one or more non-voice inputs comprising at least a first non-voice input, relating to the first voice input, from a non-voice input device;
>
> generating, by the computer system, the short-term knowledge based on the first voice input and the first non-voice input;

Independent claim 13 recites similar features.

As claimed, **both** a voice input comprising a natural language utterance and non-voice during a single conversation and are used to generate short-term knowledge used to determine an interpretation of the natural language utterance. For example, as disclosed in the Specification at least at paragraphs 25 and 43, both a voice input and a non-voice input may be used to determine an interpretation of the natural language utterance.

> Input 105 may also be a multi-modal input, where at least part of the multi-modal input is an utterance. For example, the input device may include a combination of a microphone and a touch-screen device, and input 105 may include an utterance that includes a request relating to a portion of a display on the touch-screen device that the user is touching.

For instance, the touch-screen device may be a navigation device, and input 105 may include an utterance of "Give me directions to here," where the user may be requesting directions to a desired destination on the display of the navigation device

In the Final Action, the Examiner acknowledges that Kennewick does not use both voice and non-voice inputs. *Final Action* at 26-27. The Examiner alleges that Smith at col. 3, lines 29-

42, cures the foregoing deficiency. However, the foregoing passages of Smith merely relate to an ability to input a request using a keyboard input ***or*** a voice input, ***not both***. None of the remaining references relied upon by the Examiner appear to cure the foregoing deficiencies of Kennewick and Smith. For at least the foregoing reasons, claims 1 and 13, and their dependent claims, are allowable over the references relied upon by the Examiner. It is noted that claims 2 and 14 are canceled, rendering the rejection of these claims moot.

CONCLUSION

Having addressed each of the foregoing rejections, it is respectfully submitted that a full and complete response has been made to the outstanding Office Action and, as such, the application is in condition for allowance. Notice to that effect is respectfully requested.

If the Examiner believes, for any reason, that personal communication will expedite prosecution of this application, the Examiner is invited to telephone the undersigned at the number provided.

Respectfully submitted,

Date: **July 11, 2018**

Sheppard Mullin Richter & Hampton LLP

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PTO/AIA/31 (03-14)
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NOTICE OF APPEAL FROM THE EXAMINER TO THE PATENT TRIAL AND APPEAL BOARD

Docket Number (Optional): 45HV-218492

I hereby certify that this correspondence is being facsimile transmitted to the USPTO, EFS-Web transmitted to the USPTO, or deposited with the United States Postal Service with sufficient postage in an envelope addressed to "Commissioner for Patents, P.O. Box 1450, Alexandria, on Alexandria, VA 22313-1450" [37 CFR 1.8(a)]

on _____.

Signature _____

Typed or printed name _____

In re Application of: Larry Baldwin

Application Number	Filed
14/691,445	April 20, 2015

For: SYSTEM AND METHOD FOR A COOPERATIVE CONVERSATIONAL ...

Art Unit	Examiner
2658	Eric L. Yen

Applicant hereby **appeals** to the Patent Trial and Appeal Board from the last decision of the examiner.

The fee for this Notice of Appeal is (37 CFR 41.20(b)(1)) $ 800

☑ Applicant asserts small entity status. See 37 CFR 1.27. Therefore, the fee shown above is reduced by 50%, and the resulting fee is: $ 400

☐ Applicant certifies micro entity status. See 37 CFR 1.29. Therefore, the fee shown above is reduced by 75%, and the resulting fee is: $ _____
Form PTO/SB/15A or B or equivalent must either be enclosed or have been submitted previously.

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☑ The Director is hereby authorized to charge any fees which may be required, or credit any overpayment to Deposit Account No. 504561.

☐ Payment made via EFS-Web.

☐ A petition for an extension of time under 37 CFR 1.136(a) (PTO/AIA/22 or equivalent) is enclosed.
For extensions of time in reexamination proceedings, see 37 CFR 1.550.

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I am the

☐ applicant

☑ attorney or agent of record
Registration number 61214

☐ attorney or agent acting under 37 CFR 1.34
Registration number _____

Signature /Hean L. Koo/

Typed or printed name Hean L. Koo

Telephone Number 202 747 2647

Date April 12, 2018

NOTE: This form must be signed in accordance with 37 CFR 1.33. See 37 CFR 1.4 for signature requirements and certifications. Submit multiple forms if more than one signature is required, see below*.

☐ * Total of _____ forms are submitted.

This collection of information is required by 37 CFR 41.20(b)(1) and 41.31. 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, 1.14 and 41.6. 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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The information provided by you in this form will be subject to the following routine uses:

1. The information on this form will be treated confidentially to the extent allowed under the Freedom of Information Act (5 U.S.C. 552) and the Privacy Act (5 U.S.C 552a). Records from this system of records may be disclosed to the Department of Justice to determine whether disclosure of these records is required by the Freedom of Information Act.
2. A record from this system of records may be disclosed, as a routine use, in the course of presenting evidence to a court, magistrate, or administrative tribunal, including disclosures to opposing counsel in the course of settlement negotiations.
3. A record in this system of records may be disclosed, as a routine use, to a Member of Congress submitting a request involving an individual, to whom the record pertains, when the individual has requested assistance from the Member with respect to the subject matter of the record.
4. A record in this system of records may be disclosed, as a routine use, to a contractor of the Agency having need for the information in order to perform a contract. Recipients of information shall be required to comply with the requirements of the Privacy Act of 1974, as amended, pursuant to 5 U.S.C. 552a(m).
5. A record related to an International Application filed under the Patent Cooperation Treaty in this system of records may be disclosed, as a routine use, to the International Bureau of the World Intellectual Property Organization, pursuant to the Patent Cooperation Treaty.
6. A record in this system of records may be disclosed, as a routine use, to another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c)).
7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (*i.e.*, GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.
8. A record from this system of records may be disclosed, as a routine use, to the public after either publication of the application pursuant to 35 U.S.C. 122(b) or issuance of a patent pursuant to 35 U.S.C. 151. Further, a record may be disclosed, subject to the limitations of 37 CFR 1.14, as a routine use, to the public if the record was filed in an application which became abandoned or in which the proceedings were terminated and which application is referenced by either a published application, an application open to public inspection or an issued patent.
9. A record from this system of records may be disclosed, as a routine use, to a Federal, State, or local law enforcement agency, if the USPTO becomes aware of a violation or potential violation of law or regulation.

PTO/AIA/22 (03-13)
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PETITION FOR EXTENSION OF TIME UNDER 37 CFR 1.136(a)	Docket Number (Optional) 45HV-218492
Application Number 14/691,445	Filed APRIL 20, 2015
For SYSTEM AND METHOD FOR A COOPERATIVE CONVERSATIONAL VOICE USER INTERFACE	
Art Unit 2658	Examiner Eric L. Yen

This is a request under the provisions of 37 CFR 1.136(a) to extend the period for filing a reply in the above-identified application.

The requested extension and fee are as follows (check time period desired and enter the appropriate fee below):

		Fee	Small Entity Fee	Micro Entity Fee	
☐	One month (37 CFR 1.17(a)(1))	$200	$100	$50	$
☐	Two months (37 CFR 1.17(a)(2))	$600	$300	$150	$
☑	Three months (37 CFR 1.17(a)(3))	$1,400	$700	$350	$ 700
☐	Four months (37 CFR 1.17(a)(4))	$2,200	$1,100	$550	$
☐	Five months (37 CFR 1.17(a)(5))	$3,000	$1,500	$750	$

☐ Applicant asserts small entity status. See 37 CFR 1.27.

☐ Applicant certifies micro entity status. See 37 CFR 1.29.
Form PTO/SB/15A or B or equivalent must either be enclosed or have been submitted previously.

☐ A check in the amount of the fee is enclosed.

☐ Payment by credit card. Form PTO-2038 is attached.

☐ The Director has already been authorized to charge fees in this application to a Deposit Account.

☑ The Director is hereby authorized to charge any fees which may be required, or credit any overpayment, to Deposit Account Number 501067.

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I am the

☐ applicant.

☐ attorney or agent of record. Registration number _____.

☑ attorney or agent acting under 37 CFR 1.34. Registration number 61214.

/Hean L. Koo/	April 12, 2018
Signature	Date
Hean L. Koo	202 747 2647
Typed or printed name	Telephone Number

NOTE: This form must be signed in accordance with 37 CFR 1.33. See 37 CFR 1.4 for signature requirements and certifications. Submit multiple forms if more than one signature is required, see below*.

☐ * Total of _____ forms are submitted.

This collection of information is required by 37 CFR 1.136(a). 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 6 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 PCT, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

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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.
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Electronic Patent Application Fee Transmittal

Application Number:	14691445
Filing Date:	20-Apr-2015
Title of Invention:	SYSTEM AND METHOD FOR A COOPERATIVE CONVERSATIONAL VOICE USER INTERFACE
First Named Inventor/Applicant Name:	Larry BALDWIN
Filer:	Hean Lee Koo/Diane Bogusz
Attorney Docket Number:	45HV-218492

Filed as Small Entity

Filing Fees for Utility under 35 USC 111(a)

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Basic Filing:				
Pages:				
Claims:				
Miscellaneous-Filing:				
Petition:				
Patent-Appeals-and-Interference:				
NOTICE OF APPEAL	2401	1	400	400
Post-Allowance-and-Post-Issuance:				

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Extension-of-Time:				
Extension - 3 months with $0 paid	2253	1	700	700
Miscellaneous:				
		Total in USD ($)		**1100**

Electronic Acknowledgement Receipt	
EFS ID:	32326331
Application Number:	14691445
International Application Number:	
Confirmation Number:	8351
Title of Invention:	SYSTEM AND METHOD FOR A COOPERATIVE CONVERSATIONAL VOICE USER INTERFACE
First Named Inventor/Applicant Name:	Larry BALDWIN
Customer Number:	133759
Filer:	Hean Lee Koo/Diane Bogusz
Filer Authorized By:	Hean Lee Koo
Attorney Docket Number:	45HV-218492
Receipt Date:	12-APR-2018
Filing Date:	20-APR-2015
Time Stamp:	16:58:32
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	DA
Payment was successfully received in RAM	$1100
RAM confirmation Number	041318INTEFSW00003656504561
Deposit Account	
Authorized User	
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Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Notice of Appeal Filed	218492_notice_of_appeal.pdf	236151 4e86af0a67d475610d73f9576ae071e8e7245693	no	2
Warnings:					
Information:					
2	Extension of Time	218492_EOT.pdf	163538 54c8dbf96356505c542dbe9856a613b3f951c0f6	no	2
Warnings:					
Information:					
3	Fee Worksheet (SB06)	fee-info.pdf	32500 2ebc481b0433810b073e6e2f3e835bf491d55d8b	no	2
Warnings:					
Information:					
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If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.
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If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

PTO/SB/08a (03-15)
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INFORMATION DISCLOSURE STATEMENT BY APPLICANT
(Not for submission under 37 CFR 1.99)

Application Number	14691445
Filing Date	2015-04-20
First Named Inventor	Larry BALDWIN
Art Unit	2658
Examiner Name	Eric L. Yen
Attorney Docket Number	45HV-218492

U.S.PATENTS Remove

Examiner Initial*	Cite No	Patent Number	Kind Code[1]	Issue Date	Name of Patentee or Applicant of cited Document	Pages,Columns,Lines where Relevant Passages or Relevant Figures Appear
	1	5331554		1994-07-19	GRAHAM JAMES M	

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U.S.PATENT APPLICATION PUBLICATIONS Remove

Examiner Initial*	Cite No	Publication Number	Kind Code[1]	Publication Date	Name of Patentee or Applicant of cited Document	Pages,Columns,Lines where Relevant Passages or Relevant Figures Appear
	1	20080270135		2008-10-30	GOEL VAIBHAVA	
	2	20090030686		2009-01-29	WENG FULIANG	
	3	20090055176		2009-02-26	HU JUNLING	
	4	20090157382		2009-06-18	BAR SHMUEL	
	5	20100023331		2010-01-28	DUTA NICOLAE	

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	14691445
	Filing Date	2015-04-20
	First Named Inventor	Larry BALDWIN
	Art Unit	2658
	Examiner Name	Eric L. Yen
	Attorney Docket Number	45HV-218492

	6	20100268536		2010-10-21	SUENDERMANN DAVID			

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FOREIGN PATENT DOCUMENTS Remove

Examiner Initial*	Cite No	Foreign Document Number[3]	Country Code[2] i	Kind Code[4]	Publication Date	Name of Patentee or Applicant of cited Document	Pages,Columns,Lines where Relevant Passages or Relevant Figures Appear	T[5]
	1							

If you wish to add additional Foreign Patent Document citation information please click the Add button Add

NON-PATENT LITERATURE DOCUMENTS Remove

Examiner Initials*	Cite No	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc), date, pages(s), volume-issue number(s), publisher, city and/or country where published.	T[5]
	1		

If you wish to add additional non-patent literature document citation information please click the Add button Add

EXAMINER SIGNATURE

Examiner Signature		Date Considered	

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

[1] See Kind Codes of USPTO Patent Documents at www.USPTO.GOV or MPEP 901.04. [2] Enter office that issued the document, by the two-letter code (WIPO Standard ST.3). [3] For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. [4] Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible. [5] Applicant is to place a check mark here if English language translation is attached.

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	14691445
	Filing Date	2015-04-20
	First Named Inventor	Larry BALDWIN
	Art Unit	2658
	Examiner Name	Eric L. Yen
	Attorney Docket Number	45HV-218492

CERTIFICATION STATEMENT

Please see 37 CFR 1.97 and 1.98 to make the appropriate selection(s):

That each item of information contained in the information disclosure statement was first cited in any communication from a foreign patent office in a counterpart foreign application not more than three months prior to the filing of the information disclosure statement. See 37 CFR 1.97(e)(1).

OR

☒ That no item of information contained in the information disclosure statement was cited in a communication from a foreign patent office in a counterpart foreign application, and, to the knowledge of the person signing the certification after making reasonable inquiry, no item of information contained in the information disclosure statement was known to any individual designated in 37 CFR 1.56(c) more than three months prior to the filing of the information disclosure statement. See 37 CFR 1.97(e)(2).

See attached certification statement.

☒ The fee set forth in 37 CFR 1.17 (p) has been submitted herewith.

A certification statement is not submitted herewith.

SIGNATURE

A signature of the applicant or representative is required in accordance with CFR 1.33, 10.18. Please see CFR 1.4(d) for the form of the signature.

Signature	/Hean L. Koo/	Date (YYYY-MM-DD)	2018-01-05
Name/Print	Hean L. Koo	Registration Number	61214

This collection of information is required by 37 CFR 1.97 and 1.98. 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 1 hour 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.**

Privacy Act Statement

The Privacy Act of 1974 (P.L. 93-579) requires that you be given certain information in connection with your submission of the attached form related to a patent application or patent. Accordingly, pursuant to the requirements of the Act, please be advised that: (1) the general authority for the collection of this information is 35 U.S.C. 2(b)(2); (2) furnishing of the information solicited is voluntary; and (3) the principal purpose for which the information is used by the U.S. Patent and Trademark Office is to process and/or examine your submission related to a patent application or patent. If you do not furnish the requested information, the U.S. Patent and Trademark Office may not be able to process and/or examine your submission, which may result in termination of proceedings or abandonment of the application or expiration of the patent.

The information provided by you in this form will be subject to the following routine uses:

1. The information on this form will be treated confidentially to the extent allowed under the Freedom of Information Act (5 U.S.C. 552) and the Privacy Act (5 U.S.C. 552a). Records from this system of records may be disclosed to the Department of Justice to determine whether the Freedom of Information Act requires disclosure of these record s.

2. A record from this system of records may be disclosed, as a routine use, in the course of presenting evidence to a court, magistrate, or administrative tribunal, including disclosures to opposing counsel in the course of settlement negotiations.

3. A record in this system of records may be disclosed, as a routine use, to a Member of Congress submitting a request involving an individual, to whom the record pertains, when the individual has requested assistance from the Member with respect to the subject matter of the record.

4. A record in this system of records may be disclosed, as a routine use, to a contractor of the Agency having need for the information in order to perform a contract. Recipients of information shall be required to comply with the requirements of the Privacy Act of 1974, as amended, pursuant to 5 U.S.C. 552a(m).

5. A record related to an International Application filed under the Patent Cooperation Treaty in this system of records may be disclosed, as a routine use, to the International Bureau of the World Intellectual Property Organization, pursuant to the Patent Cooperation Treaty.

6. A record in this system of records may be disclosed, as a routine use, to another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c)).

7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (i.e., GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.

8. A record from this system of records may be disclosed, as a routine use, to the public after either publication of the application pursuant to 35 U.S.C. 122(b) or issuance of a patent pursuant to 35 U.S.C. 151. Further, a record may be disclosed, subject to the limitations of 37 CFR 1.14, as a routine use, to the public if the record was filed in an application which became abandoned or in which the proceedings were terminated and which application is referenced by either a published application, an application open to public inspections or an issued patent.

9. A record from this system of records may be disclosed, as a routine use, to a Federal, State, or local law enforcement agency, if the USPTO becomes aware of a violation or potential violation of law or regulation.

INFORMATION DISCLOSURE STATEMENT BY APPLICANT		
	Application Number	14/691,445
	Filing Date	4/20/2015
	First Named Inventor	Larry BALDWIN
	Art Unit	2658
	Client Number	45HV
Page 1 of 1	**Matter Number**	218492

GENERAL

Pursuant to 37 C.F.R. 1.97 and 1.98 and to the duty of disclosure set forth in 37 C.F.R. 1.56, the Examiner in charge of the above-identified application is requested to consider and make of record the references listed herewith. A copy of each listed reference, other than U.S. patents/applications and references cited in a parent application, is enclosed.

Although the information submitted herewith may be "material" to the Examiner's consideration of the subject application, this submission is not intended to constitute an admission that such information is "prior art" as to the claimed invention.

In accordance with 37 C.F.R. 1.97(g), the filing of this Information Disclosure Statement shall not be construed to mean that a search has been made.

TIMING

In accordance with 37 CFR 1.97(d), this Information Disclosure Statement is being filed after the period specified in 37 CFR 1.97(c) and on or before payment of the issue fee.

CERTIFICATION STATEMENT

Each item of information contained in this information disclosure statement was first cited in a communication from a foreign patent office in a counterpart foreign application not more than three months prior to the filing of this information disclosure statement.

FEE

The Director is hereby authorized to charge $90 (small entity) to Deposit Account No. 504561. Please reference attorney docket number 45HV-218492 for this transaction.

This Information Disclosure Statement is being filed in accordance with 37 CFR 1.97(d). Therefore, this Information Disclosure Statement is subject to the fee set forth in 37 CFR 1.17(p).

ADDITIONAL COMMENTS

These documents were cited in a search report by a foreign patent office in a counterpart foreign application. Submission of an English language version of the search report that indicates the degree of relevance found by the foreign office is provided.

SIGNATURE

Signature	/ Hean L. Koo /	Date	2018-01-05
Name	Hean L. Koo	Registration Number	61214

SyncIDS.com

Doc code: IDS
Doc description: Information Disclosure Statement (IDS) Filed

PTO/SB/08a (03-15)
Approved for use through 07/31/2016. OMB 0651-0031
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INFORMATION DISCLOSURE STATEMENT BY APPLICANT
(Not for submission under 37 CFR 1.99)

Application Number	14691445
Filing Date	2015-04-20
First Named Inventor	Larry BALDWIN
Art Unit	2658
Examiner Name	Eric L. Yen
Attorney Docket Number	45HV-218492

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Examiner Initial*	Cite No	Patent Number	Kind Code[1]	Issue Date	Name of Patentee or Applicant of cited Document	Pages,Columns,Lines where Relevant Passages or Relevant Figures Appear
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Examiner Initial*	Cite No	Publication Number	Kind Code[1]	Publication Date	Name of Patentee or Applicant of cited Document	Pages,Columns,Lines where Relevant Passages or Relevant Figures Appear
	1	20090171912		2009-07-02	NASH MICHAEL PATRICK	
	2	20150066479		2015-03-05	PASUPALAK SAM	

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INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	14691445
	Filing Date	2015-04-20
	First Named Inventor	Larry BALDWIN
	Art Unit	2658
	Examiner Name	Eric L. Yen
	Attorney Docket Number	45HV-218492

Examiner Initials*	Cite No	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc), date, pages(s), volume-issue number(s), publisher, city and/or country where published.	T[5]
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[1] See Kind Codes of USPTO Patent Documents at www.USPTO.GOV or MPEP 901.04. [2] Enter office that issued the document, by the two-letter code (WIPO Standard ST.3). [3] For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. [4] Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible. [5] Applicant is to place a check mark here if English language translation is attached.

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See attached certification statement.

☒ The fee set forth in 37 CFR 1.17 (p) has been submitted herewith.

A certification statement is not submitted herewith.

SIGNATURE

A signature of the applicant or representative is required in accordance with CFR 1.33, 10.18. Please see CFR 1.4(d) for the form of the signature.

Signature	/Hean L. Koo/	Date (YYYY-MM-DD)	2018-01-05
Name/Print	Hean L. Koo	Registration Number	61214

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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)).

7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (i.e., GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.

8. A record from this system of records may be disclosed, as a routine use, to the public after either publication of the application pursuant to 35 U.S.C. 122(b) or issuance of a patent pursuant to 35 U.S.C. 151. Further, a record may be disclosed, subject to the limitations of 37 CFR 1.14, as a routine use, to the public if the record was filed in an application which became abandoned or in which the proceedings were terminated and which application is referenced by either a published application, an application open to public inspections or an issued patent.

9. A record from this system of records may be disclosed, as a routine use, to a Federal, State, or local law enforcement agency, if the USPTO becomes aware of a violation or potential violation of law or regulation.

PATENT COOPERATION TREATY

PCT

INTERNATIONAL SEARCH REPORT

(PCT Article 18 and Rules 43 and 44)

Applicant's or agent's file reference 45HV225296-2	**FOR FURTHER ACTION**	see Form PCT/ISA/220 as well as, where applicable, item 5 below.
International application No. PCT/US 17/44610	International filing date *(day/month/year)* 31 July 2017 (31.07.2017)	(Earliest) Priority Date *(day/month/year)* 29 July 2016 (29.07.2016)
Applicant SWART, ERIK		

This international search report has been prepared by this International Searching Authority and is transmitted to the applicant according to Article 18. A copy is being transmitted to the International Bureau.

This international search report consists of a total of 2 sheets.

☐ It is also accompanied by a copy of each prior art document cited in this report.

1. **Basis of the report**

   a. With regard to the **language**, the international search was carried out on the basis of:

   ☒ the international application in the language in which it was filed.

   ☐ a translation of the international application into _____ which is the language of a translation furnished for the purposes of international search (Rules 12.3(a) and 23.1(b)).

   b. ☐ This international search report has been established taking into account the **rectification of an obvious mistake** authorized by or notified to this Authority under Rule 91 (Rule 43.6*bis*(a)).

   c. ☐ With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, see Box No. I.

2. ☐ **Certain claims were found unsearchable** (see Box No. II).

3. ☐ **Unity of invention is lacking** (see Box No. III).

4. With regard to the **title**,

   ☒ the text is approved as submitted by the applicant.

   ☐ the text has been established by this Authority to read as follows:

5. With regard to the **abstract**,

   ☒ the text is approved as submitted by the applicant.

   ☐ the text has been established, according to Rule 38.2, 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 17/44610

A. CLASSIFICATION OF SUBJECT MATTER
IPC(8) - G06F 17/27 (2017.01)
CPC - G06F 17/2785, G06F 17/274, G06F 17/271, G06F 17/277, G06F 17/2755, G10L 15/22, G10L 15/183, G10L 15/1822, G10L 15/19, G10L 15/193, G06F 17/30654, G06F 17/30684, G06F 17/2785, G06F 17/30672, G06F 17/3064, G06F 17/30663, G06F 17/30616, G06F 17/30672

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)
See Search History Document

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

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

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X -- Y	US 2015/0066479 A1 (Maluuba Inc.) 02 March 2015 (02.03.2015), entire document especially abstract; para [0004], [0007], [0073], [0074], [0081]-[0083], [0119]-[0152], [0222]-[0252], [0263]	1-12, 14-27, 29, 30 ---------- 13, 28
Y	US 2009/0171912 A1 (Nash et al.) 02 July 2009 (02.07.2009), para [0021], [0027], [0032], [0034], [0038]	13, 28

☐ Further documents are listed in the continuation of Box C. ☐ See patent family 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 application or patent but published on or after the international filing date
"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
"O" document referring to an oral disclosure, use, exhibition or other means
"P" document published prior to the international filing date but later than the priority date claimed
"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art
"&" document member of the same patent family

Date of the actual completion of the international search	Date of mailing of the international search report
14 September 2017 (14.09.2017)	17 OCT 2017
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. 571-273-8300	Authorized officer: Lee W. Young PCT Helpdesk: 571-272-4300 PCT OSP: 571-272-7774

Form PCT/ISA/210 (second sheet) (January 2015)

Electronic Patent Application Fee Transmittal	
Application Number:	14691445
Filing Date:	20-Apr-2015
Title of Invention:	SYSTEM AND METHOD FOR A COOPERATIVE CONVERSATIONAL VOICE USER INTERFACE
First Named Inventor/Applicant Name:	Larry BALDWIN
Filer:	Hean Lee Koo/Susan Trader
Attorney Docket Number:	45HV-218492
Filed as Small Entity	
Filing Fees for **Utility under 35 USC 111(a)**	

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($)
Miscellaneous:				
SUBMISSION- INFORMATION DISCLOSURE STMT	2806	1	90	90
		Total in USD ($)		**90**

Electronic Acknowledgement Receipt	
EFS ID:	31412748
Application Number:	14691445
International Application Number:	
Confirmation Number:	8351
Title of Invention:	SYSTEM AND METHOD FOR A COOPERATIVE CONVERSATIONAL VOICE USER INTERFACE
First Named Inventor/Applicant Name:	Larry BALDWIN
Customer Number:	133759
Filer:	Hean Lee Koo/Susan Trader
Filer Authorized By:	Hean Lee Koo
Attorney Docket Number:	45HV-218492
Receipt Date:	05-JAN-2018
Filing Date:	20-APR-2015
Time Stamp:	08:26:31
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	DA
Payment was successfully received in RAM	$90
RAM confirmation Number	010518INTEFSW00006455504561
Deposit Account	504561
Authorized User	Susan Trader
The Director of the USPTO is hereby authorized to charge indicated fees and credit any overpayment as follows: 37 CFR 1.16 (National application filing, search, and examination fees) 37 CFR 1.17 (Patent application and reexamination processing fees)	

37 CFR 1.19 (Document supply fees)

37 CFR 1.20 (Post Issuance fees)

37 CFR 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	Transmittal Letter	45HV-218492_US_Transmittal-Letter.pdf	15441 fc17b09e81f89c57ad940c47d1777dc98f9fe6bb	no	1
Warnings:					
Information:					
2	Information Disclosure Statement (IDS) Form (SB08)	45HV-218492_US_PTO_IDS-Form.pdf	1053909 52e86c1e48ec04214f6300c80377b7cb69271e34	no	4
Warnings:					
Information:					
3	Transmittal Letter	45HV-218492_Foreign_Transmittal-Letter.pdf	15797 76e763eb119cde6b1a169cab0900e5c3900d657a	no	1
Warnings:					
Information:					
4	Information Disclosure Statement (IDS) Form (SB08)	45HV-218492_Foreign_PTO_IDS-Form.pdf	1053753 7ad92dc76d5a2cc5fe5382113bdaebe33b338b66	no	4
Warnings:					
Information:					
5	Other Reference-Patent/App/Search documents	45HV_Other.pdf	173858 a1493f30f5bad26243f2dbd89752f1efaa0fe124	no	2
Warnings:					
Information:					
6	Fee Worksheet (SB06)	fee-info.pdf	30334 a91d45bcd5f76f4d92eaadbff20e259bb8b111ba	no	2
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Information:					

Total Files Size (in bytes):	2343092

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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.

INFORMATION DISCLOSURE STATEMENT BY APPLICANT		
	Application Number	14/691,445
	Filing Date	4/20/2015
	First Named Inventor	Larry BALDWIN
	Art Unit	2658
	Client Number	45HV
Page 1 of 1	**Matter Number**	218492

GENERAL

Pursuant to 37 C.F.R. 1.97 and 1.98 and to the duty of disclosure set forth in 37 C.F.R. 1.56, the Examiner in charge of the above-identified application is requested to consider and make of record the references listed herewith. A copy of each listed reference, other than U.S. patents/applications and references cited in a parent application, is enclosed.

Although the information submitted herewith may be "material" to the Examiner's consideration of the subject application, this submission is not intended to constitute an admission that such information is "prior art" as to the claimed invention.

In accordance with 37 C.F.R. 1.97(g), the filing of this Information Disclosure Statement shall not be construed to mean that a search has been made.

TIMING

In accordance with 37 CFR 1.97(d), this Information Disclosure Statement is being filed after the period specified in 37 CFR 1.97(c) and on or before payment of the issue fee.

CERTIFICATION STATEMENT

No item of information contained in this information disclosure statement was cited in a communication from a foreign patent office in a counterpart foreign application, and, to the knowledge of the person signing the certification after making reasonable inquiry, no item of information contained in this information disclosure statement was known to any individual designated in 37 CFR 1.56(c) more than three months prior to the filing of this information disclosure statement.

FEE

The Director is hereby authorized to charge $90 (small entity) to Deposit Account No. 504561. Please reference attorney docket number 45HV-218492 for this transaction.

This Information Disclosure Statement is being filed in accordance with 37 CFR 1.97(d). Therefore, this Information Disclosure Statement is subject to the fee set forth in 37 CFR 1.17(p).

ADDITIONAL COMMENTS

SIGNATURE

Signature	/ Hean L. Koo /	Date	2018-01-05
Name	Hean L. Koo	Registration Number	61214

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PTO/SB/08a (03-15)
Approved for use through 07/31/2016. OMB 0651-0031
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE

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INFORMATION DISCLOSURE STATEMENT BY APPLICANT

(Not for submission under 37 CFR 1.99)

Application Number	14691445
Filing Date	2015-04-20
First Named Inventor	Larry BALDWIN
Art Unit	2658
Examiner Name	Eric L. Yen
Attorney Docket Number	45HV-218492

U.S.PATENTS Remove

Examiner Initial*	Cite No	Patent Number	Kind Code[1]	Issue Date	Name of Patentee or Applicant of cited Document	Pages,Columns,Lines where Relevant Passages or Relevant Figures Appear
	1	6243679		2001-06-05	Mehryar Mohri	
	2	6591185		2003-07-08	Ari Israel Polidi	
	3	8326599		2012-12-04	Nadi Tomeh	
	4	8612205		2013-12-17	Gregory Alan Hanneman	
	5	8612206		2013-12-17	Achraf Chalabi	

If you wish to add additional U.S. Patent citation information please click the Add button. Add

U.S.PATENT APPLICATION PUBLICATIONS Remove

Examiner Initial*	Cite No	Publication Number	Kind Code[1]	Publication Date	Name of Patentee or Applicant of cited Document	Pages,Columns,Lines where Relevant Passages or Relevant Figures Appear
	1	20030069880		2003-04-10	Tom Harrison	

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	14691445
	Filing Date	2015-04-20
	First Named Inventor	Larry BALDWIN
	Art Unit	2658
	Examiner Name	Eric L. Yen
	Attorney Docket Number	45HV-218492

	2	20040093567		2004-05-13	Yves Schabes	
	3	20050222763		2005-10-06	Robert Uyeki	
	4	20050234637		2005-10-20	Michael Obradovich	
	5	20060046740		2006-03-02	Karen Johnson	
	6	20060253247		2006-11-09	Andrew de Silva	
	7	20070050279		2007-03-01	Qingfeng Huang	
	8	20080014908		2008-01-17	Abraham Vasant	
	9	20080086455		2008-04-10	Adrienne C. Meisels	
	10	20080269958		2008-10-30	Dimitar Petrov Filev	
	11	20090197582		2009-08-06	Robert C. Lewis	
	12	20120041753		2012-02-16	Marc Dymetman	

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	14691445
	Filing Date	2015-04-20
	First Named Inventor	Larry BALDWIN
	Art Unit	2658
	Examiner Name	Eric L. Yen
	Attorney Docket Number	45HV-218492

	13	20120265528		2012-10-18	Thomas Robert Gruber			

If you wish to add additional U.S. Published Application citation information please click the Add button. Add

FOREIGN PATENT DOCUMENTS Remove

Examiner Initial*	Cite No	Foreign Document Number[3]	Country Code[2] i	Kind Code[4]	Publication Date	Name of Patentee or Applicant of cited Document	Pages,Columns,Lines where Relevant Passages or Relevant Figures Appear	T[5]
	1							

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NON-PATENT LITERATURE DOCUMENTS Remove

Examiner Initials*	Cite No	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc), date, pages(s), volume-issue number(s), publisher, city and/or country where published.	T[5]
	1		

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EXAMINER SIGNATURE

Examiner Signature		Date Considered	

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

[1] See Kind Codes of USPTO Patent Documents at www.USPTO.GOV or MPEP 901.04. [2] Enter office that issued the document, by the two-letter code (WIPO Standard ST.3). [3] For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. [4] Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible. [5] Applicant is to place a check mark here if English language translation is attached.

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	14691445
	Filing Date	2015-04-20
	First Named Inventor	Larry BALDWIN
	Art Unit	2658
	Examiner Name	Eric L. Yen
	Attorney Docket Number	45HV-218492

CERTIFICATION STATEMENT

Please see 37 CFR 1.97 and 1.98 to make the appropriate selection(s):

That each item of information contained in the information disclosure statement was first cited in any communication from a foreign patent office in a counterpart foreign application not more than three months prior to the filing of the information disclosure statement. See 37 CFR 1.97(e)(1).

OR

☒ That no item of information contained in the information disclosure statement was cited in a communication from a foreign patent office in a counterpart foreign application, and, to the knowledge of the person signing the certification after making reasonable inquiry, no item of information contained in the information disclosure statement was known to any individual designated in 37 CFR 1.56(c) more than three months prior to the filing of the information disclosure statement. See 37 CFR 1.97(e)(2).

See attached certification statement.

☒ The fee set forth in 37 CFR 1.17 (p) has been submitted herewith.

A certification statement is not submitted herewith.

SIGNATURE

A signature of the applicant or representative is required in accordance with CFR 1.33, 10.18. Please see CFR 1.4(d) for the form of the signature.

Signature	/Hean L. Koo/	Date (YYYY-MM-DD)	2017-10-19
Name/Print	Hean L. Koo	Registration Number	61214

This collection of information is required by 37 CFR 1.97 and 1.98. 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 1 hour 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.**

Privacy Act Statement

The Privacy Act of 1974 (P.L. 93-579) requires that you be given certain information in connection with your submission of the attached form related to a patent application or patent. Accordingly, pursuant to the requirements of the Act, please be advised that: (1) the general authority for the collection of this information is 35 U.S.C. 2(b)(2); (2) furnishing of the information solicited is voluntary; and (3) the principal purpose for which the information is used by the U.S. Patent and Trademark Office is to process and/or examine your submission related to a patent application or patent. If you do not furnish the requested information, the U.S. Patent and Trademark Office may not be able to process and/or examine your submission, which may result in termination of proceedings or abandonment of the application or expiration of the patent.

The information provided by you in this form will be subject to the following routine uses:

1. The information on this form will be treated confidentially to the extent allowed under the Freedom of Information Act (5 U.S.C. 552) and the Privacy Act (5 U.S.C. 552a). Records from this system of records may be disclosed to the Department of Justice to determine whether the Freedom of Information Act requires disclosure of these record s.

2. A record from this system of records may be disclosed, as a routine use, in the course of presenting evidence to a court, magistrate, or administrative tribunal, including disclosures to opposing counsel in the course of settlement negotiations.

3. A record in this system of records may be disclosed, as a routine use, to a Member of Congress submitting a request involving an individual, to whom the record pertains, when the individual has requested assistance from the Member with respect to the subject matter of the record.

4. A record in this system of records may be disclosed, as a routine use, to a contractor of the Agency having need for the information in order to perform a contract. Recipients of information shall be required to comply with the requirements of the Privacy Act of 1974, as amended, pursuant to 5 U.S.C. 552a(m).

5. A record related to an International Application filed under the Patent Cooperation Treaty in this system of records may be disclosed, as a routine use, to the International Bureau of the World Intellectual Property Organization, pursuant to the Patent Cooperation Treaty.

6. A record in this system of records may be disclosed, as a routine use, to another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c)).

7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (i.e., GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.

8. A record from this system of records may be disclosed, as a routine use, to the public after either publication of the application pursuant to 35 U.S.C. 122(b) or issuance of a patent pursuant to 35 U.S.C. 151. Further, a record may be disclosed, subject to the limitations of 37 CFR 1.14, as a routine use, to the public if the record was filed in an application which became abandoned or in which the proceedings were terminated and which application is referenced by either a published application, an application open to public inspections or an issued patent.

9. A record from this system of records may be disclosed, as a routine use, to a Federal, State, or local law enforcement agency, if the USPTO becomes aware of a violation or potential violation of law or regulation.

INFORMATION DISCLOSURE STATEMENT BY APPLICANT		
	Application Number	14/691,445
	Filing Date	4/20/2015
	First Named Inventor	Larry BALDWIN
	Art Unit	2658
	Client Number	45HV
Page 1 of 1	**Matter Number**	218492

GENERAL

Pursuant to 37 C.F.R. 1.97 and 1.98 and to the duty of disclosure set forth in 37 C.F.R. 1.56, the Examiner in charge of the above-identified application is requested to consider and make of record the references listed herewith. A copy of each listed reference, other than U.S. patents/applications and references cited in a parent application, is enclosed.

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In accordance with 37 C.F.R. 1.97(g), the filing of this Information Disclosure Statement shall not be construed to mean that a search has been made.

TIMING

In accordance with 37 CFR 1.97(d), this Information Disclosure Statement is being filed after the period specified in 37 CFR 1.97(c) and on or before payment of the issue fee.

CERTIFICATION STATEMENT

Each item of information contained in this information disclosure statement was first cited in a communication from a foreign patent office in a counterpart foreign application not more than three months prior to the filing of this information disclosure statement.

FEE

The Director is hereby authorized to charge $90 (small entity) to Deposit Account No. 504561. Please reference attorney docket number 45HV-218492 for this transaction.

This Information Disclosure Statement is being filed in accordance with 37 CFR 1.97(d). Therefore, this Information Disclosure Statement is subject to the fee set forth in 37 CFR 1.17(p).

ADDITIONAL COMMENTS

These documents were cited in search reports by foreign patent offices 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.

SIGNATURE

Signature	/ Hean L. Koo /	Date	2017-10-19
Name	Hean L. Koo	Registration Number	61214

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PTO/SB/08a (03-15)
Approved for use through 07/31/2016. OMB 0651-0031
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE

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INFORMATION DISCLOSURE STATEMENT BY APPLICANT

(Not for submission under 37 CFR 1.99)

Application Number	14691445
Filing Date	2015-04-20
First Named Inventor	Larry BALDWIN
Art Unit	2658
Examiner Name	Eric L. Yen
Attorney Docket Number	45HV-218492

U.S.PATENTS Remove

Examiner Initial*	Cite No	Patent Number	Kind Code[1]	Issue Date	Name of Patentee or Applicant of cited Document	Pages,Columns,Lines where Relevant Passages or Relevant Figures Appear
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U.S.PATENT APPLICATION PUBLICATIONS Remove

Examiner Initial*	Cite No	Publication Number	Kind Code[1]	Publication Date	Name of Patentee or Applicant of cited Document	Pages,Columns,Lines where Relevant Passages or Relevant Figures Appear
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If you wish to add additional U.S. Published Application citation information please click the Add button. Add

FOREIGN PATENT DOCUMENTS Remove

Examiner Initial*	Cite No	Foreign Document Number[3]	Country Code[2]	Kind Code[4]	Publication Date	Name of Patentee or Applicant of cited Document	Pages,Columns,Lines where Relevant Passages or Relevant Figures Appear	T[5]
	1	1860496A	CN		2006-11-08			
	2	2012518847	JP		2012-08-16			
	3	H08263258	JP		1996-10-11	Hitachi Ltd		

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	14691445
	Filing Date	2015-04-20
	First Named Inventor	Larry BALDWIN
	Art Unit	2658
	Examiner Name	Eric L. Yen
	Attorney Docket Number	45HV-218492

	4	2005010702A2	WO		2005-02-03	Google, Inc.		

If you wish to add additional Foreign Patent Document citation information please click the Add button [Add]

NON-PATENT LITERATURE DOCUMENTS [Remove]

Examiner Initials*	Cite No	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc), date, pages(s), volume-issue number(s), publisher, city and/or country where published.	T[5]
	1		

If you wish to add additional non-patent literature document citation information please click the Add button [Add]

EXAMINER SIGNATURE

Examiner Signature		Date Considered	

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

[1] See Kind Codes of USPTO Patent Documents at www.USPTO.GOV or MPEP 901.04. [2] Enter office that issued the document, by the two-letter code (WIPO Standard ST.3). [3] For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. [4] Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible. [5] Applicant is to place a check mark here if English language translation is attached.

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	14691445
	Filing Date	2015-04-20
	First Named Inventor	Larry BALDWIN
	Art Unit	2658
	Examiner Name	Eric L. Yen
	Attorney Docket Number	45HV-218492

CERTIFICATION STATEMENT

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OR

☐ That no item of information contained in the information disclosure statement was cited in a communication from a foreign patent office in a counterpart foreign application, and, to the knowledge of the person signing the certification after making reasonable inquiry, no item of information contained in the information disclosure statement was known to any individual designated in 37 CFR 1.56(c) more than three months prior to the filing of the information disclosure statement. See 37 CFR 1.97(e)(2).

See attached certification statement.

☒ The fee set forth in 37 CFR 1.17 (p) has been submitted herewith.

A certification statement is not submitted herewith.

SIGNATURE

A signature of the applicant or representative is required in accordance with CFR 1.33, 10.18. Please see CFR 1.4(d) for the form of the signature.

Signature	/Hean L. Koo/	Date (YYYY-MM-DD)	2017-10-19
Name/Print	Hean L. Koo	Registration Number	61214

This collection of information is required by 37 CFR 1.97 and 1.98. 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 1 hour 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.**

Privacy Act Statement

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The information provided by you in this form will be subject to the following routine uses:

1. The information on this form will be treated confidentially to the extent allowed under the Freedom of Information Act (5 U.S.C. 552) and the Privacy Act (5 U.S.C. 552a). Records from this system of records may be disclosed to the Department of Justice to determine whether the Freedom of Information Act requires disclosure of these record s.

2. A record from this system of records may be disclosed, as a routine use, in the course of presenting evidence to a court, magistrate, or administrative tribunal, including disclosures to opposing counsel in the course of settlement negotiations.

3. A record in this system of records may be disclosed, as a routine use, to a Member of Congress submitting a request involving an individual, to whom the record pertains, when the individual has requested assistance from the Member with respect to the subject matter of the record.

4. A record in this system of records may be disclosed, as a routine use, to a contractor of the Agency having need for the information in order to perform a contract. Recipients of information shall be required to comply with the requirements of the Privacy Act of 1974, as amended, pursuant to 5 U.S.C. 552a(m).

5. A record related to an International Application filed under the Patent Cooperation Treaty in this system of records may be disclosed, as a routine use, to the International Bureau of the World Intellectual Property Organization, pursuant to the Patent Cooperation Treaty.

6. A record in this system of records may be disclosed, as a routine use, to another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c)).

7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (i.e., GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.

8. A record from this system of records may be disclosed, as a routine use, to the public after either publication of the application pursuant to 35 U.S.C. 122(b) or issuance of a patent pursuant to 35 U.S.C. 151. Further, a record may be disclosed, subject to the limitations of 37 CFR 1.14, as a routine use, to the public if the record was filed in an application which became abandoned or in which the proceedings were terminated and which application is referenced by either a published application, an application open to public inspections or an issued patent.

9. A record from this system of records may be disclosed, as a routine use, to a Federal, State, or local law enforcement agency, if the USPTO becomes aware of a violation or potential violation of law or regulation.

Electronic Patent Application Fee Transmittal

Application Number:	14691445
Filing Date:	20-Apr-2015
Title of Invention:	SYSTEM AND METHOD FOR A COOPERATIVE CONVERSATIONAL VOICE USER INTERFACE
First Named Inventor/Applicant Name:	Larry BALDWIN
Filer:	Hean Lee Koo/Susan Trader
Attorney Docket Number:	45HV-218492

Filed as Small Entity

Filing Fees for Utility under 35 USC 111(a)

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($)
Miscellaneous:				
SUBMISSION- INFORMATION DISCLOSURE STMT	2806	1	90	90
		Total in USD ($)		**90**

Electronic Acknowledgement Receipt	
EFS ID:	30698500
Application Number:	14691445
International Application Number:	
Confirmation Number:	8351
Title of Invention:	SYSTEM AND METHOD FOR A COOPERATIVE CONVERSATIONAL VOICE USER INTERFACE
First Named Inventor/Applicant Name:	Larry BALDWIN
Customer Number:	133759
Filer:	Hean Lee Koo/Susan Trader
Filer Authorized By:	Hean Lee Koo
Attorney Docket Number:	45HV-218492
Receipt Date:	19-OCT-2017
Filing Date:	20-APR-2015
Time Stamp:	12:43:07
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	DA
Payment was successfully received in RAM	$90
RAM confirmation Number	101917INTEFSW00011454504561
Deposit Account	504561
Authorized User	Susan Trader
The Director of the USPTO is hereby authorized to charge indicated fees and credit any overpayment as follows: 37 CFR 1.16 (National application filing, search, and examination fees) 37 CFR 1.17 (Patent application and reexamination processing fees)	

37 CFR 1.19 (Document supply fees)

37 CFR 1.20 (Post Issuance fees)

37 CFR 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	Other Reference-Patent/App/Search documents	JP_OA1_08-08-17.pdf	289100 99a511a3701bde4c9f3f217ac3c5de6d18fa8c5b	no	13
Warnings:					
Information:					
2	Other Reference-Patent/App/Search documents	CN_OA3_09-20-17.pdf	13360487 25577e1163d951cd7975d238462c559716764b29	no	26
Warnings:					
Information:					
3	Foreign Reference	Foreign-001.pdf	1315991 558073302f9f3ea5a4d6361733d80044dae6c524	no	60
Warnings:					
Information:					
4	Foreign Reference	Foreign-002.pdf	9746937 eac9f655035762bbec7eb5f1a39a95b7fcf6fb9f	no	22
Warnings:					
Information:					
5	Foreign Reference	Foreign-003.pdf	13093107 e5297c9556df7dbe427239f99810e3cc1432bc01	no	31
Warnings:					
Information:					
6	Foreign Reference	Foreign-004.pdf	682537 f5c1c8dafb567cb3adcc394d5b01c624ed680439	no	63
Warnings:					
Information:					

7	Transmittal Letter	45HV-218492_Transmittal-Letter_US.pdf	10742 e8012584bc8786c4c353a0cc7e7aa22cff5d3012	no	1
Warnings:					
Information:					
8	Information Disclosure Statement (IDS) Form (SB08)	45HV-218492_PTO_IDS-Form_US.pdf	1054206 7930d4971691ebe3ee733f294347c7f3761660e3	no	5
Warnings:					
Information:					
9	Transmittal Letter	45HV-218492_Transmittal-Letter_F.pdf	11116 6ca030b759d6d8a5405a17acb02357a1c8261d03	no	1
Warnings:					
Information:					
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If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

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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.

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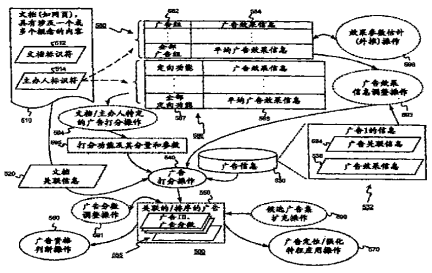
权利要求书 12 页 说明书 31 页 附图 16 页

[54] 发明名称

使用收集的用户行为数据改进内容定向的广告

[57] 摘要

为内容定向的广告系统提供如选择(如点击)、转化等等用户行为的反馈机制。可以按照每个文档(如每个 URL)和/或每个主办人(如每个网站),跟踪各个广告或各组广告的效果。也可以按照每个文档和/或每个主办人,跟踪广告定向功能的效果。将此类用户行为反馈数据处理(如合计)为有用的数据结构。然后可以使用内容定向的广告系统中(原始的或处理过的)此类用户行为反馈数据,改进用户体验以及/或者最大化收益。



Amazon/VB Assets
Exhibit 1003
Page 377

1. 一种方法，包括:

a)对于一个或多个广告的集合，跟踪关于文档的广告集合效果信息；以及

b)对于所述文档，汇总所跟踪的广告集合效果信息。

2. 根据权利要求 1 的方法，其中所述广告集合效果信息包括选择和印象信息。

3. 根据权利要求 1 的方法,其中所述文档是由 URL 标识的网页。

4. 根据权利要求 1 的方法，进一步包括:

c)对所述广告集合效果信息进行阈值处理。

5. 根据权利要求 1 的方法，进一步包括:

c)确定所述广告集合效果信息的置信度度量；以及

d)使用所述确定的置信度度量，组合一般的广告集合效果信息与关于所述文档的所述广告集合效果信息。

6. 根据权利要求 5 的方法，其中确定置信度度量的动作使用数据量和数据寿命中至少其一。

7. 一种方法，包括:

a)对于一个或多个广告的集合，跟踪关于文档集合的广告集合效果信息，其中所述文档集合是所收集文档的子集；以及

b)对于所述文档集合，汇总所跟踪的广告集合效果信息。

8. 根据权利要求 7 的方法，其中所述广告集合效果信息包括选择和印象信息。

9. 根据权利要求 7 的方法，其中所述文档集合包括相关的网页。

10. 根据权利要求 7 的方法，进一步包括:

c)对所述广告集合效果信息进行阈值处理。

11. 根据权利要求 7 的方法，进一步包括:

c)确定所述广告集合效果信息的置信度度量；以及

d)使用所述确定的置信度度量，组合一般的广告集合效果信息与

Amazon/VB Assets
Exhibit 1003
Page 378

关于所述文档集合的所述广告集合效果信息。

12. 根据权利要求 **11** 的方法，其中确定置信度度量的动作使用数据量和数据寿命中至少其一。

13. 一种方法，包括:

a)对于一个或多个广告的集合，接受对文档的效果信息；以及

b)使用所接受的对所述文档的广告集合效果信息，对一个或多个广告的每一个打分或修改分数。

14. 根据权利要求 **13** 的方法，其中所述广告集合效果信息包括选择和印象信息。

15. 根据权利要求 **13** 的方法，其中所述文档是由 **URL** 标识的网页。

16. 根据权利要求 **13** 的方法，其中所述打分或修改分数的动作包括:

i)至少使用所述广告集合的一般效果信息，确定第一广告分数；以及

ii)使用所接受的对文档的广告集合效果信息，修改所述第一广告分数。

17. 根据权利要求 **16** 的方法，其中所述确定第一广告分数的动作进一步至少使用文档信息。

18. 根据权利要求 **16** 的方法，其中所述确定第一广告分数的动作进一步至少使用广告定向信息。

19. 根据权利要求 **16** 的方法，其中所述确定第一广告分数的动作进一步至少使用广告相关性信息。

20. 根据权利要求 **13** 的方法，其中所述打分或修改分数的动作包括:

i)至少使用所述广告集合的一般效果信息和所接受的对文档的广告集合效果信息，确定混合的效果信息；以及

ii)使用所确定的混合效果信息，对所述广告打分。

21. 根据权利要求 **20** 的方法，其中对所述广告打分的动作进一

Amazon/VB Assets
Exhibit 1003
Page 379

步至少使用文档信息。

22. 根据权利要求 **20** 的方法，其中对所述广告打分的动作进一步至少使用广告定向信息。

23. 根据权利要求 **20** 的方法，其中对所述广告打分的动作进一步至少使用广告相关性信息。

24. 一种方法，包括：

a)对于一个或多个广告的集合，接受对文档集合的广告集合效果信息，其中所述文档集合是所收集文档的子集；以及

b)使用所接受的对所述文档集合的广告集合效果信息，对一个或多个广告的每一个打分或修改分数。

25. 根据权利要求 **24** 的方法，其中所述广告集合效果信息包括选择和印象信息。

26. 根据权利要求 **24** 的方法，其中所述文档集合包括相关的网页。

27. 根据权利要求 **24** 的方法，其中所述打分或修改分数的动作包括：

i)至少使用所述广告集合的一般效果信息，确定第一广告分数；以及

ii)使用所接受的对文档集合的广告集合效果信息，修改所述第一广告分数。

28. 根据权利要求 **27** 的方法，其中所述确定第一广告分数的动作进一步至少使用文档信息。

29. 根据权利要求 **27** 的方法，其中所述确定第一广告分数的动作进一步至少使用广告定向信息。

30. 根据权利要求 **27** 的方法，其中所述确定第一广告分数的动作进一步至少使用广告相关性信息。

31. 根据权利要求 **24** 的方法，其中所述打分或修改分数的动作包括：

i)至少使用所述广告集合的一般效果信息和所接受的对文档集合

Amazon/VB Assets
Exhibit 1003
Page 380

的广告集合效果信息，确定混合的效果信息；以及

ii)使用所确定的混合效果信息，对所述广告打分。

32. 根据权利要求 31 的方法，其中对所述广告打分的动作进一步至少使用文档信息。

33. 根据权利要求 31 的方法，其中对所述广告打分的动作进一步至少使用广告定向信息。

34. 根据权利要求 31 的方法，其中对所述广告打分的动作进一步至少使用广告相关性信息。

35. 一种方法，包括：

a)接受对文档的定向功能效果；以及

b)使用所接受的对所述文档的定向功能效果，对一个或多个广告的每一个打分或修改分数。

36. 根据权利要求 35 的方法，其中所述广告效果包括选择和印象信息。

37. 根据权利要求 35 的方法，其中所述文档是由 URL 标识的网页。

38. 根据权利要求 35 的方法，其中所述打分的动作包括：

i)至少使用所接受的对所述文档的定向功能效果，选择打分功能；以及

ii)对所选定的打分功能应用广告信息和文档信息以产生分数。

39. 根据权利要求 38 的方法，其中所述打分功能是从包括（A）关键字定向、（B）文档内容定向、（C）主办人内容定向的功能集合中选定的功能。

40. 根据权利要求 35 的方法，其中所述打分的动作包括：

i)至少使用所接受的对所述文档的定向功能效果，选择打分功能的一个或多个参数；以及

ii)用所选定一个或多个参数对打分功能应用广告信息和文档信息以产生分数。

41. 一种方法，包括：

Amazon/VB Assets
Exhibit 1003
Page 381

a)接受对文档集合的定向功能效果；以及

b)使用所接受的对所述文档集合的定向功能效果，对一个或多个广告的每一个打分或修改分数，其中所述文档集合是所收集文档的子集。

42. 根据权利要求 41 的方法，其中所述广告效果包括选择和印象信息。

43. 根据权利要求 41 的方法，其中所述文档集合包括相关的网页。

44. 根据权利要求 41 的方法，其中所述打分的动作包括:

i)至少使用所接受的对所述文档集合的定向功能效果，选择打分功能；以及

ii)对所选定的打分功能应用广告信息和文档信息以产生分数。

45. 根据权利要求 44 的方法，其中所述打分功能是从包括（A）关键字定向、（B）文档内容定向、（C）主办人内容定向的功能集合中选定的功能。

46. 根据权利要求 41 的方法，其中所述打分的动作包括:

i)至少使用所接受的对所述文档集合的定向功能效果，选择打分功能的一个或多个参数；以及

ii)用所选定一个或多个参数对打分功能应用广告信息和文档信息以产生分数。

47. 用于确定适于向文档提供的广告的集合的方法，所述方法包括:

a)确定第一广告集合;

b)接受对所述文档的广告效果信息;

c)确定对所述文档效果最好的广告数目；以及

d)使用所述第一广告集合及所确定的效果最好广告的数目，确定最终广告集合。

48. 用于确定适于向文档提供的广告的集合的方法，所述方法包括:

Amazon/VB Assets
Exhibit 1003
Page 382

a)确定第一广告集合;

b)接受对所述文档所属文档集合的广告效果信息，其中所述文档集合是所收集文档的子集;

c)确定对所述文档集合效果最好的广告数目；以及

d)使用所述第一广告集合及所确定的效果最好广告的数目，确定最终广告集合。

49. 一种方法，包括:

a)对文档确定至少两个概念;

b)对所述至少两个概念中的每一个确定一个或多个广告;

c)对所述至少两个概念中的每一个确定概念效果分数；以及

d)对至少一个所述广告，使用所述广告与之关联的概念的概念效果分数更新广告效果分数。

50. 根据权利要求 49 的方法，其中确定概念效果分数的动作使用与所述概念关联的广告的文档特定的广告效果分数。

51. 根据权利要求 49 的方法，其中所述文档属于某个组，而且

确定概念效果分数的动作使用与所述概念关联的广告的组特定的广告效果分数。

52. 根据权利要求 51 的方法，其中所述文档是网页而且所述组是属于某个网站的网页。

53. 根据权利要求 51 的方法，其中所述组是相关文档的集群。

54. 根据权利要求 51 的方法，其中所述组是文档的分类。

55. 一种设备，包括:

a)对于一个或多个广告的集合，跟踪关于文档的广告集合效果信息的装置；以及

b)对于所述文档，汇总所跟踪的广告集合效果信息的装置。

56. 根据权利要求 55 的设备，其中所述广告集合效果信息包括选择和印象信息。

57. 根据权利要求 55 的设备，其中所述文档是由 URL 标识的网页。

Amazon/VB Assets
Exhibit 1003
Page 383

58. 根据权利要求 55 的设备，进一步包括:

c)对所述广告集合效果信息进行阈值处理的装置。

59. 根据权利要求 55 的设备，进一步包括:

c)确定所述广告集合效果信息的置信度度量的装置；以及

d)使用所述确定的置信度度量，组合一般的广告集合效果信息与关于所述文档的所述广告集合效果信息的装置。

60. 根据权利要求 59 的设备，其中确定置信度度量的装置使用数据量和数据寿命中至少其一。

61. 一种设备，包括:

a)对于一个或多个广告的集合，跟踪关于文档集合的广告集合效果信息的设备，其中所述文档集合是所收集文档的子集；以及

b)对于所述文档集合，汇总所跟踪的广告集合效果信息的装置。

62. 根据权利要求 61 的设备，其中所述广告集合效果信息包括选择和印象信息。

63. 根据权利要求 61 的设备，其中所述文档集合包括相关的网页。

64. 根据权利要求 61 的设备，进一步包括:

c)对所述广告集合效果信息进行阈值处理的装置。

65. 根据权利要求 61 的设备，进一步包括:

c)确定所述广告集合效果信息的置信度度量的装置；以及

d)使用所述确定的置信度度量，组合一般的广告集合效果信息与关于所述文档集合的所述广告集合效果信息的装置。

66. 根据权利要求 65 的设备，其中确定置信度度量的装置使用数据量和数据寿命中至少其一。

67. 一种设备，包括:

a)对于一个或多个广告的集合，接受对文档的效果信息的输入端；以及

b)使用所接受的对所述文档的广告集合效果信息，对一个或多个广告的每一个打分或修改分数的装置。

Amazon/VB Assets
Exhibit 1003
Page 384

68. 根据权利要求 67 的设备，其中所述广告集合效果信息包括选择和印象信息。

69. 根据权利要求 67 的设备，其中所述文档是由 URL 标识的网页。

70. 根据权利要求 67 的设备，其中所述打分或修改分数的装置包括:

i)至少使用所述广告集合的一般效果信息，确定第一广告分数的装置；以及

ii)使用所接受的对文档的广告集合效果信息，修改所述第一广告分数的装置。

71. 根据权利要求 70 的设备，其中所述确定第一广告分数的装置进一步至少使用文档信息。

72. 根据权利要求 70 的设备，其中所述确定第一广告分数的装置进一步至少使用广告定向信息。

73. 根据权利要求 70 的设备，其中所述确定第一广告分数的装置进一步至少使用广告相关性信息。

74. 根据权利要求 70 的设备，其中所述打分或修改分数的动作包括:

i)至少使用所述广告集合的一般效果信息和所接受的对文档的广告集合效果信息，确定混合的效果信息的装置；以及

ii)使用所确定的混合效果信息，对所述广告打分的装置。

75. 根据权利要求 74 的设备，其中对所述广告打分的装置进一步至少使用文档信息。

76. 根据权利要求 74 的设备，其中对所述广告打分的装置进一步至少使用广告定向信息。

77. 根据权利要求 74 的设备，其中对所述广告打分的装置进一步至少使用广告相关性信息。

78. 一种设备，包括:

a)对于一个或多个广告的集合，接受对文档集合的广告集合效果

Amazon/VB Assets
Exhibit 1003
Page 385

信息的输入端，其中所述文档集合是所收集文档的子集；以及

b)使用所接受的对所述文档集合的广告集合效果信息，对一个或多个广告的每一个打分或修改分数的装置。

79. 根据权利要求 78 的设备，其中所述广告集合效果信息包括选择和印象信息。

80. 根据权利要求 78 的设备，其中所述文档集合信息包括相关的网页。

81. 根据权利要求 78 的设备，其中所述打分或修改分数的装置包括：

i)至少使用所述广告集合的一般效果信息，确定第一广告分数的装置；以及

ii)使用所接受的对文档集合的广告集合效果信息，修改所述第一广告分数的装置。

82. 根据权利要求 81 的设备，其中所述确定第一广告分数的装置进一步至少使用文档信息。

83. 根据权利要求 81 的设备，其中所述确定第一广告分数的装置进一步至少使用广告定向信息。

84. 根据权利要求 81 的设备，其中所述确定第一广告分数的装置进一步至少使用广告相关性信息。

85. 根据权利要求 78 的设备，其中所述打分或修改分数的装置包括：

i)至少使用所述广告集合的一般效果信息和所接受的对文档集合的广告集合效果信息，确定混合的效果信息的装置；以及

ii)使用所确定的混合效果信息，对所述广告打分的装置。

86. 根据权利要求 85 的设备，其中对所述广告打分的装置进一步至少使用文档信息。

87. 根据权利要求 85 的设备，其中对所述广告打分的装置进一步至少使用广告定向信息。

88. 根据权利要求 85 的设备，其中对所述广告打分的装置进一

Amazon/VB Assets
Exhibit 1003
Page 386

步至少使用广告相关性信息。

89. 一种设备，包括:

a)接受对文档的定向功能效果的输入端；以及

b)使用所接受的对所述文档的定向功能效果，对一个或多个广告的每一个打分或修改分数的装置。

90. 根据权利要求 89 的设备，其中所述广告效果包括选择和印象信息。

91. 根据权利要求 89 的设备，其中所述文档是由 URL 标识的网页。

92. 根据权利要求 89 的设备，其中所述打分的装置包括:

i)至少使用所接受的对所述文档的定向功能效果，选择打分功能的装置；以及

ii)对所选定的打分功能应用广告信息和文档信息以产生分数的装置。

93. 根据权利要求 92 的设备，其中所述打分功能是从包括（A）关键字定向、（B）文档内容定向、（C）主办人内容定向的功能集合中选定的功能。

94. 根据权利要求 89 的设备，其中所述打分的装置包括:

i)至少使用所接受的对所述文档的定向功能效果，选择打分功能的一个或多个参数的装置；以及

ii)用所选定一个或多个参数对打分功能应用广告信息和文档信息以产生分数的装置。

95. 一种设备，包括:

a)接受对文档集合的定向功能效果的输入端；以及

b)使用所接受的对所述文档集合的定向功能效果，对一个或多个广告的每一个打分或修改分数的装置，其中所述文档集合是所收集文档的子集。

96. 根据权利要求 95 的设备，其中所述广告效果包括选择和印象信息。

Amazon/VB Assets
Exhibit 1003
Page 387

97. 根据权利要求 95 的设备，其中所述文档集合包括相关的网页。

98. 根据权利要求 95 的设备，其中所述打分的装置包括:

i)至少使用所接受的对所述文档集合的定向功能效果，选择打分功能的装置；以及

ii)对所选定的打分功能应用广告信息和文档信息以产生分数的装置。

99. 根据权利要求 98 的设备，其中所述打分功能是从包括（A）关键字定向、（B）文档内容定向、（C）主办人内容定向的功能集合中选定的功能。

100. 根据权利要求 95 的设备，其中所述打分的装置包括:

i)至少使用所接受的对所述文档集合的定向功能效果，选择打分功能的一个或多个参数的装置；以及

ii)用所选定一个或多个参数对打分功能应用广告信息和文档信息以产生分数的装置。

101. 用于确定适于向文档提供的广告的集合的设备，所述设备包括:

a)确定第一广告集合的装置;

b)接受对所述文档的广告效果信息的输入端;

c)确定对所述文档效果最好的广告数目的装置；以及

d)使用所述第一广告集合及所确定的效果最好广告的数目，确定最终广告集合的装置。

102. 用于确定适于向文档提供的广告的集合的设备，所述设备包括:

a)确定第一广告集合的装置;

b)接受对所述文档所属文档集合的广告效果信息的输入端，其中所述文档集合是所收集文档的子集;

c)确定对所述文档集合效果最好的广告数目的装置；以及

d)使用所述第一广告集合及所确定的效果最好广告的数目，确定

Amazon/VB Assets
Exhibit 1003
Page 388

最终广告集合的装置。

103. 一种设备，包括:

a)对文档确定至少两个概念的装置;

b)对所述至少两个概念中的每一个确定一个或多个广告的装置;

c)对所述至少两个概念中的每一个确定概念效果分数的装置；以及

d)对至少一个所述广告，使用所述广告与之关联的概念的概念效果分数更新广告效果分数的装置。

104. 根据权利要求 **103** 的设备，其中确定概念效果分数的装置使用与所述概念关联的广告的文档特定的广告效果分数。

105. 根据权利要求 **103** 的设备，其中所述文档属于某个组，而且

确定概念效果分数的装置使用与所述概念关联的广告的组特定的广告效果分数。

106. 根据权利要求 **105** 的设备，其中所述文档是网页而且所述组是属于某个网站的网页。

107. 根据权利要求 **105** 的设备，其中所述组是相关文档的集群。

108. 根据权利要求 **105** 的设备，其中所述组是文档的分类。

Amazon/VB Assets
Exhibit 1003
Page 389

使用收集的用户行为数据改进内容定向的广告

相关申请的交叉引用

2003年7月22日提交并将Alex Carobus、Claire Cui、Deepak Jindal、Steve Lawrence和Narayanan Shivakumar列为发明人的美国临时申请序列号60/489,322标题为“COLLECTION USER BEHAVIOR DATA SUCH AS CLICK DATA, GENERATING USER BEHAVIOR DATA REPRESENTATIONS, AND USING USER BEHAVIOR DATA FOR CONCEPT REINFORCEMENT FOR CONTENT-BASED AD TARGETING”，本申请要求以其作为优先权基础（其内容在此引用作为参考）。

本发明不限于该临时申请中描述的任何特定实施例。

技术领域

本发明涉及广告，尤其是涉及改进内容定向的广告。

背景技术

传统广告

使用传统媒介比如电视、广播、报纸和杂志的广告众所周知。遗憾的是，即使在提供了人口统计学的研究成果以及对各种媒介典型受众完全合理的假设时，广告商也会认识到其广告预算有许多是白白浪费的。此外，要识别和减少这种浪费也十分困难。

在线广告

近来，在更加互动的媒介上做广告已经变得流行。例如，由于使用因特网的人数已经飞速增长，广告商已经把通过因特网提供的媒介和服务视为做广告的潜在有力方式。

广告商已经制定了几种策略，试图使这种广告的价值最大化。在

Amazon/VB Assets
Exhibit 1003
Page 390

一种策略中，广告商使用流行的显示或装置，提供互动媒介或服务（在说明书中不失一般性地称为“网站”）作为与广大受众沟通的渠道。例如，广告商可以使用这种第一方式，把广告放在纽约时报网站或今日美国网站的主页上。在另一种策略中，广告商可以试图将其广告定向在更加狭小领域中的受众，从而提高这些受众积极响应的可能性。例如，推进哥斯达黎加雨林旅游的旅行社可以将广告放在 Yahoo 网站的生态旅游子目录上。正常情况下，广告商将手工确定这种定向。

无论采用何种策略，基于网站的广告（也称为“网络广告”）往往以“横幅广告”的形式呈现给其广告受众——即包括图形成分的矩形方框。如果广告受众的某个成员（在本说明书中不失一般性地称为“观众”或“用户”）通过点击这些横幅广告之一而选择它，典型情况下嵌入的超文本链接将观众引导至广告商的网站。观众选择广告的这个过程通常称为“点进”（“点进”意在覆盖用户的任何选择）。点进次数与广告的出现次数（即广告显示的次数）的比例通常称为所述广告的“点进率”或“CTR”。

当用户完成先前出现的广告涉及的交易时，就说是发生了“转化”。构成转化的事物可能随情况而改变，并且能够以多种多样的方式确定。例如，情况可能是当用户点击广告、参考广告商的网页并在离开该网页前完成购买时，发生了转化。作为替代，转化可以定义为用户显示广告、并且在预定的时间（如七天）之内在广告商的网页上进行购买。作为再一种替代，转化可以被广告商定义为任何可测度/可观察的用户动作，比如下载白票、浏览至网站的至少给定深度、观察至少一定数目的网页、在网站或网页上花费至少预定量的时间等等。往往有这样的情况，如果用户的动作不表明完成的购买，它们可能表明销售导引，尽管构成转化的用户动作不限于此。确实，对构成转化的事物也可能有许多其他定义。转化次数与广告出现次数（即广告显示的次数）的比例通常称为转化率。如果转化定义为能够在从广告出现开始的预定时间之内发生，那么转化率的一种可能的定义或许仅仅考虑过去已经出现超过所述预定时间的广告。

Amazon/VB Assets
Exhibit 1003
Page 391

无论基于网络的广告的初始期望如何，现有的方式还有几个问题。尽管广告商能够触及广大受众，但是他们往往对其广告投资的回报不满意。某些广告商已经试图通过跟踪用户的在线习惯而改进效果，但是这种方式已经引起隐私权关注。

在线关键字定向广告

同样，呈现出广告的网站的主办人（称为“网站主办人”或“广告消费者”）面对如下挑战：使广告收益最大化而不损害其用户的经历。某些网站主办人已经选择将广告收益置于用户兴趣之上。一个此类网站为“Overture.com”，它主办了所谓的“搜索引擎”服务，响应用户查询，返回冒充为“搜索结果”的广告。Overture.com 网站允许广告商为了将其网站（或目标网站）的广告置于所声称搜索结果列表的更前部而付费。如果实施了此类方案，只有用户点击广告后广告商才付费（即每次点击的价格），广告商就会缺少有效定向其广告的激情，因为定向不佳的广告将不会受到点击，所以将不需要付费。因此，每次点击价格高的广告出现在或接近顶部，但是不一定转化为广告发行人的真实收益，因为观众不点击。不仅如此，观众将会点击的广告处于列表的更下方，或者根本不在列表上，所以对广告的关联性采取了折衷。

搜索引擎——比如 Google——已经使广告商能够定向其广告，所以将连同搜索结果网页呈现它们，以响应大概与此广告有关的查询。Google 系统跟踪对广告和关键字的点进统计（它是效果参数）。给定了搜索关键字，能够显示的关键字定向广告数目有限，使得问题空间相对可应对。虽然搜索结果网页为广告商对更加准确的受众定向其广告提供了巨大的机会，但是搜索结果网页仅仅是万维网的一部分综合浏览量。

在线内容定向广告

某些在线广告系统可以使用广告相关信息和文档内容相关信息（如概念或主题、特征向量等等），使广告“匹配”包括内容的文档（以及/或者以其评价广告），比如网页。此类在线广告系统的实例介

Amazon/VB Assets
Exhibit 1003
Page 392

绍于:

- 美国临时申请序列号 60/413,536（在此引用作为参考），标题为“METHODS AND APPARATUS FOR SERVING RELEVANT ADVERTISEMENTS”，2002 年 9 月 24 日提交，Jeffrey A. Dean、Georges R. Harik 和 Paul Bucheit 列为发明人;

- 美国专利申请序列号 10/314,427（在此引用作为参考），标题为“METHODS AND APPARATUS FOR SERVING RELEVANT ADVERTISEMENTS”，2002 年 12 月 6 日提交，Jeffrey A. Dean、Georges R. Harik 和 Paul Bucheit 列为发明人;

- 美国专利申请序列号 10/375,900（在此引用作为参考），标题为“SERVING ADVERTISEMENTS BASED ON CONTENT”，2003 年 2 月 26 日提交，Darrell Anderson、Paul Bucheit、Alex Carobus、Claire Cui、Jeffrey A. Dean、Georges R. Harik、Deepak Jindal 和 Narayanan Shivakumar 列为发明人;

- 美国专利申请序列号 10/452,830（在此引用作为参考），标题为“SERVING ADVERTISEMENTS USING INFORMATION ASSOCIATED WITH E-MAIL”，2003 年 6 月 2 日提交，Jeffrey A. Dean、Georges R. Harik 和 Paul Bucheit 列为发明人。

一般来说，此类在线广告系统可以使用若干候选广告与某个文档二者的相关性信息，确定每个广告相对于该文档的分数。此分数可以用于判断是否与此文档相关联地呈现广告（也称为资格判断），以及/或者确定与此文档相关联地呈现的一个或多个广告的相关属性（如屏幕位置、尺寸等等）。此分数的判断也用于例如（1）此广告的一个或多个效果参数（如点进率、转化率、用户等级等等），（2）此广告所关联广告商的有关品质信息，（3）此广告所关联价格信息（如每个结果（如每次点击、每次转化、每次印象等等）的最高价格）中的一种或多种。

改进在线内容定向广告的需求

给定的文档，比如网页，可以关联到许多不同的概念或主题。不

Amazon/VB Assets
Exhibit 1003
Page 393

过一般来说，请求某个文档的用户总的说来可能更加关注一个相关主题或概念而不是其他主题或概念。所以呈现广告时，与不太流行的主题或概念有关的广告相比，对更加普遍关注的主题或概念有关的广告给予偏爱会是有益的。在以搜索结果网页呈现关键字定向广告的情况下，这不太成为挑战，因为往往能够根据用户的搜索查询辨别其兴趣。在请求的文档中辨别用户的兴趣要困难得多，尤其是当文档具有两个或更多主题或概念时。

发明内容

本发明为内容定向的广告系统提供用户行为（如选择（如点击）、转化等等）反馈机制。本发明可以按照每个文档（如每个 URL）和/或每个主办人（如每个网站），跟踪各个广告或各组广告的效果。本发明将此类用户行为反馈数据处理（如合计）为有用的数据结构。本发明也可以按照每个文档和/或每个主办人，跟踪广告定向功能的效果。本发明可以使用内容定向的广告系统中（原始的或处理过的）此类用户行为反馈数据，改进用户体验以及/或者最大化收益。

附图简要说明

图 1 是粗略示意图，显示了能够与广告系统互动的各方即实体；

图 2 是示意图，展示了本发明可以在其中或与其一起运行的环境；

图 3A 是内容定向的广告服务环境的泡式图，本发明可以在其中或与其一起使用。图 3B 是替代广告服务技术的泡式图；

图 4 是在比如图 3A 的环境中本发明第一个实施例的泡式图；

图 5 是在比如图 3B 的环境中本发明第二个实施例的泡式图；

图 6 是泡式图，展示了本发明的广告后打分应用；

图 7 是泡式图，展示了本发明的广告前打分应用；

图 8 是泡式图，展示了本发明对广告打分的应用；

图 9 是示范方法的流程图，以符合本发明的方式收集并汇总数据；

图 10 是示范方法的流程图，以符合本发明的方式扩展候选广告

Amazon/VB Assets
Exhibit 1003
Page 394

的集合;

图 11 是示范方法的流程图，以符合本发明的方式调整广告分数;

图 12 是示范方法的流程图，以符合本发明的方式（临时）调整广告效果信息;

图 13A 和图 13B 是示范方法的流程图，以符合本发明的方式对广告进行文档特定的或主办人特定的打分;

图 14 是示范方法的流程图，以符合本发明的方式估计和/或调整广告效果信息;

图 15 是示意图，展示了图 14 中方法的操作;

图 16 是可用装置的框图，用于实现可以进行之多种操作的至少某一些，以及存储可以符合本发明地使用和/或产生之信息的至少某一些。

具体实施方式

本发明可能包括改进内容定向广告的新颖方法、装置、消息格式和/或数据结构。进行以下说明是为了使本领域的技术人员能够做出和使用本发明，并且在具体应用及其需求的情况下提供此说明。对于本领域的技术人员，对所公开实施例的多种修改将是显而易见的，以下阐述的一般原理可以应用于其他实施例和应用。因此，不要将本发明局限于所示实施例，本发明人将其发明视为所述专利可及的全部主题内容。

在以下说明中，在§4.1 中介绍本发明可以在其中或与其一起运行的环境，然后在§4.2 中介绍本发明的示范实施例，最后在§4.3 中阐述关于本发明的某些结论。

§4.1 本发明可以在其中或与其一起运行的环境

§4.1.1 示范广告环境

图 1 是某个广告环境的粗略示意图。所述环境可以包括广告入口、维持和递送系统（简称为广告服务器）120。广告商 10 可以直接或间接输入、维持和跟踪系统 120 中的广告信息。这些广告的形式可以是

Amazon/VB Assets
Exhibit 1003
Page 395

图形广告比如所谓的横幅广告、纯文本广告，图像广告、音频广告、视频广告、包含多种任何此类成分之组合的广告等等。这些广告也可以包括嵌入的信息，比如链接和/或机器可执行的指令。广告消费者 130 可以向系统 120 提交对广告的请求，从系统 120 接受响应其请求的广告，以及向系统 120 提供使用信息。广告消费者 130 以外的实体可以启动对广告的请求。尽管未显示，但是其他实体也可以向系统 120 提供使用信息（如是否发生了与广告有关的某个转化或点进）。这种使用信息可以包括与已经呈现的广告有关的、度量的或观测的用户行为。

广告服务器 120 可以类似于以上背景技术中提及的美国专利申请序列号 10/375,900 的图 2 中介绍的服务器。广告程序可以包括的信息涉及账户、活动、创意、定向等等。术语“账户”涉及给定广告商（如独特的电子邮件地址、密码、记帐信息等等）的信息。“活动”或者说“广告活动”是指一个或多个广告的一组或多组，并且可以包括开始日期、结束日期、预算信息、地理定向信息、辛迪加组织信息等等。例如，本田公司可以有一项为其汽车生产线的广告活动，以及为其摩托车生产线的单独广告活动。为其汽车生产线的活动有一组或多组，每组包含一个或多个广告。每个广告组都可以包括定向信息（如关键字的集合、一个或多个主题的集合等等）以及价格信息（如最高价格（每次点击的价格、每次转化的价格等等））。作为替代，或者作为补充，每个广告组还可以包括平均价格（如每次点击的平均价格、每次转化的平均价格等等）。所以单一的最高价格和/或单一的平均价格可以关联到一个或多个关键字和/或主题。如上所述，每个广告组都可以有一个或多个广告或“创意”（换言之，广告内容最终呈现给终端用户）。每个广告也可以包括至某个 URL 的链接（如登录网页，比如广告商的主页，或者具体产品或服务器所关联的网页）。广告信息自然可以包括或多或少的信息，并且可以采用许多不同的方式组织。

图 2 展示了本发明可以在其中运行的环境。用户设备（也称为“客户”或“客户设备”）250 可以包括浏览器程序（比如微软公司出品的 IE 浏览器、挪威的 Opera 软件公司出品的 Opera 网络浏览器、AOL/

Amazon/VB Assets
Exhibit 1003
Page 396

时代华纳出品的 Navigator 浏览器等等）、电子邮件程序（如微软公司出品的 Outlook）等等。搜索引擎 220 可以允许用户设备 250 搜索文档收藏（如网页）。内容服务器 210 可以允许用户设备 250 访问文档。电子邮件服务器（比如微软网络公司出品的 Hotmail、Yahoo Mail 等等）240 可以用于向用户设备 250 提供电子邮件功能。广告服务器 210 可以用于向用户设备 250 呈现广告。呈现所述广告时可以与搜索服务器 220 提供的搜索结果相关联。呈现内容关联的（也称为“内容定向的”）广告时，也可以与内容服务器 230 提供的内容相关联，以及/或者与电子邮件服务器 240 和/或用户设备电子邮件程序支持的电子邮件相关联。

正如在（以上引入的）美国专利申请序列号 10/375,900 中的讨论，广告可以定向至内容服务器呈现的文档。因此，广告消费者的一个实例是接收对文档（如文章、讨论思路、音乐、视频、图形、搜索结果、网页列表等等）请求，并且响应该请求检索请求的文档或提供其他服务的普通内容服务器 230。所述内容服务器可以向广告服务器 120/210 提交对广告的请求。这种广告请求可以包括所需的许多广告。所述广告请求也可以包括文档请求信息。这种信息可以包括文档本身（如网页），文档内容或文档请求对应的类别或主题（如艺术、商业、电脑、艺术－电影、艺术－音乐等等），文档请求的全部或部分，内容寿命，内容类型（如文本、图形、视频、音频、混合媒体等等），地理位置信息，文档信息等等。

内容服务器 230 可以将所请求的内容与广告服务器 120/210 提供的一个或多个广告进行组合。然后将包括文档内容和广告的这种组合信息转发到请求所述文档的终端用户设备 250，以便呈现给用户。最后，内容服务器 230 可以将所述广告以及将要如何、何时和/或何处呈现所述广告的有关信息（如位置、点进与否、印象时间、印象日期、尺寸、转化与否等等）发送回广告服务器 120/210。作为替代，或者作为补充，也可以由某种其他装置将这种信息提供回广告服务器 120/210。

Amazon/VB Assets
Exhibit 1003
Page 397

广告消费者 130 的另一个实例是搜索引擎 220。搜索引擎 220 可以接收对搜索结果的查询。作为响应，搜索引擎可以检索关联的搜索结果（如从网页的索引）。在文章 S. Brin and L. Page, "The anatomy of a Large-Scale Hypertextual Search Engine," Seventh International World Wide Web Conference, Brisbane, Australia 和 6,285,999 号美国专利（二者都在此引用作为参考）中，介绍了一种示范搜索引擎。这种搜索结果可以包括例如网页标题的列表、从这些网页中提取的文本片断以及至这些网页的超文本链接，并且可以将搜索结果划分为预定数目（如十）的组。

搜索引擎 220 可以向广告服务器 120/210 提交对广告的请求。所述请求可以包括所需的许多广告。这个数目可以取决于搜索结果、搜索结果所占用的屏幕或页面空间量、广告的尺寸和外形等等。在一个实施例中，所需广告的数目将从一至十，优选情况下从三至五。对广告的请求也可以包括查询（作为输入的或语法描述的）、基于所述查询的信息（比如地理位置信息、所述查询是否来自分支机构以及这种分支机构的标识符）以及/或者关联到或基于搜索结果的信息。这种信息可以包括例如与搜索结果有关的标识符（如文档标识符或"docID"）、与搜索结果有关的分数（如信息检索（"IR"）分数比如查询和文档对应的特征向量的点积、页面等级分数以及/或者 IR 分数与页面等级分数的组合）、从所标识文档（如网页）提取的文本片断、所标识文档的完全文本、所标识文档的主题、所标识文档的特征向量等等。

搜索引擎 220 可以将搜索结果与广告服务器 120/210 提供的一个或多个基于搜索的广告进行组合。然后将包括搜索结果和广告的这种组合信息转发到提交所述搜索的用户，以便呈现给用户。优选情况下，搜索结果的维持与广告截然不同，使得用户能够区分付费的广告和大概中性的搜索结果。

最后，搜索引擎 220 可以将所述广告以及将要何时、何处和/或如何呈现所述广告的有关信息（如位置、点进与否、印象时间、印象

Amazon/VB Assets
Exhibit 1003
Page 398

日期、尺寸、转化与否等等）发送回广告服务器 120/210。作为替代，或者作为补充，也可以由某种其他装置将这种信息提供回广告服务器 120/210。

最后，电子邮件服务器 240 通常可以被视为其中呈现的文档就是电子邮件的内容服务器。另外，电子邮件应用程序（比如微软的 Outlook）可以用于发送和/或接收电子邮件。所以，电子邮件服务器 240 或应用程序可以被视为广告消费者 130。因此，电子邮件可以被视为文档，而呈现出定向广告时可以与这些文档相关联。例如，一个或多个广告可以呈现在电子邮件内部、以下、以上或以其他方式相关联。

尽管以上实例将服务器描述为(i)请求广告，(ii)将其与内容组合，但是这些操作或其一也可以由客户设备（比如终端用户的电脑）进行。

图 3A 是内容定向的广告服务环境 300 的泡式图，本发明可以在其中或与其一起使用。广告打分操作 340 可以使用（如取自）文档 310 的文档相关性信息 320，以及对一个或多个广告 332 中每一个的广告相关性信息 334，确定多个广告（或广告标识符）以及所关联的广告分数 355。广告 355 可以局限于据信关联者，并且可以排序 350。然后这些广告分数 355 能够由广告资格判断操作 360 和/或广告定位/强化特征应用操作 370 使用。

注意，广告打分操作 340 在其广告分数确定中也可以考虑其他信息，比如广告效果信息 336、价格信息（未显示）、广告商品质信息（未显示）等等。

当然，本发明也可以用于其他环境中，比如以上公开的搜索引擎环境中或者分别在 2000 年 6 月 20 日、2000 年 1 月 11 日、1999 年 12 月 21 日授予 Culliss 的、标题均为“Method for Organizing Information”的 6,078,916、6,014,665、6,006,222 号美国专利以及分别在 2001 年 1 月 30 日、2003 年 3 月 25 日授予 Culliss 的、标题均为“Personalized Search Methods”的 6,182,068、6,539,377 号美国专利中公开的环境中。

如图 3B 所示，打分操作可以包括多个阶段。例如，第一个打分

Amazon/VB Assets
Exhibit 1003
Page 399

操作 390 可以使用文档相关性信息 320 和广告信息 330，确定第一个广告分数 391。所述第一个分数可以是关联分数 391。这些分数 391 可以由过滤操作 394 进行过滤，产生合格的广告 397。第二个打分操作 396 可以对一个或多个合格广告提供第二个（如等级）分数 399。

广告相关性信息和文档相关性信息的形式可以为多种不同的表达方式。例如，所述相关性信息可以是特征向量（如检索词向量）、许多概念（或主题或类别等等）、概念向量、集群（参见例如美国临时专利申请序列号 60/416,144（在此引用作为参考），标题为“Methods and Apparatus for Probabilistic Hierarchical Inferential Learner”，2002 年 10 月 3 日提交，它介绍了确定信息的一个或多个概念或主题（称为“PHIL 集群”）的示范方式）等等。在以上引入的美国专利申请序列号 10/375,900 中介绍了本发明可以使用的确定内容关联广告的若干示范技术。

在以上引入的美国临时申请序列号 60/413,536 中和美国专利申请序列号 10/314,427 中介绍了提取和/或产生相关性信息的多种方式。相关性信息可以被视为某个广告或文档所属的主题或集群。多种相似性技术，比如在有关广告服务器应用程序中介绍的技术，可以用于确定广告与文档之间的相似程度。此类相似性技术可以使用提取的和/或产生的相关性信息。然后可以根据相似性判断结果，将一个或多个内容关联的广告相关性到文档。例如，假若广告的相似性程度超过了某种绝对的和/或相对的阈值，就可以将其关联到文档。

在本发明的一个示范实施例中，通过将文档标识符（如 URL）映射到一个或多个广告，可以将文档关联到一个或多个广告。例如，文档信息可能已经经过处理，以产生相关性信息，比如集群（如 PHIL 集群）、主题等等。然后匹配的集群可以在对从若干主题（如 PHIL 集群标识符）映射到一套匹配广告组之索引的大 OR 查询中用作查询检索词。然后这种查询的结果可以用于候选定向准则的第一割集。然后可以将所述候选广告组再次发送到相关性信息提取和/或产生操作（如 PHIL 服务器），以便对每个广告组确定实际信息检索（IR）分

Amazon/VB Assets
Exhibit 1003
Page 400

数，归纳所述准则信息加上广告文本本身与文档相关性信息匹配得如何。为了有助于确定分数最高的广告组，可以考虑对每个广告组估计的或已知的效果参数（如点进率、转化率等等）。

一旦选定了一套最佳广告组，就可以使用准则列表从所述最佳广告组中选择一套最终的广告，可能是一个或多个。如果发送的 M 个准则中有 K 个符合单一的广告组，内容相关的广告服务器可以使用这个列表请求将某个广告发送回去。此时将该广告提供给请求者。

在本系统中可以反馈效果信息（如每个 URL 或每个域的选择或转化历史），所以可以确定对具体广告种类（如属于某个具体集群或主题的广告）效果趋于更好的集群或网页。这可以用于对内容相关的广告重定等级，使用内容关联和效果二者的某种函数来确定呈现的广告。有许多效果优化措施可以使用。例如，从 URL 至该套相关广告组的映射可以置于高速缓存，以避免对频繁浏览的页面重新计算。本发明自然可以与其他的内容相关广告服务技术一起使用。

§4.1.2 定义

在线广告，比如以上参考图 1 和图 2 介绍的示范系统或任何其他系统中使用的广告，可以具有多种固有的特性。这些特性可以由应用程序和/或广告商指定。这些特性以下称为“广告特性”。例如，在文本广告的情况下，广告特性可以包括标题行、广告文本和嵌入的链接。在图像广告的情况下，广告特性可以包括图像、可执行代码和嵌入的链接。取决于在线广告的类型，广告特性可以包括以下内容的一种或多种：文本、链接、音频文件、视频文件、图像文件、可执行代码、嵌入的信息等等。

呈现在线广告时，可以使用一个或多个参数描述如何、在何时和/或何处呈现广告。这些参数在以下称为“呈现参数”。呈现参数可以包括例如以下参数的一个或多个：广告所在页面的特性（包括其信息）、呈现广告所关联的搜索查询或搜索结果、用户特征（如其地理位置、用户所用的语言、所用浏览器的类型、过去的综合浏览量、过去的行为）、启动该请求的主办或分支站点（如美国在线、Google、Yahoo）、

Amazon/VB Assets
Exhibit 1003
Page 401

广告所在页面上广告的绝对位置、此广告相对于所呈现的其他广告的（空间或时间）位置、广告的绝对尺寸、此广告相对于其他广告的尺寸、广告的颜色、所呈现其他广告的数目、所呈现其他广告的类型、一天中呈现的时间、一周中呈现的时间、一年中呈现的时间等等。自然，在本发明的情况下可以所用的还有其他呈现参数。

虽然呈现参数对广告特性可以是外在的，但是它们也可以与广告相关性为呈现条件或约束。用作呈现条件或约束时，这些呈现参数就直接称为“呈现约束”（或“定向准则”）。例如，在某些系统中，广告商或许能够通过指定仅仅在工作日呈现、不低于一定的位置、仅仅呈现给一定位置的用户等等，定向其广告的呈现。作为另一个实例，在某些系统中，广告商可以指定仅仅在页面或搜索查询包括一定的关键字或短语时，才呈现其广告。作为再一个实例，在某些系统中，广告商可以指定仅仅在呈现的文档包括一定的主题或概念，或者落入特定的集群或若干集群中，或者某种或某些其他类别时，才呈现其广告。

对于广告特性、广告呈现约束、从广告特性或广告呈现约束可得出的信息（称为“广告导出信息”）和/或所述广告相关的信息（称为“广告相关信息”）以及这种信息的扩展，“广告信息”可以包括它们的任何组合。

“文档”将要广义地解释为任何机器可读的、机器可存储的工作产品。文档可以是文件、文件组合、嵌入至其他文件之链接的一个或多个文件等等。这些文件可以是任何类型，比如文本、音频、图像、视频等等。将要呈现给终端用户之文档的部分可以视为该文档的“内容”。文档可以包括“结构化数据”，既包含内容（文字、图片等等），又包含该内容含义的某种指示（例如电子邮件字段及所关联的数据、HTML 标签及所关联的数据等等）。文档中的广告点可以由嵌入的信息或指令定义。在因特网的环境中，常见的文档是网页。网页往往包括内容，并且可以包括嵌入的信息（比如元信息、超链接等等）和/或嵌入的指令（比如 Java 脚本等等）。在许多情况下，文档具有唯一可寻址的存储位置，所以能够由这个可寻址位置唯一地标识。统一资

Amazon/VB Assets
Exhibit 1003
Page 402

源定位器（URL）是访问因特网上信息所用的唯一地址。

“文档信息”可以包括该文档中包括的任何信息、可从该文档中包括的信息得出的信息（称为“文档导出信息”）和/或该文档相关的信息（称为“文档相关信息”）以及这种信息的扩展（如从相关信息得出的信息）。文档导出信息的一个实例为根据文档的文本内容确定的分类。文档相关信息的实例包括来自链接到当前文档之其他文档的文档信息，以及来自当前文档链接之其他文档的文档信息。

来自某个文档的信息可以呈现在“内容呈现应用程序或设备”上。内容呈现应用程序的实例包括因特网浏览器（如 IE 或 Netscape）、媒体播放器（如 MP3 播放器、Realnetworks 流音频文件播放器等等）、看图程序（如 Abobe Acrobat pdf 阅读器）等等。

“内容拥有者”是具有文档内容的某种财产权的个人或实体。内容拥有者可以是该内容的作者。作为补充，或者作为替代，内容拥有者可以具有再现该内容的权利、准备该内容的衍生作品的权利、公开展示或表演该内容的权利和/或该内容中不受法律保护的其他权利。虽然内容服务器可以是其呈现文档中内容的内容拥有者，但也不一定。

“用户信息”可以包括用户行为信息和/或用户概况信息。

“电子邮件信息”可以包括电子邮件中包括的任何信息（称为“电子邮件内部信息”）、可从电子邮件中包括的信息得出的信息和/或电子邮件相关的信息以及这种信息的扩展（如从相关信息得出的信息）。从电子邮件信息得出信息的一个实例为响应从电子邮件主题行提取的术语组成的搜索查询，从返回的搜索结果提取的或以其他方式得出的信息。电子邮件相关信息的实例包括给定电子邮件的同一发送者所发送的一个或多个其他电子邮件的有关电子邮件信息，或者电子邮件接收者的有关用户信息。从电子邮件信息得出的或与其相关的信息可以称为“电子邮件外部信息”。

现在在§4.2 中介绍本发明的多种示范实施例。

§4.2 示范实施例

回顾图 3A 和图 3B，广告打分操作可以使用广告效果信息。本发

Amazon/VB Assets
Exhibit 1003
Page 403

明人认识到，这种效果信息（如广告的点进率）往往是受到全面跟踪和保持的，遍及一切文档和一切概念。不过，在某些情况下使用这种全面效果信息可能不会提供最佳的结果。本发明可以用于跟踪、汇总和使用文档（如网页）、主办人（如网站）和/或概念级别上的效果信息，改进内容定向广告的呈现。

本发明可以包括以下阶段中的一个或多个：（1）用户行为（如点击）数据收集阶段，（2）用户行为数据预处理阶段，（3）基于用户行为数据的分数确定或调整阶段。以下介绍执行这些阶段中每一个的示范实施例。具体地说，在§4.2.2 中介绍了收集用户行为数据以及预处理这种用户行为数据的示范方法和数据结构。然后，在§4.2.3 中介绍了使用这种用户行为数据确定或调整广告分数的示范方法。本发明不限于所介绍的具体实施例。不过，首先在§4.2.1 中介绍本发明对内容定向广告呈现环境比如图 3A 和图 3B 的 300 和 300'的多方面应用。

§4.2.1 在内容定向的广告呈现环境中使用本发明

正如从以下实例可以理解，文档特定（和/或主办人特定）的点击反馈（或所跟踪的某些其他用户行为）可以用于改进内容定向的广告呈现系统，比如以上列出和引用作为参考的临时和实用专利申请中所介绍的系统。考虑像 www.wunderground.com 的典型网站，经营着不同城市的天气网页。考虑有关 Lake Tahoe、拉斯维加斯和威斯康星州 Hurley 天气的三（3）个网页。

首先，点击反馈可用于改进广告的质量。例如，内容定向的广告系统可以使用布尔"OR"操作，使来自某个网页的几个概念串联，据此产生查询并呈现广告。因此，在关于 Lake Tahoe 对天气网页上，使用这些确定的概念，可以产生查询= "Lake Tahoe OR baromter OR Squaw Vally"。这些都是不同的概念，可以引出关于气压、Lake Tahoe 旅馆以及 Squaw 山谷滑雪用具租费。在这些情况下，有可能难以选择"恰当的"广告（或广告集）去呈现。另外，以每个网页而论，所述"恰当的"广告（或广告集）很可能不同。对拉斯维加斯相关的网页，

Amazon/VB Assets
Exhibit 1003
Page 404

最合理广告可能是那里的旅馆。对威斯康星州 Hurley 相关的网页，查询该处天气的人很可能不一定去那里并需要旅馆，而可能更关注与天气相关的仪器。对 Lake Tahoe 相关的网页，用户更有可能选择缆车票和滑雪用具租费的广告。正如这个实例所示，三个结构类似的网页可能具有不同的“点击响应”，用于不相关主题或概念。广告效果参数（如点进率（CTR））是有用的，并可以按在每个 URL 保持。本发明可以使用这种信息，以选择“更好的”和更关注的广告，取决于所在的网页并使用其他人已经点击的信息。

点击反馈也可以用于广告位置/增强的广告特征的“正确”拍卖。例如，广告系统可以使用搜索查询信息（如关键字）CTR（简称为“搜索 CTR”）拍卖搜索结果网页上的广告位置。但是这并不特别地与内容 CTR 有关。例如，假若用户正在搜索的是关键字“barometer”，它的搜索 CTR 就可能很高。不过，在内容定向广告系统的情况下，以 barometer 概念定向的广告如果呈现在拉斯维加斯的天气网页上，不太可能产生任何点击。以旅馆概念定向和/或以房地产概念定向的广告，如果呈现在这种拉斯维加斯的天气网页上，则更可能产生点击。因此，拍卖搜索结果页面上广告位置时可能有用的搜索 CTR 信息，在拍卖内容网页上广告位置的情况下可能无用（如对于确定每千次印象的估计价格（ECPM）和每次点击的价格（CPC））。使用每 URL 的 CTR 统计，本发明可以用于为每个广告（或广告组）确定更好的 CTR。

点击反馈也可以用于从瞬时广告（或广告组）外推效果信息。广告商、广告和/或广告组可以视为是瞬时的，因为他们可以减少其预算，可以决定退出即结束其商业性活动等。不过，拉斯维加斯的 Bally 旅馆或 MGM Grand 的网页所呈现广告的点击反馈信息，可以（也许以较低的权）应用于共享类似特征（如具有相似的概念或概念定向）的其他广告，以确定是否用该网页呈现这种广告时。本发明可以用于将点击反馈信息从先前点击的广告外推到新的广告以及显示（触发相同概念的）“相关的”广告，以补偿缩减的广告目录。

Amazon/VB Assets
Exhibit 1003
Page 405

图 4 是在比如图 3A 的环境中本发明第一个实施例 400 的泡式图。如同图 3A 中环境 300 的情况，广告打分操作 440 可以使用文档 410 的文档相关性信息 420，以及对一个或多个广告 432 中每一个的广告相关性信息 434，确定多个广告（或广告标识符）以及所关联的广告分数 455。广告分数 455 可以限制为（以绝对和/或相对准则）据信关联者，并且可以排序 450。然后这些广告分数 455 能够由广告资格判断操作 460 和/或广告定位/强化特性应用操作 470 使用。对特定的文档，在幻影中所示的多种操作可以使用广告的效果数据 480。图中并没有显示以每个文档、每个主办人和/或每个概念收集和/或汇总广告效果数据的若干操作。无论在任何情况下，如表 480 所指示，按每个文档，对许多广告（或广告组）482 中的每一个，都可以跟踪广告效果信息 484（如点进率、转化率等）以及这种效果信息的基本部分（如印象计数、选择计数、转化计数等）（未显示）。例如，如图 4 中展示，文档 410 可以与表 480 关联（如使用文档标识符 412）。对某个给定文档，对于全部广告（或广告组）482，也可以确定和存储平均广告（或平均广告组）效果 484。

本发明可以执行幻影中所描述操作的一种或多种。这些操作可以使用文档特定的广告（或广告组）效果信息 480。候选广告集扩充操作 490 可用于至少使用文档特定的广告（或广告组）效果信息 480，增加“相关的”或“合格的”广告的数目。广告分数调整操作 491 可用于至少使用文档特定的广告（或广告组）效果信息 480，对已经确定的广告分数 455 进行调整。广告效果信息调整操作 493 可用于至少使用文档特定的广告（或广告组）效果信息 480，对广告效果信息 436 进行（临时）调整（或者取代或结合广告效果信息 436）。最后，效果参数估计（外推）操作 496 可用于填充和/或调节以及补充广告（或广告组）的效果信息 484。后面将介绍执行这些操作的示范方法。

图 5 是在比如图 3A 的环境中本发明第二个实施例 500 的泡式图。如同图 3 中环境 300 的情况，广告打分操作 540 可以使用文档 510 的文档相关性信息 520，以及对一个或多个广告 532 中每一个的广告相

Amazon/VB Assets
Exhibit 1003
Page 406

关性信息 534，确定多个广告（或广告标识符）以及所关联的广告分数 555。广告分数 555 可以限制为（以绝对和/或相对准则）据信关联者，并且可以排序 550。然后这些广告分数 555 能够由广告资格判断操作 560 和/或广告定位/强化特性应用操作 570 使用。对特定的文档或主办人（如网站），在幻影中所示的多种操作可以使用广告（或广告组）582 的广告效果数据 584 和/或定向功能 587 的效果数据 588。

图中并没有显示以每个文档、每个主办人和/或每个概念收集和/或汇总广告效果数据的若干操作。无论在任何情况下，如表 580 所指示，按每个主办人，对许多广告（或广告组）582 中的每一个，都可以跟踪广告（或广告组）效果信息 584（如点进率、转化率等）以及这种效果信息的基本部分（如印象计数、选择计数等）（未显示）。同样，如表 586 所指示，按每个主办人，对许多定向功能 587 中的每一个，都可以跟踪广告（或广告组）效果信息 588 以及这种效果信息的基本部分（未显示）。例如，如图 5 中展示，文档 510 的主办人 514 可以与表 580 和 586 关联。对某个给定主办人，对于全部广告（或广告组）582、587，也可以确定和存储平均广告（或广告组）效果 584、588。

本发明可以执行幻影中所描述操作的一种或多种。这些操作可以使用主办人特定的广告（或广告组）效果信息 580 和/或主办人特定的定向功能广告效果信息 586。（为了简化附图，没有指明由某些操作对这种信息 580 和 586 的使用。）候选广告集扩充操作 590 可用于至少使用主办人特定的广告（或广告组）效果信息 580，增加“相关的”或“合格的”广告的数目。广告分数调整操作 591 可用于至少使用主办人特定的广告（或广告组）效果信息 580，对已经确定的广告分数 555 进行调整。广告效果信息调整操作 593 可用于至少使用主办人特定的广告（或广告组）效果信息 580，对广告效果信息 536 进行（临时）调整（或者取代或结合广告效果信息 536）。文档/主办人特定的广告打分操作 594 可以用于选择适当的打分功能以及/或者调整由广告打分操作 540 使用的打分功能分量和/或参数 595。例如，不同的打分

Amazon/VB Assets
Exhibit 1003
Page 407

功能可能会使用不同的广告定向技术（如基于关键字、基于概念、基于文档概念、基于主办人概念等）或以各种权值组合不同对广告定向技术。最后，效果参数估计（外推）操作 596 可用于填充和/或调节以及补充广告（或广告组）的效果信息 584。后面将介绍执行这些操作的示范方法。

正如从以上论述能够理解，考虑到在广告打分之前、期间或之后应用的文档特定的效果信息（如广告、广告组、定向功能等），可以使用符合本发明的多种操作。。

例如，图 6 展示了广告分数调整操作 691（分别回顾如图 4 的 491 和图 5 的 591），它们使用文档特定的广告效果信息 680，从初始分数 655 产生调整后的分数 699。此初始分数 655 可能是由广告打分操作 640 使用（普通）广告效果信息 636、文档信息 620 以及其它广告信息（如定向信息、价格信息、广告商品质信息等）632 先前已经产生。因此，图 6 展示了广告打分后文档特定的广告效果信息的使用。

图 7 展示了广告效果混合（调整）操作 793（分别回顾图 4 的 493 和图 5 的 593），它们使用文档特定的广告效果信息 780，调整（普通）广告效果信息 736，以产生混合（即调整）后的广告效果信息 798。广告打分操作 740 能够使用这种混合的广告效果信息 798，以及其他广告信息 732 和文档信息 720，以产生广告分数 750。因此，图 7 展示了广告打分前文档特定的广告效果信息的使用。

图 8 展示了打分选择/调整操作 894 对文档特定（或主办人特定）的定向功能效果信息的使用，以选择打分功能和/或调整打分功能的参数 895。然后广告打分操作 840 使用所选定的打分功能和/或打分功能参数以及广告信息 832 和文档信息 820，产生广告分数 850。因此，图 8 展示了广告打分期间（如文档、主办人等）特定的定向功能效果信息的使用。

虽然参考文档特定的效果信息介绍了以上的若干操作，但是该效果信息也能够对某种文档组合特定（如主办人特定、文档集群特定等）。此外，虽然参考广告效果信息介绍了以上若干操作，但是也可以使用

Amazon/VB Assets
Exhibit 1003
Page 408

某种广告组合（如广告组）的效果信息。

§4.2.2 存储并汇总用户行为数据

图 9 是示范方法 900 的流程图，以符合本发明的方式收集并合计数据。每次与文档相关联地呈现广告时，（方框 910）都可以记录该文档（和/或主办人）的标识符（如 URL），可以记录该广告（和/或广告组）的标识符，并可以记录记录印象信息。（方框 920）可以接受多种用户行为信息。例如，可以接受文档标识符、广告（或广告组）标识符、用户行为信息和价格信息（如每次选择的价格、每次转化的价格）。作为替换或作为补充，也可以接受主办人标识符、广告（或广告组）标识符、用户行为信息和价格信息。作为替换或作为补充，也可以接受主办人标识符、定向功能（或若干定向功能）、用户行为信息以及价格信息。可以（如当它出现时）连续地接受或者（如以批量方式）递增地接受这种用户行为信息。然后（方框 930）可以根据所接受和记录的信息，更新计数和/或统计。（方框 940）可以使用若干计数对信息进行阈值处理。（方框 950）可以使用数据置信度的某种度量来调整（如平滑）数据。然后（方框 960）可以存储这些更新的计数和/或统计。文档标识符（如 URL）或主办人标识符（如主页 URL）可以用作所存储的计数和/或统计的查找关键字（方框 960）。

回头参考方框 910，本发明可以使用脱机过程对用户行为的记录进行汇总（如使用前端网络服务器，比如 Google 网络服务器），并按每个 URL、每个域信息记录统计量。例如，可以收集所有点击和广告印象的样本（如每天两次）。这种数据以下称为“每日解码的记录数据”。

回头参考方框 920 和 930，根据以上数据和 AdGroupCreativeId 到 AdGroup 的映射，可以产生合计数据结构。以下数据结构对脱离 AdGroup 粒度的内容广告系统很有用，这就是它用作汇总单元的原因。其他的汇总单元（如 AdGroupCreativeId 或类似单元）也是可能的，以下数据结构可以相应修改。在下文中“numimprs”是指印象的数目，“numclicks”是指用户选择（如点击）的次数，“avgcpc”是指

Amazon/VB Assets
Exhibit 1003
Page 409

每次选择（如点击）的平均价格，“avgctr”是指平均选择（如点进）率。

(1)URL:->{AdGroup,numimprs,numclicks,avgcpc}+avgctr

(2)Host:->{AdGroup,numimprs,numclicks,avgcpc}+avgctr

(3)Host:->{targeting-feature,numimprs,numclicks,avgcpc}+avgctr

(4)AdGroup:->{numimprs,numclicks,avgcpc}+avgctr

为了产生上述数据结构，本发明可以对最后 K 天（如 2 个月）的每日解码记录数据进行汇总，并且保留 numimprs > threshold_num_imprs 或 numclicks > threshold_num_clicks 的所有关键字信息。也可以产生和存储平均效果信息。例如，可以对所有的(a)每个文档的广告组；(b)每个主办人的广告组和(c)每个主办人的定向功能确定平均用户行为。

回头参考方框 940，这种合计是“计数 + 阈值处理”问题的实例，长尾中有若干入口。换言之，在典型情况下，可以保留所有 URL/AdGroup 的计数器，而可以丢弃在汇总之时没有达到阈值的若干计数器。由于这可以视为是典型的“冰山”查询，因此本发明可以使用公知技术（参见如论文 M.Fang, N.Shivakumar, H.Garcia-Molina, R.Motwani, J.Ullman,”Computing Iceberg Queries Efficiently,” 24th International Conference on Very Large Databases, (August 24-27,1998)（在此引用作为参考））尽早进行阈值处理。

回头参考方框 950，本发明的改进实施例可以采用数据平滑。点击统计的“置信度”对不同的广告和 URL 可以有很大变化。例如，广告 X 可以从 1000 次印象中得到 200 次点击，而广告 Y 从 5 次印象中得到 1 次点击。虽然两种广告具有相同的 CTR，但是广告 X 统计量的置信度水平高于广告 Y。为了反映这种置信度参数，本发明可以向接近平均内容广告 CTR 的方向“平滑”所述 CTR 值，如下式：

平滑的 CTR=（点击数目+1）/（印象数目+1/基础 CTR）

Amazon/VB Assets
Exhibit 1003
Page 410

还可能有平滑所述 CTR 值的不同方式。一种替代方法是使用以下公式：

平滑的 CTR=CTR*置信度+基础 CTR*（1-置信度）

其中置信度根据印象数目设定。置信度也可以是该数据其它特性的函数，比如数据样本的寿命。

除了以上提及的保留点击统计量数据结构的选项之外，还有许多不同的方法，以符合本发明的方式收集和存储点击统计量。可以在整个时间周期内收集统计量。作为替代，也能够以增量的方式收集统计量并加载。统计量可以存储在文件中并在运行时加载到内存之中。作为替换或作为补充，它们能够存储在数据库中并在运行时检索。虽然介绍的是定期计算反馈的脱机机制，但是也可以实时地在线进行这种反馈计算。

已经介绍了记录与汇总用户行为数据的示范技术，以产生比如图 4 的 480 和图 5 的 580、586 的数据结构，以下将在§4.2.3 中介绍多种方法，能够以符合本发明的方式使用这些数据结构的一种或多种。

§4.2.3 使用所存储的用户行为数据确定和/或调整广告分数

§4.2.3.1 候选广告集合的扩展

图 10 是示范方法 1000 的流程图，以符合本发明的方式扩展候选广告（回顾如操作 490 和 590）的集合。（方框 1010）接受文档标识符（如 URL）。（方框 1020）使用所存储/汇总的用户行为数据，为该文档确定第一预定数目（如 K，在一个实施例中 K 的范围可以从 0 到 500）的、效果最好的广告（或广告组）。最后（方框 1030）确定候选广告集合，至少包括所述第一预定数目的、效果最好的广告（或广告组）。该候选广告集合可以包括在正常处理中将会确定的广告。虽然没有显示，但是广告的原始集合是否扩展，和/或扩展的广告数目 K 都可能取决于原始广告集合的绝对和/或相对效果。

正如从上述能够理解，本发明的这种方法允许与给定文档（或对于给定主办人）相关联呈现的合格广告不一定具有特别好的全面效果（如遍及所有的文档），但是对给定文档却的确要效果好。

Amazon/VB Assets
Exhibit 1003
Page 411

在本发明的一个示范实施例中，对每个 URL，从正常打分机制获得的 AdGroup 候选者之后附加 CTR 最高的 K 个 AdGroup。做到这一点可以使用以下数据结构： URL:->{AdGroup,numimprs, numclicks, avgcpc}+avgctr。

§4.2.3.2 广告分数调整技术

§4.2.3.2.1 广告分数调整

图 11 是示范方法 1100 的流程图，以符合本发明的方式调整广告分数（回顾如操作 491 和 591）。（方框 1110）接受广告（或广告组）候选者及其各自的分数（回顾如 455 和 555）。（方框 1120）可以接受文档标识符（如 URL）和/或主办人标识符（网站主页 URL）。正如循环 1130-1160 所指示，对每个所接受的广告（或广告组）候选者执行了若干动作。更具体地说，（方框 1140）接受文档特定的和/或主办人特定的广告（或广告组）效果信息。也可以接受遍及所有广告（或广告组）对文档和/或主办人的平均效果信息。然后，（方框 1150）使用所接受的文档特定的和/或主办人特定的效果信息（以及使用平均效果信息）调整广告（或广告组）分数。已经处理了全部广告（或广告组）候选者之后，（节点 1170）离开方法 1100。

正如从上述能够理解，广告的分数——不考虑其广告所呈现的文档，至少可以是广告效果的函数——可以使用此广告的文档特定的和/或主办人特定的效果信息进行调整。

在本发明的一个示范实施例中，AdGroup 的候选者和概念（如 PHIL 集群）使用其在给定网页上或主办人的 CTR 进行了重打分。做到这一点可以使用以下数据结构 URL:->{AdGroup,numimprs, numclicks, avgcpc}+avgctr。

图 11 的方法 1100 是文档（和/或主办人）特定的效果信息的打分后应用实例，（回顾如图 6）。

§4.2.3.2.2 广告效果调整

图 12 是示范方法 1200 的流程图，以符合本发明的方式（临时）调整广告效果信息（回顾如操作 493 和 593）。（方框 1210）接受合

Amazon/VB Assets
Exhibit 1003
Page 412

格广告（或广告组）候选者和广告（或广告组）效果信息。（方框 1220）接受文档标识符（如 URL）和/或主办人标识符。正如循环 1230-1260 所指示，对每个所接受的广告（或广告组）候选者执行了若干动作。更具体地说，（方框 1240）接受文档特定的和/或主办人特定的广告（或广告组）效果信息。也可以接受遍及所有广告（或广告组）对文档和/或主办人的平均效果信息。然后，（方框 1250）使用所接受的文档特定的和/或主办人特定的效果信息（以及使用平均效果信息）调整广告（或广告组）的效果信息。已经处理了全部广告（或广告组）候选者之后，（节点 1270）离开方法 1200。

正如从上述能够理解，为了确定关于给定文档的广告分数，所述广告的效果——通常不考虑其广告所呈现的文档——可以使用此广告的文档特定的和/或主办人特定的效果信息进行调整。图 12 的方法 1200 是文档（和/或主办人）特定信息的打分前应用实例（回顾如图 7）。

在本发明的一个示范实施例中，将网页、网站或内容广告特定的选择统计量发送到广告服务器，所以它能够在确定广告分数时使用这些这些信息（如在分配广告位置/广告特征中使用）。做到这一点可以使用以下的一个或多个数据结构：

URL:->{AdGroup,numimprs,numclicks,avgcpc}+avgctr，

Host:->{AdGroup,numimprs,numclicks,avgcpc}+avgctr，

（AdGroup:->{numimprs,numclicks,avgcpc}+avgctr。

在发送到广告服务器的 AdGroup 列表中的每个 AdGroup 都可以符合本发明地附加所述选择统计量。如果 URL 级统计量存在，本发明就可以使用它们。否则，本发明可以使用主办人级（如网站主页 URL 级）统计量，所述 AdGroup 统计量横跨一切内容广告性质，或在不太优选情况下为所述内容广告的平均 AdCTR。

§4.2.3.2.3 文档/主办人特定的广告打分功能确定

图 13A 展示了示范方法 1300，以符合本发明的方式选择广告（或主办人）特定的打分功能（回顾如操作 594）。（方框 1305）接受文档（或主办人）标识符。（方框 1310）确定（对所述文档已经呈现广

Amazon/VB Assets
Exhibit 1003
Page 413

告）效果最好的打分功能（回顾如图 5 的信息 586）。然后（方框 1315）使用所确定的打分功能对一个或多个广告打分，（节点 1320）再离开方法 1300。

图 13B 是示范方法 1350 的流程图，以符合本发明的方式进行文档特定的或主办人特定的广告打分（回顾如操作 594）。注意，可以使用某种功能确定广告分数。此功能可以包括变量（如概念、关键字、价格信息、效果信息、相似性度量和/或广告商品质信息等）和常量（如用于对所述变量给出权重、使变量升高至指数幂等的数字）。

1355 接受文档标识符（如 URL）和/或主办人标识符。正如循环 1360-1375 所指示，对广告打分功能的每个分量/参数都执行了若干动作。更具体地说，（方框 1365）对给定分量/参数接受文档特定的/主办人特定的效果信息。也可以接受遍及一切参数/分量的、对所述文档和/或主办人的平均效果信息。然后（方框 1370）使用这种接受的文档特定的/主办人特定的效果信息（以及所接受的平均效果信息）调整在打分中分量/参数的重要性。已经处理了一切分量/参数之后，离开方法 1350（节点 1380）。

现在提供本发明这种特征的示范应用。假设定向广告时除了其他特征以外，位置和一天中的时间都能够使用。进一步假设在用特定网页呈现时，使用位置定向的广告比使用一天中的时间定向的广告效果好。在这种情况下，当确定将要以此特定网页呈现的广告时，分配给定向功能位置分量的权重大于定向功能一天中的时间分量。

注意，图 13A 中方法 1300 和图 13B 中方法 1350 的多种方面分别能够组合使用。

正如从上述能够理解，本发明的这个方面容许使用与打分功能和/或其分量有关的、文档（和/或主办人）特定的效果（它可能比与给定广告有关的、文档和/或主办人特定的效果更一般）。因此，例如对于涉及类别“汽车”和“劳斯莱斯”的网页，涉及类别“豪华房地产”的广告具有的效果可能优于涉及“汽车”的广告。因此，将要呈现该文档时，可以相应地调整“汽车”和“豪华房地产”对应的权重。作

Amazon/VB Assets
Exhibit 1003
Page 414

为另一个实例，使用主办人关联（如概念）定向所呈现的广告具有的效果可能优于使用文档关联（如概念）定向所呈现的广告，后者具有的效果可能优于仅仅由效果和价格信息定向的广告。这可能影响着使用哪个打分功能，或者在最终分数中从不同打分功能得出的分数如何加权。

在本发明的一个示范实施例中，对于某个 URL（如默认内容、上层 URL、URL 关键字），对该主办人和定向功能给定了点击统计量，就可以从定向功能的可能空间中选择具体的定向功能。做到这一点可以使用以下数据结构： Host:->{targeting-function,numimprs, numclicks,avgcpc}+avgctr。

图 13A 和图 13B 的方法是打分期间应用文档（和/或主办人）特定的信息的实例（回顾如图 8）。

§4.2.3.3 基于概念的广告效果估计/外推

图 14 是示范方法 1400 的流程图，以符合本发明的方式估计和/或调整广告效果信息。（方框 1405）接受或提取文档概念（和/或主办人概念）。正如循环 1410-1465 所指示，对每个所接受或提取的概念执行了若干动作。更具体地说，（方框 1415）确定概念相关第一广告集合。然后，正如循环 1420-1430 所指示，对每个确定的概念相关广告，（方框 1425）查询文档特定的（和/或主办人特定的）效果信息。然后，（决策方框 1435）判断是否存在着任何广告未确定为概念相关，然而文档特定的（和/或主办人特定的）效果好。可以使用相对或绝对效果确定效果好。如果存在，（方框 1440）确定广告的第二集合，包括广告的所述第一集合与其他效果好的广告，方法 1400 再进至方框 1445。如果不存在任何广告不是概念相关然而文档特定的（和/或主办人特定的）效果好，方法 1400 就直接进至方框 1445。（方框 1445）使用概念相关广告的效果确定概念效果。正如循环 1450-1460 所指示，对每个确定的广告，如果对特定的文档（和/或主办人）不具有任何效果信息（或者作为替代或作为补充，对每个确定的广告，如果效果信息量统计上不大，以及/或者甚至与所述概念相关的一切广告），（方

Amazon/VB Assets
Exhibit 1003
Page 415

框 1455）使用估计的概念效果，更新每个这种广告的效果信息。可以使用落入所述概念内广告的文档（和/或主办人）特定的效果，确定所估计的概念效果。一旦已经处理了一切广告和概念之后，（节点 1470）离开方法 1400。

效果参数估计（外推）操作 496、596 可以基于概念。因为广告（或广告组）以及/或者广告商可以是瞬时的，所以这些操作有用。在这种情况下，对于给定的文档，对于给定的广告（或广告组）收集统计上大量的用户行为数据即使不是不可能，也可能很困难。由于与文档（如其 URL 所标识）和广告的数目相比，受到跟踪之用户行为的数目相对较少，所以用户行为（点击）统计量矩阵可能相当稀疏。某些广告的点击和印象非常少，大多数广告根本没有统计量。为了有效地使用有限的数据点，如果对于文档（或主办人）没有用户行为数据或非常少，本发明可以使用效果参数估计（外推）操作 496、596 填充广告的用户行为（点击）统计量。496、596 这些操作可以使用概念作为桥梁，从某些广告至其他广告传播统计量。

图 15 是示意图，展示了图 14 中方法的操作实例。考虑文档 1510，它的 URL 为 http://www.webshots.com/g/tr.html。假设对文档 1510 已经提取了概念 C1、C2 和 C3 1520。使用这些提取的概念 1520 可以产生若干内容相关的广告 A1、A2、…、A9（回顾如图 14 的方框 1415）。本发明可以使用文档 1510 的 URL，查询文档特定的点击统计表。使用这个表，本发明能够用于对广告 A1、A4、A5、A8（每一个都以粗线圆描绘）中的每一个发现点击统计量，而广告 A2、A3、A6、A7、A9 初始时没有点击统计量（回顾如图 14 的方框 1425）。

根据点击统计表，判定广告 A10 的 CTR 高，即使它不是在 count->concepts->ads 匹配的第一回合返回的。广告（或广告组）候选者的所述集合可以扩展到包括广告 A10（回顾如图 14 的方框 1440）。

然后至少使用与所述概念相关广告的点击统计量和广告－概念连通性，可以估计每个概念 Ci 的点击统计量（回顾如图 14 的方框 1445）。正如图 15 中短虚线所示，概念 C1 的点击统计量可以是广告

Amazon/VB Assets
Exhibit 1003
Page 416

A1 和 A5 的点击统计量的函数，概念 C2 的点击统计量可以是广告 A4 和 A5 的点击统计量的函数，概念 C3 的点击统计量可以是广告 A8 和 A10 的点击统计量的函数。在本发明的一个示范实施例中，每个概念 Ci 的点击统计量可以确定如下：

clicks(Ci)=sum_Aj{clicks(Aj)*P(Ci|Aj)}

imprs(Ci)=sum_Aj{imprs(Aj)*P(Ci|Aj)}

ctr(Ci)=clicks(Ci)/imprs(Ci)

式中 P(Ci|Aj)为给定广告 Aj 时概念 Ci 的概率。例如，A8 和 A10 的 CTR 都高，它们与概念 C3 也很相关（如根据 PHIL 集群分析）。所以，概念 C3 得到的 CTR 估计结果也高。

正如图 15 中长虚线所示，然后来自若干概念的统计量能够以类似方式传播回其他广告（如没有点击数据或点击数据统计上不多的广告）。因此，与 CTR 高的概念相关的广告可以得到的 CTR 估计结果也高，而与 CTR 低的概念相关的广告可以得到的 CTR 估计结果也低（回顾如图 14 的方框 1455）。因此例如，由于与广告 A7 相关的概念 C2 和 C3 具有相对高的 CTR 估计结果，所以给予它 5％的相对高的 CTR。反之，由于与广告 A3 相关的概念 C1 具有相对低的 CTR 估计结果，所以给予它 0.008％的相对低的 CTR。

根据以下假设：如果给定概念上的某些广告对某个给定的文档（或主办人）实现了好（或差）效果，那么该概念上的其他广告也很可能具有相对好（或差）的效果，所以与所述给定文档（或主办人）一起呈现时受到点击的可能性更大（小），本发明可以在广告及其概念之间进行这种点击统计量的传播。在进行基于概念的补充时，可以应用多种加权和衰减因子。

在本发明的一个实施例中，可以根据概念和广告的真实或估计的 CTR，调整其分数。例如，可以使用下式确定调整后的分数：

new_score-old_score*(CTR/基础 CTR)

因此，可以提升 CTR>基础 CTR 的广告/概念，而使 CTR 低的广告/概念降级。根据实验结果可以优化广告系统中所用的这个公式。

Amazon/VB Assets
Exhibit 1003
Page 417

§4.2.3.4 组合操作

本发明可以使用一种或多种以上介绍的操作，利用文档/主办人特定的用户行为反馈（如点击统计量）来改进内容定向的广告呈现。例如，本发明的一个实施例可以：

1. 使用文档信息（如文档标识符）确定一种或多种概念（Doc->concept）。例如，网页的内容可以提供给 PHIL 服务器，它发送回相符集群和启动的列表。（在一个实施例中，如果此页面分类为消极的或色情的，则不返回广告。）
2. 概念可以重新打分。例如，可以使用根据点击过广告的点击统计量算出的相符集群 CTR 估计结果，调整所述相符集群的分数。
3. 然后所述概念用于确定概念相关的广告（Concept->ads）。例如，所述相符集群可以用于检索相符广告候选者的列表。
4. 预定数目（K）的、CTR 最高的广告可以加入候选广告的初始集合。
5. 然后可以使用广告信息（如定向准则、登陆页面内容和/或广告文本）符合所述文档（如网页）内容程度的度量，确定候选广告组的中间分数（使用 PHIL 或元语法）。
6. 然后使用根据所述广告集群估计的点击统计量算出的其真实的/估计的 CTR，调整所述广告的分数。
7. 最后，分数最高的广告可以发送到某个设施（如广告混合器），组合所述广告和所述文档的内容。例如，可以选出分数最高的广告组并发送到所述广告混合器。

本发明可以滤除列为竞争者广告的候选广告。另外，在仅仅呈现家庭安全的广告时，可以阻塞色情广告。

§4.2.4 示范装置

图 16 是机器 1600 的高级别框图，它可以影响一种或多种以上讨论的操作。机器 1600 基本上包括一个或多个处理器 1610、一个或多个输入/输出接口单元 1630、一台或多台存储设备 1620 以及便利所连

Amazon/VB Assets
Exhibit 1003
Page 418

接器件之间信息通信所用的一条或多条系统总线和/或网络 1640。一台或多台输入设备 1632 以及一台或多台输出设备 1634 可以连接到所述一个或多个输入/输出接口 1630。

所述一个或多个处理器 1610 可以执行机器可执行的指令（如从加州 Palo Alto 的 SUN 微系统公司可购买的 Solaris 操作系统或者从许多卖主处比如北卡罗莱纳州 Durham 的红帽公司都可购买的 Linux 操作系统上运行的 C 或 C++），使本发明的一个或多个方面生效。所述机器可执行指令的至少一部分可以（临时或更加永久地）存储在所述一台或多台存储设备 1620 上以及/或者可以通过一个或多个输入接口单元 1630 从外部来源接收。

在一个实施例中，机器 1600 可以是一台或多台常规个人电脑。在这种情况下，处理单元 1610 可以是一个或多个微处理器。总线 1640 可以包括系统总线。存储设备 1620 可以包括系统存储器，比如只读存储器（ROM）和/或随机存储器（RAM）。存储设备 1620 也可以包括硬盘驱动器以便从硬盘读取和向其写入，磁盘驱动器以便从（如可拆卸的）磁盘读取或向其写入，以及光盘驱动器以便从可拆卸的（磁）光盘读取或向其写入，比如小光盘或其他（磁）光介质。

用户可以通过输入设备 1632，比如键盘或定点设备（如鼠标），将命令和信息输入个人电脑。也可以（或作为替代）包括其他输入设备，比如话筒、游戏杆、游戏板、卫星天线、扫描仪等等。这些和其他输入设备往往通过连接到系统总线 1640 的适当接口 1630，连接到处理单元 1610。输出设备 1634 可以包括监视器或其他类型的显示设备，也通过适当的接口连接到系统总线 1640。除了（或取代）所述监视器，个人电脑还可以包括其他（外围）输出设备（未显示），比如扬声器和打印机。

§4.2.5 替代方式

尽管介绍本发明时参考的是点击统计量，比如 CTR，但是也能够以类似方式记录、存储、预处理和/或使用其他用户行为（如用户收视率、转化等等）。

Amazon/VB Assets
Exhibit 1003
Page 419

尽管某些数据收集和处理是在广告组的级别进行，但是这种收集和/或处理也可以在各个广告或广告的其他集合的级别进行。例如，这种收集和/或处理也可以按每个广告、每个定向的概念、每个广告呈现格式（如广告色彩方案、广告文本字体、广告边界）等进行。同样，也可以按每个文档、每个主办人和/或某种其他文档（如集群、分类等）功能进行数据收集和/或汇总。文档组（即文档集合）将是所收集的所有文档的子集，比如网络上所有网页的子集。

本发明不限于以上介绍的实施例，本发明人将其发明视为所介绍的全部主题内容。

§4.3 结论

正如从以上公开材料能够理解，本发明可以用于改进内容定向的广告系统。

Amazon/VB Assets
Exhibit 1003
Page 420

Amazon/VB Assets
Exhibit 1003
Page 421

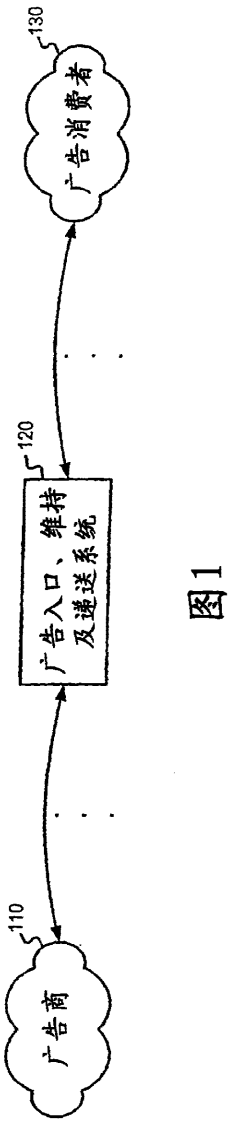


图1

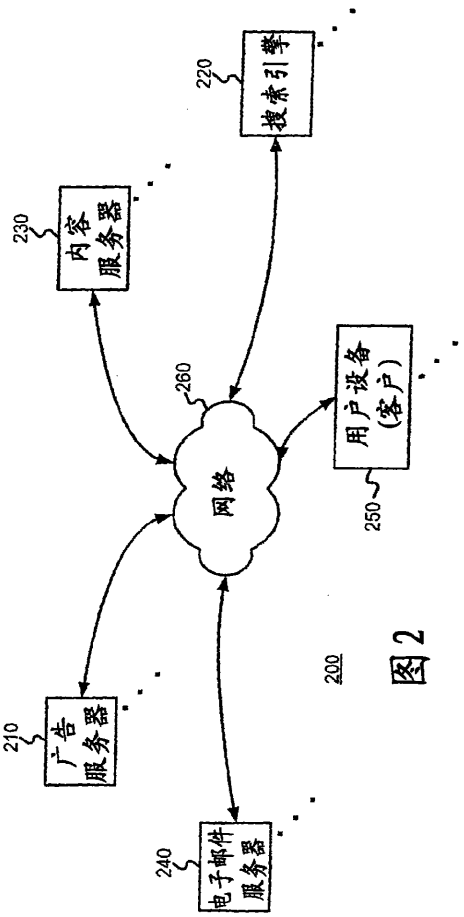


图2

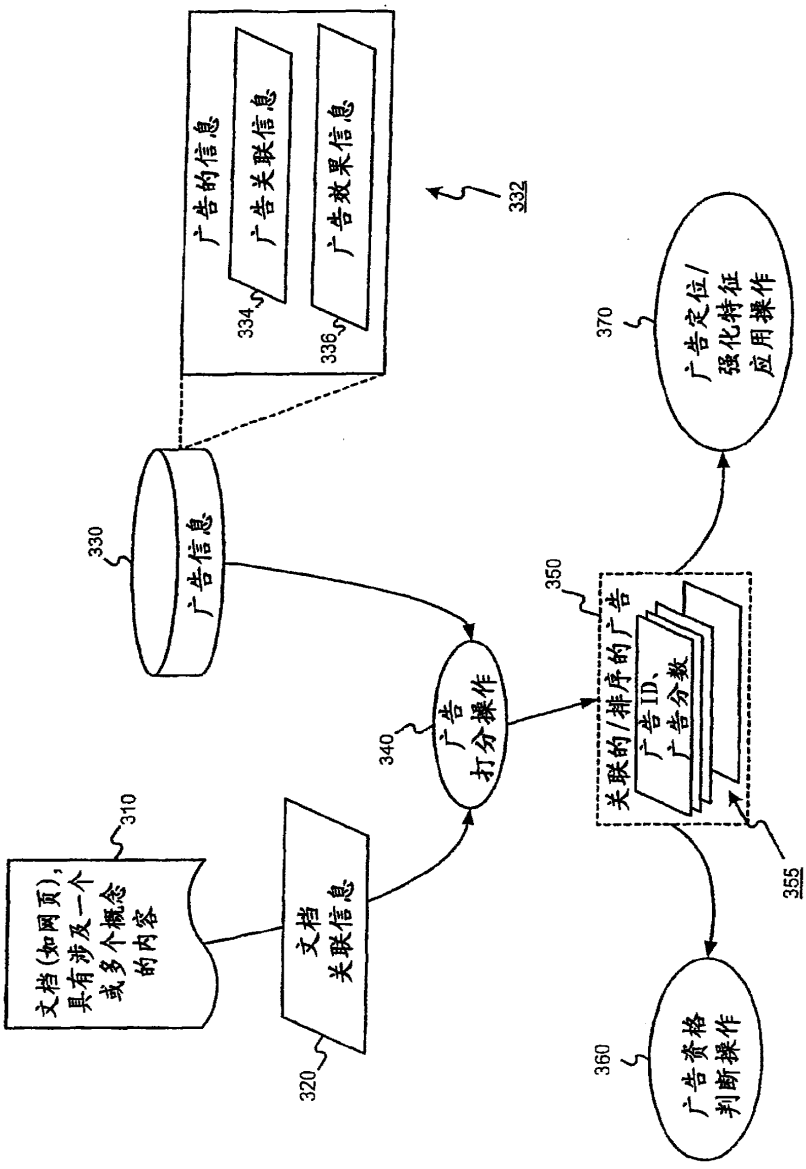


图 3A

Amazon/VB Assets
Exhibit 1003
Page 422

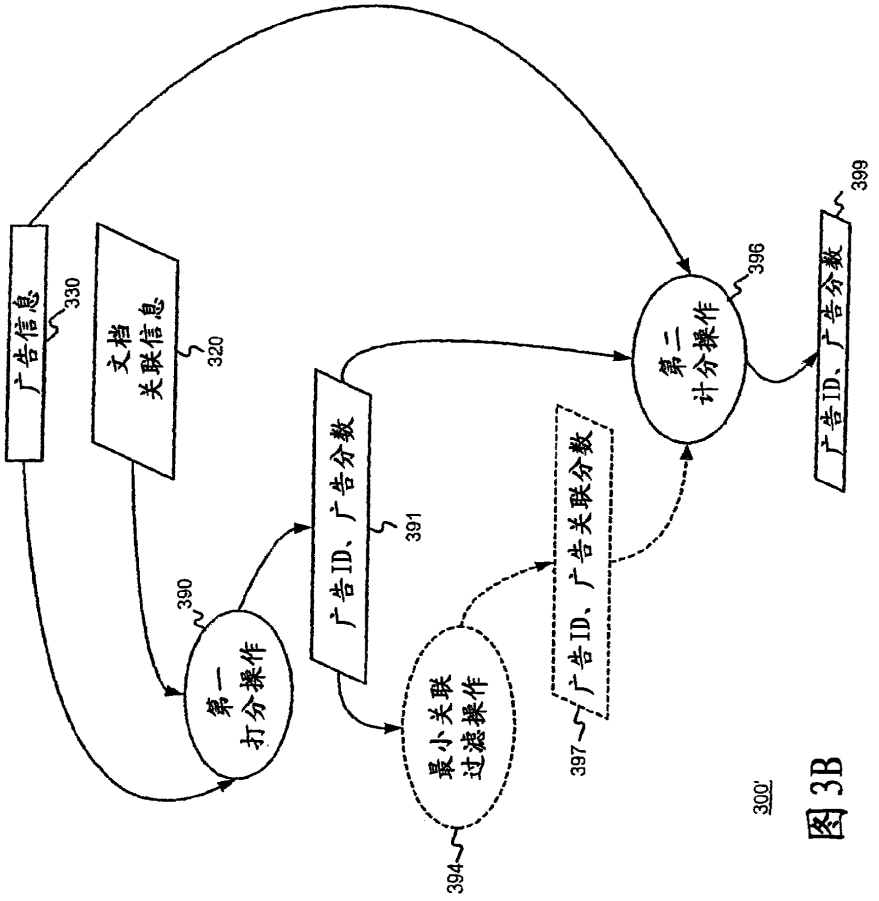


图3B

Amazon/VB Assets
Exhibit 1003
Page 423

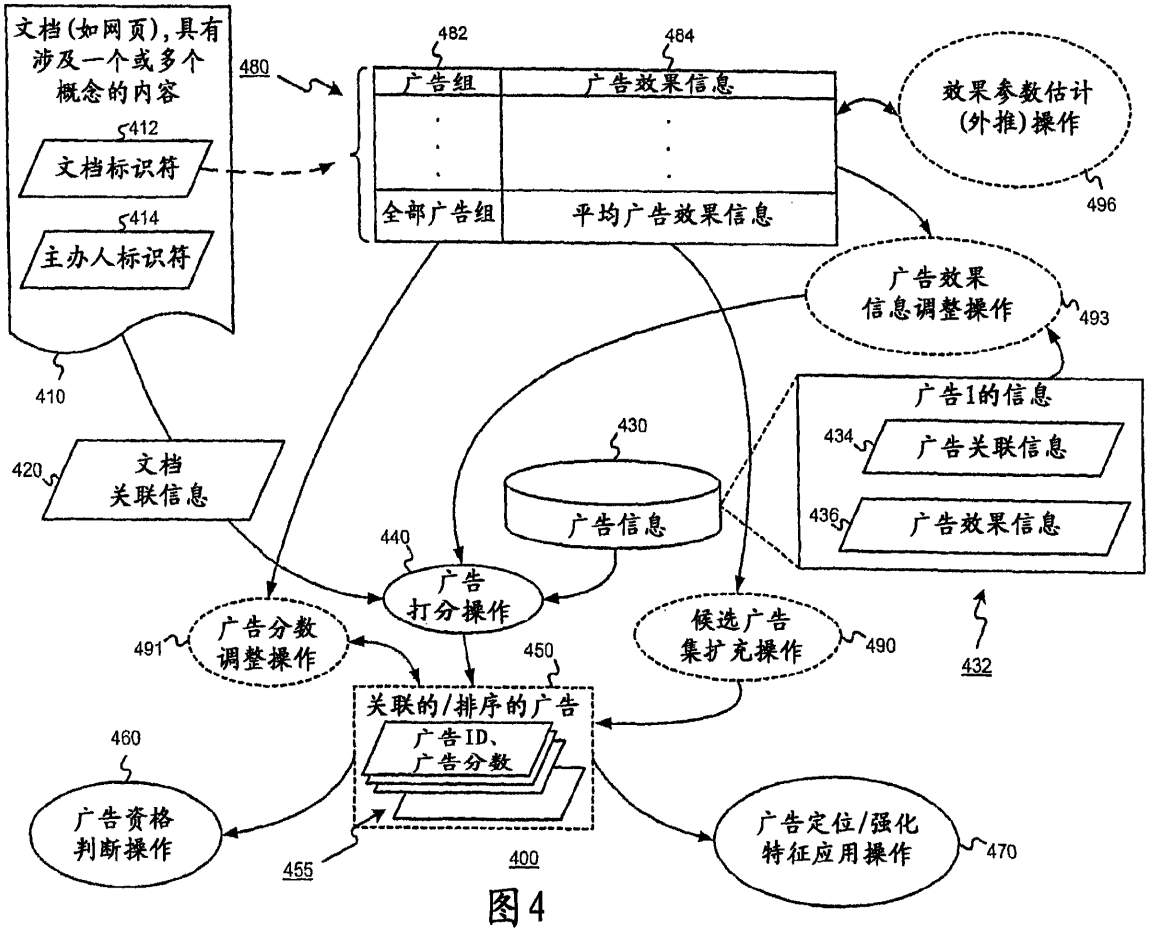


图4

Amazon/VB Assets
Exhibit 1003
Page 424

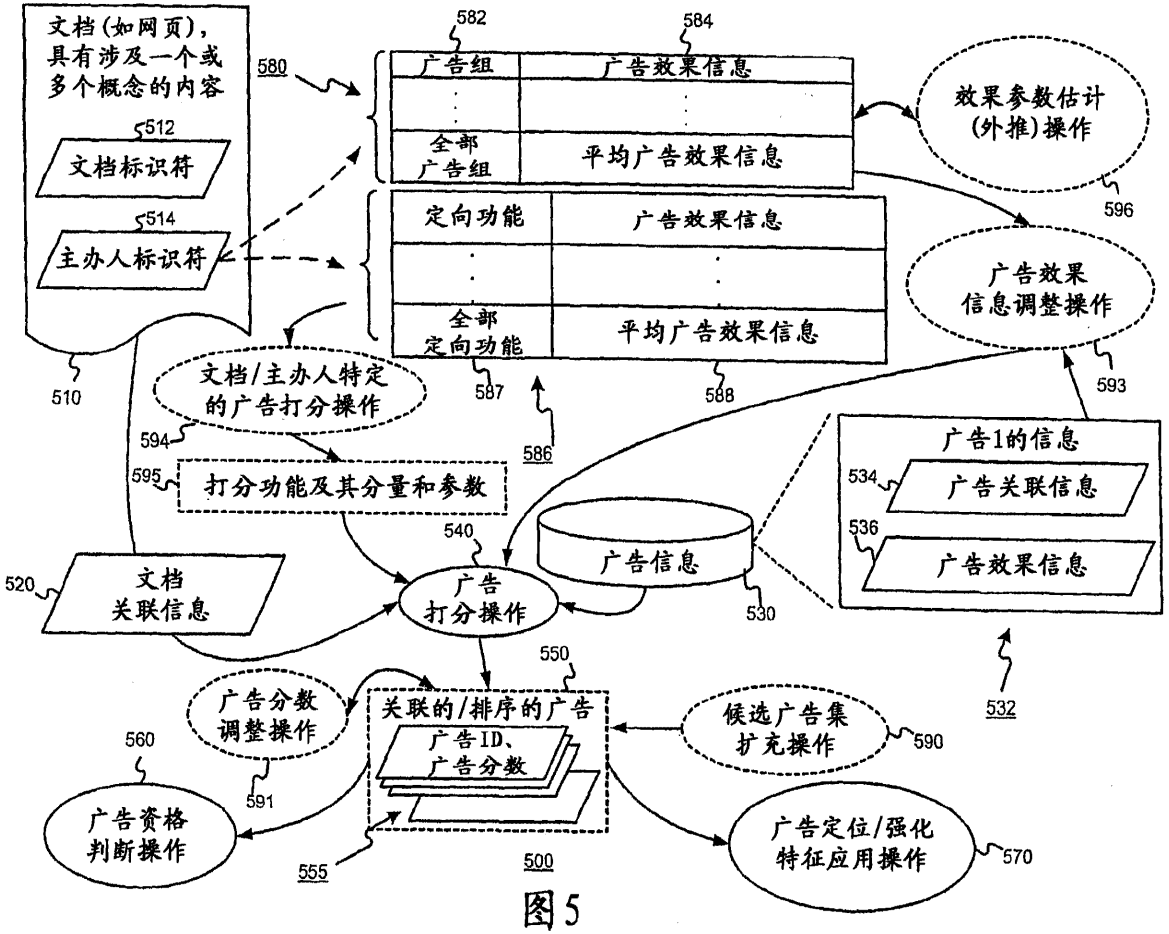


图5

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Exhibit 1003
Page 425

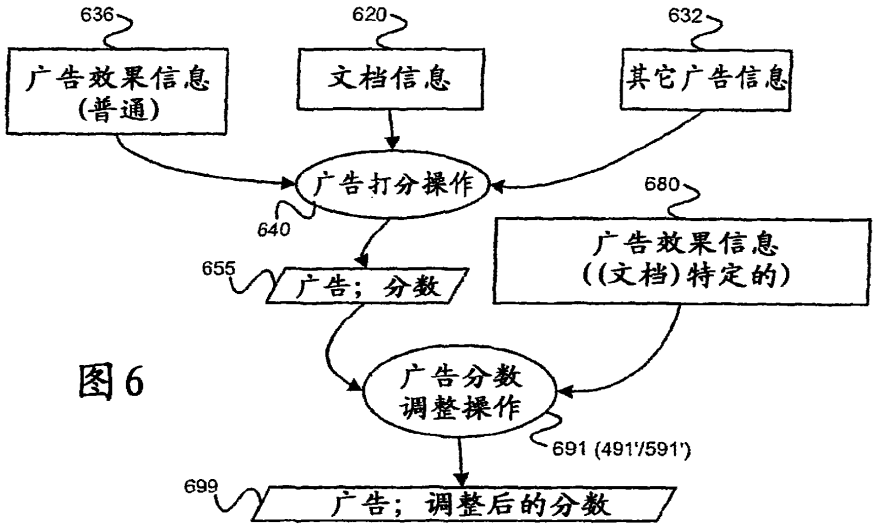


图6

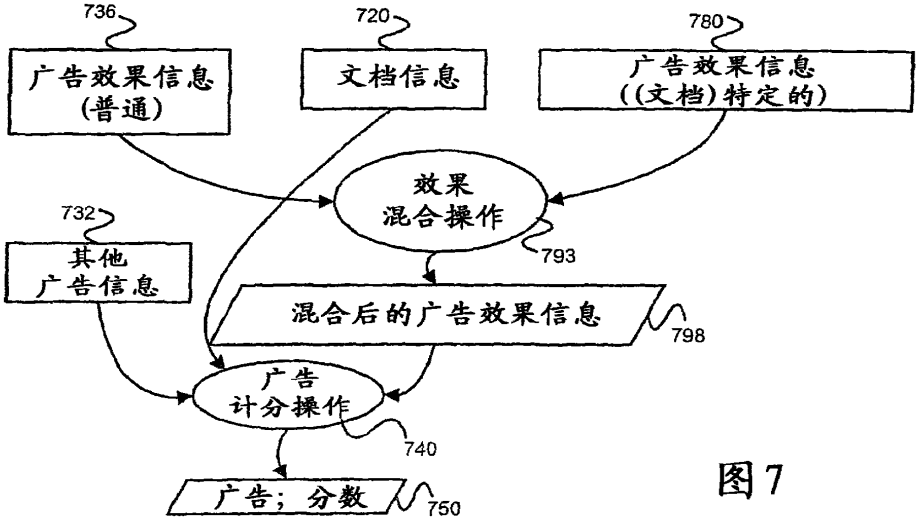


图7

Amazon/VB Assets
Exhibit 1003
Page 426

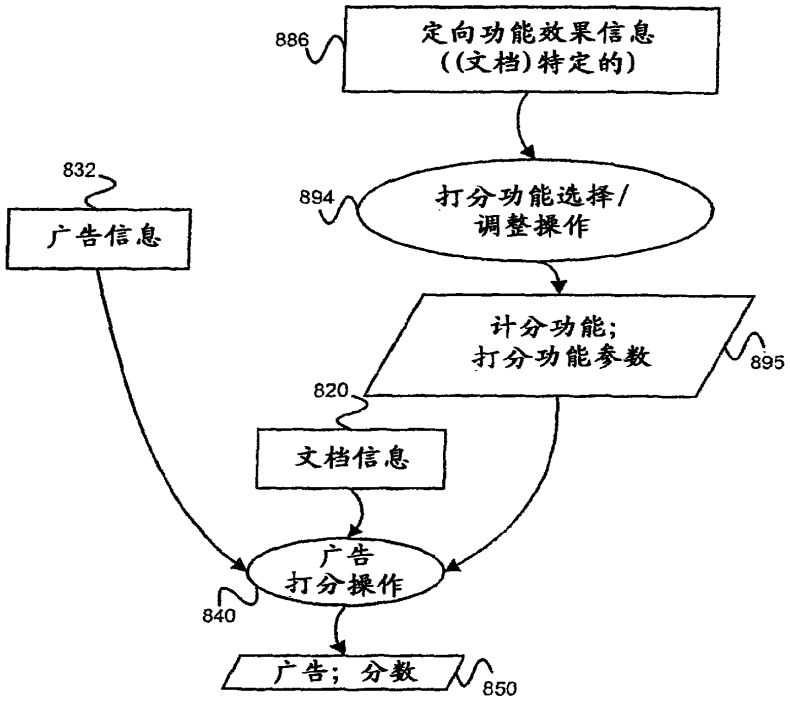


图8

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Exhibit 1003
Page 427

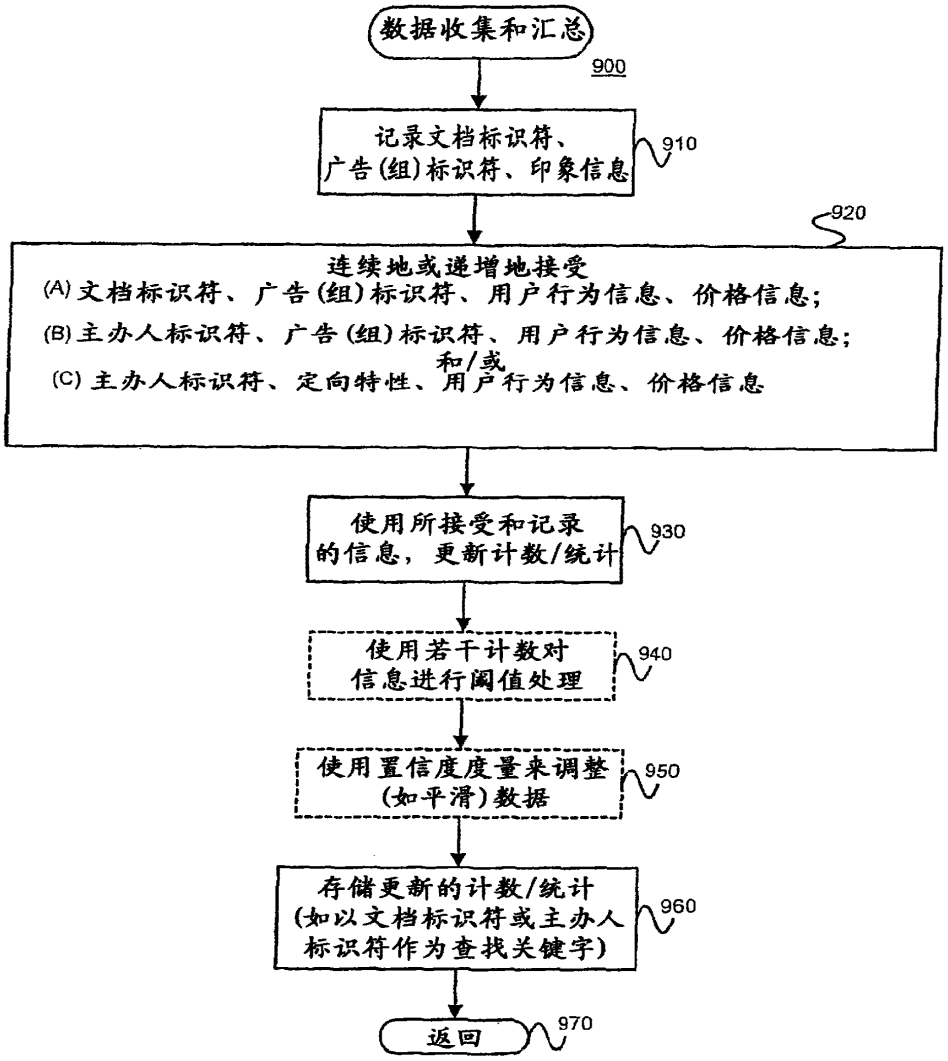


图9

Amazon/VB Assets
Exhibit 1003
Page 428

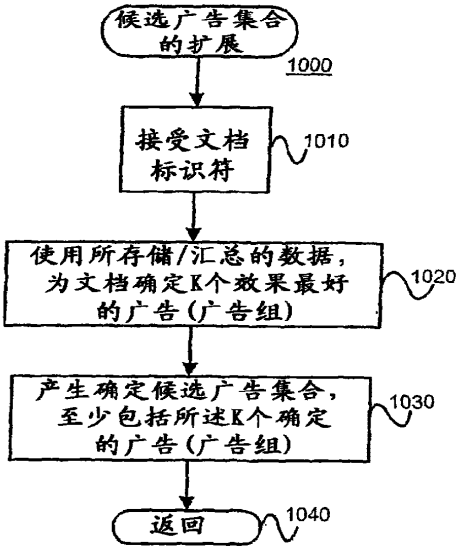


图10

Amazon/VB Assets
Exhibit 1003
Page 429

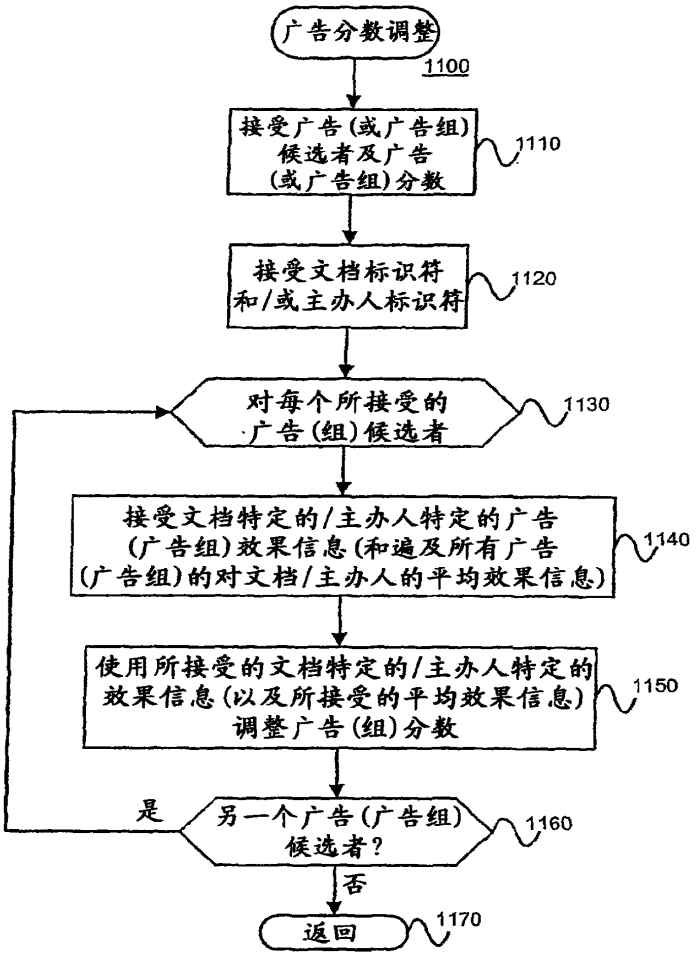


图11

Amazon/VB Assets
Exhibit 1003
Page 430

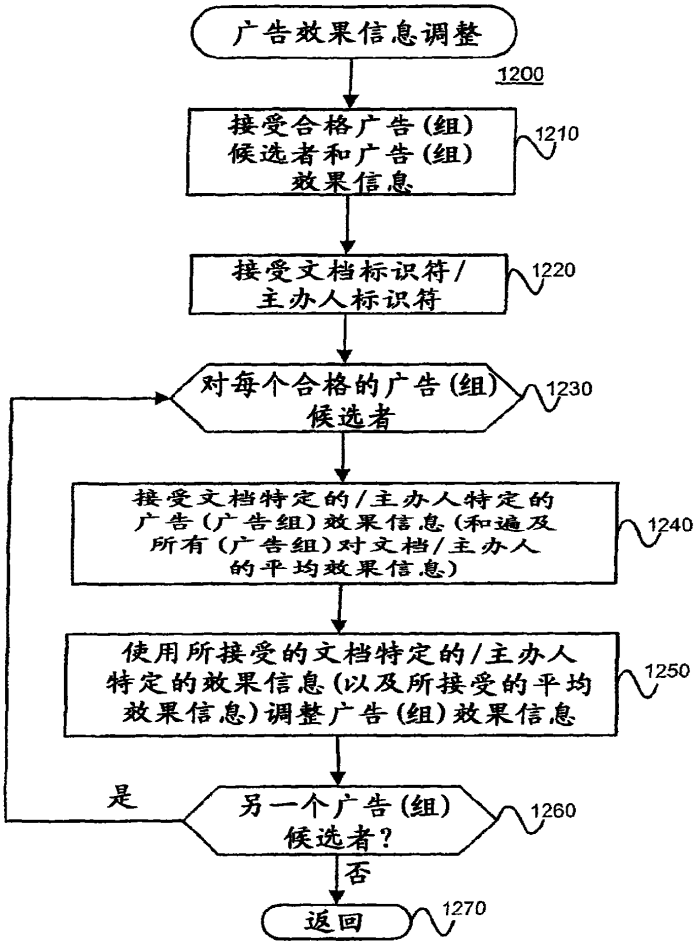


图12

Amazon/VB Assets
Exhibit 1003
Page 431

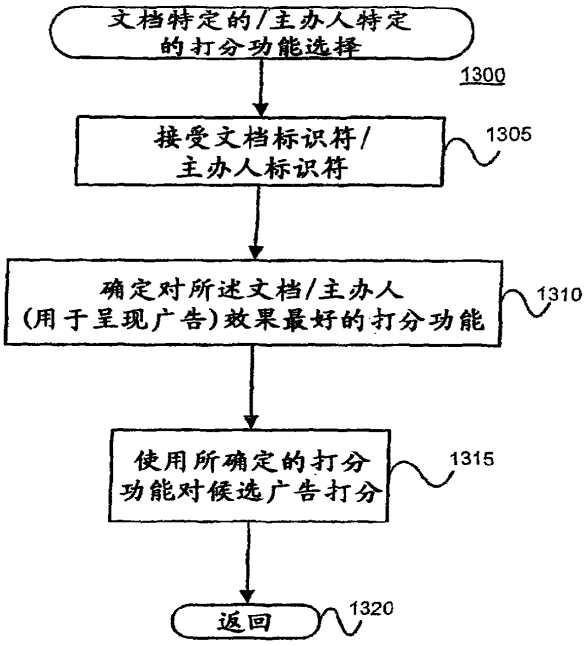


图13A

Amazon/VB Assets
Exhibit 1003
Page 432

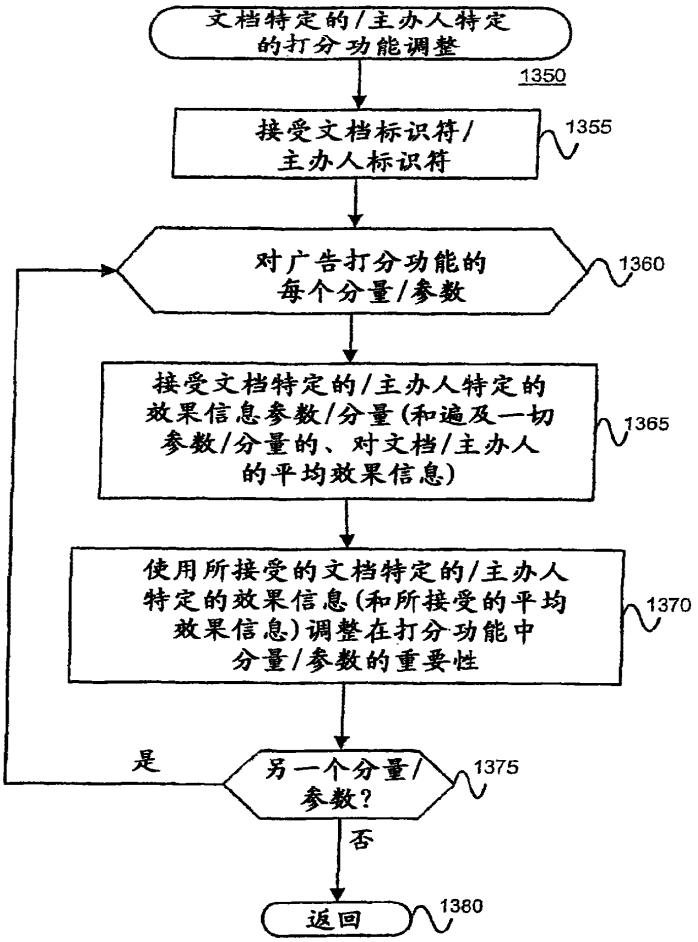


图13B

Amazon/VB Assets
Exhibit 1003
Page 433

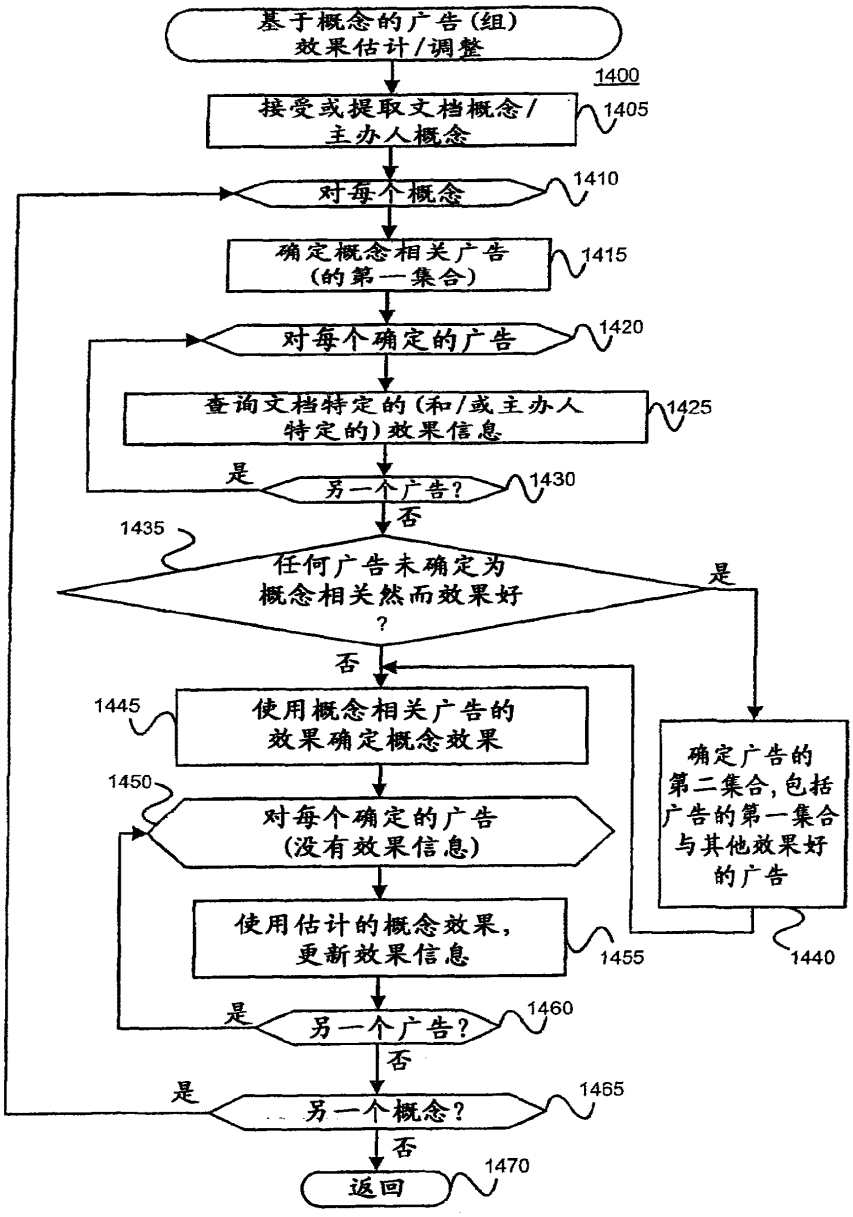
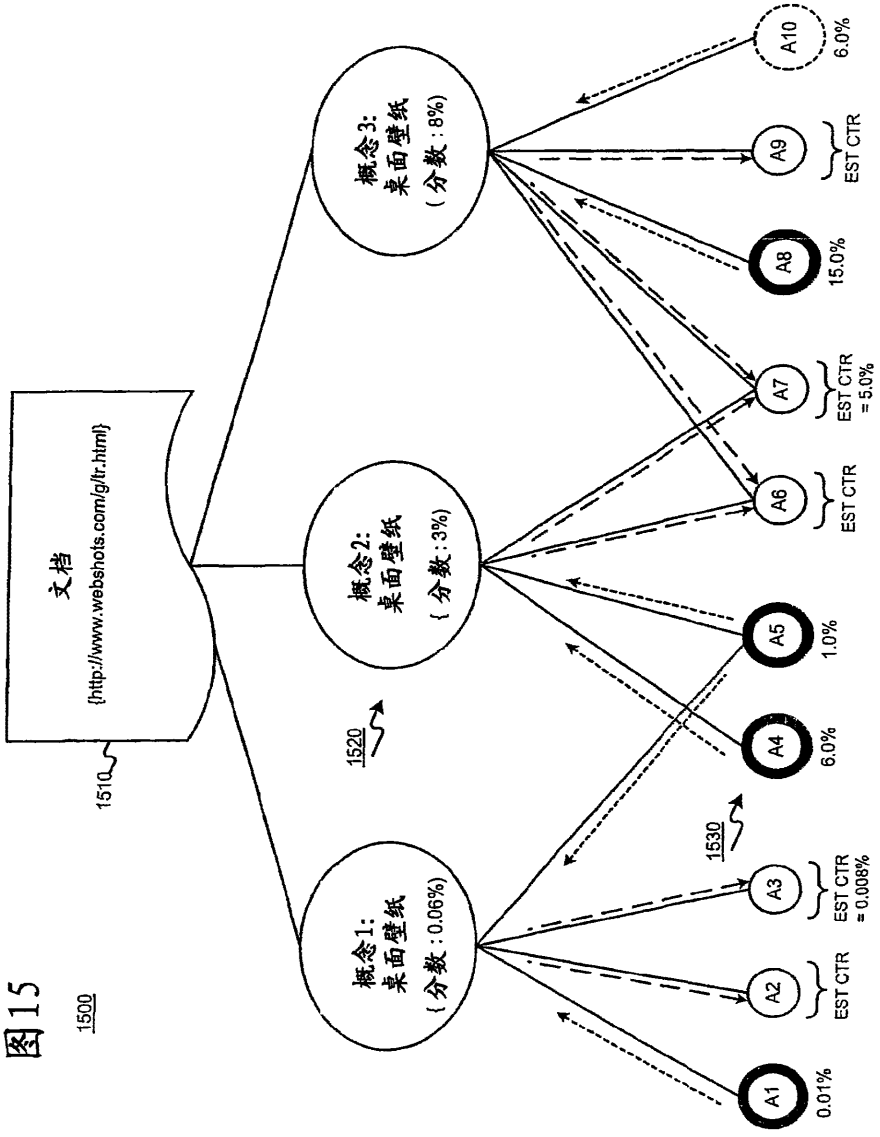


图14

Amazon/VB Assets
Exhibit 1003
Page 434

Amazon/VB Assets
Exhibit 1003
Page 435

图15



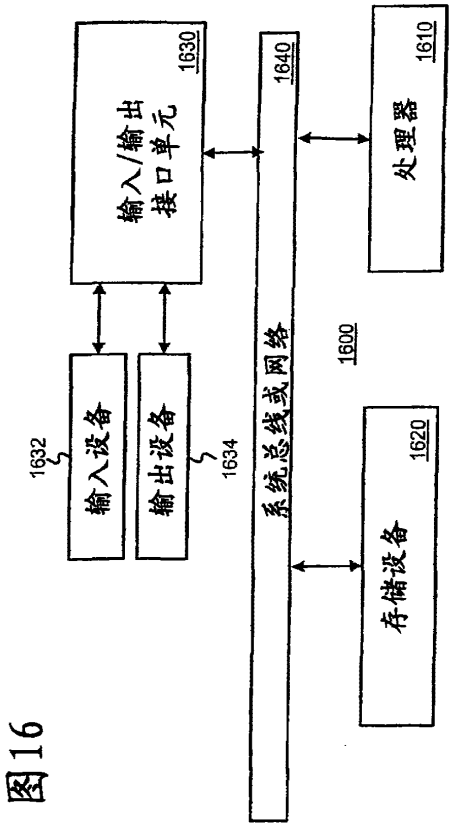


图16

Amazon/VB Assets
Exhibit 1003
Page 436

Espacenet

Bibliographic data: JP2012518847 (A) — 2012-08-16

SYSTEM AND METHOD FOR PROCESSING MULTI-MODAL DEVICE INTERACTIONS IN A NATURAL LANGUAGE VOICE SERVICES ENVIRONMENT

Inventor(s):

Applicant(s):

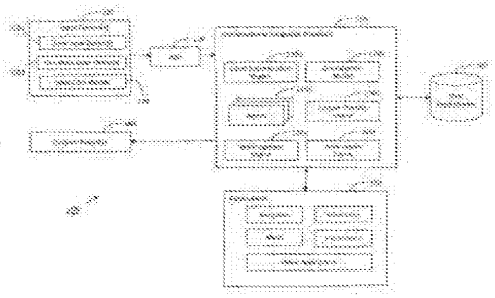
Classification: - **international:** ***G06F3/01; G06F3/048; G06F3/16***
- **cooperative:** G06Q30/02; G06Q30/0241; G06Q30/0261; G06Q30/0273; G10L15/18; G10L15/1815; G10L15/22; G10L15/24; G10L17/22; G10L2015/223

Application number: JP20110551268 20100222 Global Dossier

Priority number (s): US20090389678 20090220 ; WO2010US24895 20100222

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Abstract not available for JP2012518847 (A)
Abstract of corresponding document: US2010217604 (A1)



A system and method for processing multi-modal device interactions in a natural language voice services environment may be provided. In particular, one or more multi-modal device interactions may be received in a natural language voice services environment that includes one or more electronic devices. The multi-modal device interactions may include a non-voice interaction with at least one of the electronic devices or an application associated therewith, and may further include a natural language utterance relating to the non-voice interaction. Context relating to the non-voice interaction and the natural language utterance may be extracted and combined to determine an intent of the multi-modal device interaction, and a request may then be routed to one or more of the electronic devices based on the determined intent of the multi-modal device interaction.

(19)日本国特許庁(JP)　(12)公表特許公報(A)　(11)特許出願公表番号
特表2012-518847
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(51)Int.Cl.			F I			テーマコード（参考）
G06F	3/01	(2006.01)	G06F	3/01	310A	5E501
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G06F	3/16	(2006.01)	G06F	3/16	320B	
			G06F	3/16	340A	

審査請求 未請求　予備審査請求 未請求　（全 21 頁）

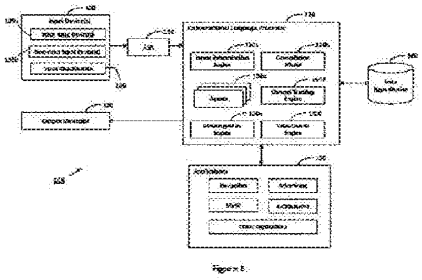
(21)出願番号　特願2011-551268 (P2011-551268)
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(85)翻訳文提出日　平成23年9月22日 (2011.9.22)
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(33)優先権主張国　米国 (US)

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11980 NE 24th Street, Suite 100, Bellevue, Washington 98005, United States of America
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弁理士　村越　智史

最終頁に続く

(54)【発明の名称】自然言語音声サービス環境においてマルチモーダル機器対話を処理するシステム及び方法

(57)【要約】
自然言語音声サービス環境においてマルチモーダル機器対話を処理するシステム及び方法が提供される。特に、単数又は複数のマルチモーダル機器対話は、単数又は複数の電子機器を含む自然言語音声サービス環境において受信される。このマルチモーダル機器対話は、前記電子機器の少なくとも一つ又はそれに対応付けられたアプリケーションとの非音声対話を含み、前記非音声対話に対応付けられた自然言語発話をさらに含む。前記非音声対話及び前記自然言語発話に関連するコンテクストが抽出され、前記マルチモーダル機器対話の意図を決定するために組み合わされる。また、前記マルチモーダル機器対話の前記決定された意図に基づいて、単数又は複数の前記電子機器に対して要求が発出される。



【特許請求の範囲】
【請求項１】
単数又は複数の電子機器を含む自然言語音声サービス環境において単数又は複数のマルチモーダル機器対話を処理する方法であって、
前記電子機器の少なくとも一つ又は前記電子機器の少なくとも一つに対応付けられたアプリケーションとの非音声対話及び前記非音声対話に関連する少なくとも一つの自然言語発話を含む少なくとも一つのマルチモーダル機器対話を検出する工程と、
前記マルチモーダル機器対話に関連するコンテクスト情報であって前記非音声対話に関連するコンテクスト及び前記自然言語発話に関連するコンテクストを含むものを捕出する工程と、
前記非音声対話に関連するコンテクストと前記自然言語発話に関連するコンテクストとを組み合わせる工程と、
前記非音声対話及び前記自然言語発話に関連する前記組み合わされたコンテクストに基づいて、前記マルチモーダル機器対話の意図を決定する工程と、
前記マルチモーダル機器対話の前記決定された意図に基づいて、少なくとも一つのリクエストを単数又は複数の前記電子機器に発出する工程と、
を含む方法。
【請求項２】
前記電子機器の少なくとも一つが前記自然言語発話を受信するように構成された入力機器を含む請求項１の方法。
【請求項３】
前記非音声対話の検出に応答して、前記入力機器に前記自然言語発話を取得するように伝達する工程をさらに含む請求項２の方法。
【請求項４】
前記自然言語音声サービス環境において前記非音声対話を検出するように構成された単数又は複数の機器リスナーを設定する工程と、
前記機器リスナーによって検出された前記非音声対話に関連する情報及び前記入力機器によって取得された前記自然言語発話を連携させる工程と、
をさらに含む請求項３の方法
【請求項５】
前記マルチモーダル機器対話の前記決定された意図に基づいて、少なくとも一つのトランザクションリードを生成する工程と、
前記生成されたトランザクションリードに関連する少なくとも一つの追加的なマルチモーダル機器対話を受信する工程と、
前記生成されたトランザクションリードに関連する前記マルチモーダル機器対話の受信に応答して、トランザクションクリックスルーを処理する工程と、
をさらに含む請求項１の方法。
【請求項６】
前記生成されたトランザクションリードが前記マルチモーダル機器対話の前記決定された意図に関連する広告又は推薦の少なくとも一つを含む請求項５の方法。
【請求項７】
前記非音声対話が単数又は複数の前記電子機器に対応付けられた領域、項目、データ、又はアプリケーションの選択を含む請求項１の方法。
【請求項８】
前記非音声対話が単数又は複数の前記電子機器に対応付けられた焦点又は関心の焦点の特定を含む請求項１の方法。
【請求項９】
前記非音声対話が単数又は複数の前記電子機器に対応付けられた単数又は複数の固有で識別可能な対話を含む請求項１の方法。
【請求項１０】

Amazon/VB Assets
Exhibit 1003
Page 439

単数又は複数の電子機器を含む自然言語音声サービス環境において単数又は複数のマルチモーダル機器対話を処理するシステムであって、当該システムは単数又は複数の処理装置を含み、当該単数又は複数の処理装置は、
前記電子機器の少なくとも一つ又は前記電子機器の少なくとも一つに対応付けられたアプリケーションとの非音声対話及び前記非音声対話に関連する少なくとも一つの自然言語発話を含む少なくとも一つのマルチモーダル機器対話を検出し、
前記マルチモーダル機器対話に関連するコンテクスト情報であって、前記非音声対話に関連するコンテクスト及び前記自然言語発話に関連するコンテクストを含むものを抽出し、
前記非音声対話に関連するコンテクストと前記自然言語発話に関連するコンテクストとを組み合わせ、
前記非音声対話及び前記自然言語発話に関連する前記組み合わされたコンテクストに基づいて、前記マルチモーダル機器対話の意図を決定し、
前記マルチモーダル機器対話の前記決定された意図に基づいて、少なくとも一つのリクエストを単数又は複数の前記電子機器に発出する、
ように構成されたシステム。
【請求項１１】
前記電子機器の少なくとも一つが前記自然言語発話を受信するように構成された入力機器を含む請求項１０のシステム。
【請求項１２】
前記非音声対話の検出に応答して、前記入力機器に前記自然言語発話を取得するように伝達する工程をさらに含む請求項１１のシステム。
【請求項１３】
前記処理装置が、さらに、
前記自然言語音声サービス環境において前記非音声対話を検出するように構成された単数又は複数の機器リスナーを設定し、
前記機器リスナーによって検出された前記非音声対話に関連する情報及び前記入力機器によって取得された前記自然言語発話を連携させるように構成された請求項１２のシステム
【請求項１４】
前記制御装置が、さらに、
前記マルチモーダル機器対話の前記決定された意図に基づいて、少なくとも一つのトランザクションリードを生成し、
前記生成されたトランザクションリードに関連する少なくとも一つの追加的なマルチモーダル機器対話を受信し、
前記生成されたトランザクションリードに関連する前記マルチモーダル機器対話の受信に応答して、トランザクションクリックスルーを処理するように構成された請求項１０のシステム。
【請求項１５】
前記生成されたトランザクションリードが前記マルチモーダル機器対話の前記決定された意図に関連する広告又は推薦の少なくとも一つを含む請求項１４のシステム。
【請求項１６】
前記非音声対話が単数又は複数の前記電子機器に対応付けられた領域、項目、データ、又はアプリケーションの選択を含む請求項１０のシステム。
【請求項１７】
前記非音声対話が単数又は複数の前記電子機器に対応付けられた焦点又は関心の焦点の特定を含む請求項１０のシステム。
【請求項１８】
前記非音声対話が単数又は複数の前記電子機器に対応付けられた単数又は複数の固有で識別可能な対話を含む請求項１０のシステム。

Amazon/VB Assets
Exhibit 1003
Page 440

【発明の詳細な説明】
【技術分野】
【０００１】
本出願は、2009年2月20日出願の「SYSTEM AND METHOD FOR PROCESSING MULTI-MODAL DEVICE INTERACTIONS IN A NATURAL LANGUAGE VOICE SERVICES ENVIRONMENT」と題する米国特許出願第12/389,678号に基づく優先権を主張する。当該基礎出願の内容は参照により全体として本明細書に組み込まれる。
【０００２】
本発明は、単数又は複数の装置及び／又はアプリケーションを用いてマルチモーダル対話（multi-modal interaction）を処理する統合自然言語音声サービス環境に関する。マルチモーダル対話は、追加的なコンテクスト（context）を提供する。この追加的なコンテクストは、マルチモーダル対話に付随する自然言語発話の解釈に協力するとともにその他の処理を行うためのものである。
【背景技術】
【０００３】
家電機器は、技術の進展にともなって、多くの人の毎日の生活のあらゆる場面に入り込むようになっている。携帯電話、ナビゲーション装置、組み込み機器等の機能や可搬性が向上した結果、これらの機器に対する要望が高まっており、かかる要望を満たすために、多くの装置においてコアアプリケーションの他にも多様な機能及び機構が提供されている。しかしながら、機能性の向上によって、学習曲線などにマイナスの影響が生じ、多くのユーザが電子機器の機能の一部しか利用できなくなっている。例えば、既存の電子機器の多くは、ユーザフレンドリーでない複雑なヒューマン・マシン・インタフェースを備えており、そのせいで多くの技術がマスマーケットで受け入れられていない。また、インタフェースさえ良ければ有用なはずの機能でも、インタフェースが操作しづらいため、その機能の発見や使用が困難になることも多い（例えば、複雑だったり操作が面倒だったりすることが原因である）。このように、多くのユーザは、自分の電子機器の潜在的な機能を使用しないことが多く、ときにはその存在すら知らないこともある。
【０００４】
市場調査によって、ユーザの多くは、機器において利用できる機能やアプリケーションのほんの一部分しか利用していないことが指摘されている。このように、電子機器の機能は、増加しているものの無駄になっていることが多い。また、無線ネットワーク通信やブロードバンドアクセスがますます普及しており、自分の電子機器からのシームレスな無線通信は消費者にとって当然の要望である。このように、電子機器を操作するためのより簡単な機構に対する要望が高まるにつれて、速く集中的な対話を妨げる操作しづらいインタフェースが重大な懸念事項となっている。しかしながら、技術を直感的に使いたいという要望は、今のところ概して満たされないままである。
【０００５】
電子機器においてユーザと機器との間の対話を単純にする一つの方法は、音声認識ソフトウェアを使用することである。ユーザは、音声認識ソフトウェアを用いることによって、今まで不慣れ、不明、又は使用困難であった機能を利用できる可能性がある。例えば、カーナビゲーションやウェブアプリケーション等の様々なアプリケーションにおいて用いられるデータを提供するNavteq Corporationが行った最近の調査では、音声認識が電子機器ユーザに最も望まれている機能の一つとして頻繁にランキングされていることが示されている。そうであったとしても、既存の音声ユーザインタフェースは、実際の動作時には依然としてユーザ側に多くの学習を要求するものである。
【０００６】
例えば、既存の音声ユーザインタフェースの多くは、特定のコマンド・コントロール・シーケンス又はコマンド・コントロール・シンタックスに従って定められたリクエストしかサポートしていない。また、既存の音声ユーザインタフェースの多くは、音声認識が不正確であるため、ユーザにフラストレーションや不満足感を引き起こすこともある。同様

Amazon/VB Assets
Exhibit 1003
Page 441

に、リクエストをシステムが理解できる方法で伝達するためには、ユーザは予め定められたコマンド又はキーワードを提供しなければならないので、既存の音声ユーザインタフェースは、ユーザを生産的で協力的な対話に効果的に関与させてリクエストを決定することができず、会話を満足の行く目標に向かって進めることができない（例えば、ユーザが特定のニーズ、利用可能な情報、機器の機能等についてよく分かっていない場合）。このように、既存の音声ユーザインタフェースには、様々な欠点が存在する。例えば、ユーザを協力的な方法で及び会話形式で対話に関与させる点に重大な限界がある。

【０００７】

また、既存の音声ユーザインタフェースの多くは、異なるドメイン、機器、及びアプリケーションを横断して提供される情報を利用して自然言語音声の入力を決定することができない。このように、既存の音声ユーザインタフェースは、有限の数の専用アプリケーション又は搭載された機器に限定されるという欠点がある。技術の進展によって、ユーザは必要に応じて複数の機器を所有することが多くなっているが、ユーザは既存の音声ユーザインタフェースのせいで機器に縛り付けられたままである。例えば、ユーザは、異なるアプリケーション及び機器に関連づけられたサービスに関心を持っている場合であっても、既存の音声ユーザインタフェースによってそれらのサービスに対応するアプリケーション及び機器へのアクセスを制限されることが多い。また、ユーザは、現実には一度に有限の数の機器しか持ち歩くことができないが、ユーザの使用中の他の機器に関連づけられているコンテンツやサービスを様々な場面で使用することが望まれる。

【０００８】

したがって、ユーザは様々なニーズを持っており、異なる機器に関連づけられたコンテンツ又はサービスが様々なコンテクスト又は環境において必要とされる可能性があるが、既存の音声技術は、実質的に任意の機器又はネットワークに対応付けられるコンテンツ又はサービスがユーザによって要求可能な統合環境を提供することができないことが多い。このように、既存の音声サービス環境における情報の利用可能性及び機器対話メカニズムの制約のために、ユーザは、直感的で、自然で、及び効率的な方法で技術を利用することができない。例えば、ユーザが所定の電子機器を用いて所定の機能を実行することを望んでいるが当該機能を実行するためにどうすればよいのか必ずしも分かっていない場合において、当該機器とのマルチモーダル対話を行って単純に自然言語で語を発話しても当該機能を要求することはできない。

【０００９】

また、相対的に単純な機能は、音声認識機能を有していない電子機器を用いて実行するには退屈であることが多い。例えば、携帯電話用の新しいリングトーンを購入することは、相対的に単純な処理である場合が多いが、ユーザは、処理の完了までに複数のメニューをナビゲートし、多くの異なるボタンを押さなければならないことが多い。このように、ユーザが、埋没した機能又は使用が難しい機能を利用するために自然言語を使用する場合には、電子機器との対話がはるかに効率的であることは明らかである。既存のシステムには、上述の及びそれ以外の問題点がある。

【発明の概要】

【００１０】

本発明の一態様によれば、自然言語音声サービス環境においてマルチモーダル機器対話を処理するシステム及び方法が提供される。具体的には、単数又は複数のマルチモーダル機器対話は、単数又は複数の電子機器を含む自然言語音声サービス環境において受信される。このマルチモーダル機器対話は、ユーザが単数又は複数の前記電子機器又は当該機器に対応付けられたアプリケーションと非音声対話する一方で、前記非音声対話に関連して自然言語発話についても提供することを含む。例えば、前記非音声機器対話は、ユーザが、特定の領域、項目、データ、焦点、又は関心の焦点を選択すること、又はこれら以外の方法で前記電子機器又は前記電子機器に対応付けられたアプリケーションとの単数又は複数の固有で識別可能な対話を行うことを含む。このため、コンテクストが前記自然言語発話から抽出され、また、前記非音声機器対話が、前記自然言語発話に関する追加的なコン

Amazon/VB Assets
Exhibit 1003
Page 442

テクストを提供することができる。前記発話のコンテクストと前記非音声機器対話のコンテクストとは、その後に前記マルチモーダル機器対話の意図を決定するために組み合わされる。単数又は複数の前記電子機器は、前記マルチモーダル機器対話の意図に基づいてリクエストを処理する。

【００１１】

本発明の一態様によれば、前記電子機器の少なくとも一つは、音声入力を受信するように構成された入力機器を含む。一実施態様においては、単数又は複数の電子機器又はアプリケーションとの非音声対話の検出に応答して、音声入力機器に対して自然言語発話を取得するように指示がなされる。また、前記自然言語音声サービス環境は、前記電子機器及び対応するアプリケーションに関して設定された単数又は複数のリスナーを含む。このリスナーは、前記電子機器又はアプリケーションとの非音声対話を検出するように構成される。このように、非音声対話と付随する自然言語発話に関連する情報とが連携され、前記発話及び前記非音声機器対話を協力的に処理できるようにする。

【００１２】

本発明の一態様によれば、少なくとも一つのトランザクションリードが、前記マルチモーダル機器対話の意図に基づいて生成される。例えば、最初のマルチモーダル機器対話に関して生成されたトランザクションリードに関連する追加的なマルチモーダル機器対話が受信され、この追加的なマルチモーダル機器対話に関して決定された意図に基づいて、少なくとも一つのリクエストが単数又は複数の前記電子機器に発出される。これにより、前記生成されたトランザクションリードに関連する機器対話の受信に応答してトランザクションクリックスルーを処理することができる。例えば、トランザクションリードは、元のマルチモーダル機器対話の意図に基づいて選択される広告又は推薦を含む。一方、追加的なマルチモーダル機器対話は、ユーザが広告又は推薦を選択することを含む。このように、広告又は推薦の選択は、トランザクションクリックスルーとみなされ、特定の主体（例えば、前記自然言語音声サービス環境のプロバイダー）の収益を生み出す。

【００１３】

これら以外の本発明の目的及び効果は、以下の図面及び詳細な説明により明らかになる。

【図面の簡単な説明】

【００１４】

【図１】本発明の様々な態様に従って、自然言語音声サービス環境においてマルチモーダル機器対話を処理する例示的なシステムのブロック図を示す。

【００１５】

【図２】本発明の様々な態様に従って、自然言語音声サービス環境においてマルチモーダル機器を同期させる例示的な方法のブロック図を示す。

【００１６】

【図３】本発明の様々な態様に従って、自然言語音声サービス環境においてマルチモーダル機器対話を処理する例示的な方法のフロー図を示す。

【００１７】

【図４】本発明の様々な態様に従って、自然言語音声サービス環境においてマルチモーダル機器対話を処理して単数又は複数のトランザクションリードを生成する例示的な方法のフロー図を示す。

【発明を実施するための形態】

【００１８】

図１は、本発明の様々な態様に従って、自然言語音声サービス環境においてマルチモーダル機器対話を処理する例示的なシステム１００のブロック図を示す。本明細書の説明から明らかになるように、図１に示されたシステム１００は、入力機器１０５又は入力機器１０５の組み合わせ含んでもよい。ユーザは、この入力機器１０５により、マルチモーダルな方法でシステム１００と対話することができる。特に、システム１００は、少なくとも音声クリックモジュール１０８を含む様々な自然言語処理コンポーネントを含むことが

Amazon/VB Assets
Exhibit 1003
Page 443

できる。音声クリックモジュール１０８は、単数又は複数の入力機器１０５とともにユーザのマルチモーダル対話を処理することができる。例えば、一実施態様における入力機器１０５は、少なくとも一つの音声入力機器１０５ａ（例えば、マイク）と少なくとも一つの非音声入力機器１０５ｂ（例えば、マウス、タッチスクリーンディスプレイ、ホイールセレクタ等）との任意の適切な組み合わせを含むことができる。このように、入力機器１０５は、音声ベースの入力及び非音声ベースの入力（例えば、テレマティックス機器、パーソナルナビゲーション機器、携帯電話、VoIPノード、パーソナルコンピュータ、メディア機器、組み込み機器、サーバ、又はこれら以外の電子単数又は複数の機器に接続されたマイク）の両方を受信するメカニズムを有する電子機器の任意の適切な組み合わせを含むことができる。このため、ユーザは、電子機器１０５に関連づけられた単数又は複数の電子入力機器１０５又はアプリケーションを用いて、システム１００によってマルチモーダルな会話形式の対話を行うことができる。このシステム１００は、タスクを発出するため又は他の方法でリクエストを決定（resolve）するために好適な自由形式且つ協力的な方法で機器対話を処理することができる。

【００１９】

上述のように、一実施態様におけるシステムは、自由形式の発話及び／又は他の形式の機器対話をサポート可能な様々な自然言語処理コンポーネントを含んでもよく、これにより、コマンド、クエリ、又はこれら以外のリクエストの決定方法に関する制約からユーザを開放することができる。このため、ユーザは、システム１００において使用可能なコンテンツ又はサービスを要求するために、音声入力機器１０５ａに向かって話す任意の方法又はこれ以外の非音声入力機器１０５ｂと対話する任意の方法を用いて入力機器１０５と対話することができる。例えば、ユーザは、自然言語発話を音声入力機器１０５ａに提供することによって、システム１００において利用可能な任意のコンテンツ又はサービスを要求することができる。一実施態様において、発話は、2008年7月8日に発行された「System and Method for Responding to Natural Language Speech Utterance」と題する米国特許第7,398,209号、及び、2003年6月15日に出願された「Mobile System and Method for Responding to Natural Language Speech Utterance」と題する米国特許出願第10/618,633号に記載された技術を用いて処理することができる。これらの特許及び特許出願の開示内容は、参照により全体として本明細書に組み込まれる。また、ユーザは、発話及び／又は要求されたコンテンツもしくはサービスに関連する追加的なコンテクスト等の情報を提供するために、単数又は複数の非音声入力機器１０５ｂと対話することができる。

【００２０】

一実施態様において、システム１００は、追加的なマルチモーダル機器を含む様々な他のシステムに接続されてもよい。当該他のシステムは、図１に示したものと同様の自然言語処理機能を有する。このため、システム１００は、マルチデバイス環境とのインタフェースを提供することができる。このマルチデバイス環境において、ユーザは、当該環境において様々な追加機器を通じて利用できるコンテンツ又はサービスを要求することができる。例えば、一実施態様に係るシステム１００は、当該環境における当該他のシステム及び機器を通して利用可能なコンテンツ、サービス、アプリケーション、意思決定機能、及びこれら以外の機能に関連する情報を提供する星座モデル１３０ｂを含んでもよい。例えば、一実施態様に係るシステム１００は、協力的にリクエストを決定するために、機器、アプリケーション、又は当該環境における他のシステムと対話することができる。この点は、2008年5月27日に出願された「System and Method for an Integrated, Multi-Modal, Multi-Device Natural Language Voice Services Environment」と題する係属中の米国特許出願第12/127,343号において説明されている。当該米国特許出願の開示内容は、参照により全体として本明細書に組み込まれる。例えば、マルチ機器環境は、様々なシステム及び機器の間で情報を共有し、リクエストを決定するための協力的な環境を提供することができる。当該共有された情報は、機器の機能、コンテクスト、以前の対話、ドメイン情報、短期的情報（short-term knowledge）、長期的情報（long-term knowledge）、及び認知モデル等の側面に関連していてもよい。

Amazon/VB Assets
Exhibit 1003
Page 444

【００２１】
上述のように、図１に示されたシステム１００は、例えば、単数又は複数のマルチモーダル機器対話をユーザから受信するインタフェース（又はインタフェースの組み合わせ）を共同で提供する単数又は複数の電子入力機器１０５を含んでもよい。この機器対話には、少なくともユーザが発した発話が含まれる。図１に示した実装態様においては、音声入力機器１０５ａと非音声入力機器１０５ｂとが別個に構成されているが、一又は複数の実装態様においては、音声入力機器１０５ａ及び非音声入力機器１０５ｂは同一の機器であってもよく別の機器であってもよい。例えば、入力機器１０５は、携帯電話に接続されたマイク（すなわち、音声入力機器１０５ａ）を含むことができ、さらに携帯電話に接続された単数又は複数のボタン、入力可能ディスプレイ、ホイールセレクタ、又はこれら以外の構成要素（すなわち、非音声入力機器１０５ｂ）を含むことができる。他の例における入力機器１０５は、テレマティックス機器に接続されたマイクの組み合わせ（すなわち、音声入力機器１０５ａ）を含むことができ、さらにテレマティックス機器と通信可能に接続されているが別体のメディアプレイヤーに接続されたボタン、タッチスクリーンディスプレイ、トラックホイール、又はこれら以外の非音声入力機器１０５ｂを含むことができる。このように、入力機器１０５は、通信可能に接続された電子機器の任意の好適な組み合わせを含むことができる。この電子機器は、自然言語発話入力を受信する少なくとも一つの入力機器、及び、マルチモーダル非音声入力を受信する少なくとも一つの入力機器を含む。

【００２２】
一実施態様において、単数又は複数の入力機器１０５に通信可能に接続された音声クリックモジュール１０８によって、音声入力機器１０５ａ及び単数又は複数の非音声入力機器１０５ｂで受信されたマルチモーダル機器対話を協力的に処理（cooperative processing）することができる。例えば、音声クリックモジュール１０８は、音声入力機器１０５ａで受信された自然言語発話を処理するために用いられる情報を、非音声入力機器１０５ｂで受信された単数又は複数の非音声機器対話を考慮して、システム１００に提供することができる。このように、ユーザは、音声クリックモジュール１０８を用いることによって、直感的で自由形式の方法で様々な入力機器１０５と対話することができる。これにより、ユーザは、動作の開始を求め、情報を入手し、又はその他の方法でシステム１００で利用できるコンテンツ又はサービスを要求するときに、様々な種類の情報をシステム１００に提供することができる。

【００２３】
音声入力機器１０５ａは、自然言語発話等の発話された形式の入力を受信することができる任意の適切な機器又は適切な機器の任意の組み合わせを含むことができる。例えば、一実施態様における音声入力機器１０５ａは、指向性マイク、マイクアレイ、又はその他の符号化された音声を生成可能な機器を含むことができる。一実施態様における音声入力機器１０５ａは、符号化された音声の忠実度を最大化するように構成されてもよい。例えば、音声入力機器１０５ａは、ユーザの方向からの利得を最大化し、エコー又はヌルポイント雑音源を除去し、可変レートサンプリングを実行し、環境雑音又は背景会話をフィルターし、又はその他の方法で符号化された音声の忠実度を最大化する技術を用いるように構成されてもよい。このように、音声入力機器１０５ａは、自然言語発話を正確に解釈する際に、ノイズ等のシステム１００に干渉する要素に耐性を有するように符号化された音声を生成する。

【００２４】
非音声入力機器１０５ｂは、非音声機器対話をサポートすることができる任意の適切な機器又は適切な機器の任意の組み合わせを含むことができる。例えば、一実施態様における非音声入力機器１０５ｂは、スタイラスとタッチスクリーン又はタブレットインタフェースとの組み合わせ、BlackBerry（登録商標）、ホイールセレクタ、iPod（登録商標）、クリックホイール、マウス、キーパッド、ボタン、又はその他の任意の機器であって識別可能な非音声機器対話をサポートするものを含むことができる。このため、ユーザは、非

Amazon/VB Assets
Exhibit 1003
Page 445

音声入力機器１０５ｂを用いてデータの選択を行い、又は、音声入力機器１０５ａによって提供された関連する自然言語発話に関連して処理されるべき焦点（points of focus）（又は関心の焦点（attention focus））を特定することができる。例えば、ユーザは、タッチスクリーンディスプレイの特定の領域をスタイラスで指し示し、マウスを用いてテキストをハイライトし、ボタンをクリックし、アプリケーションと対話し、データを選択し、又はその他の方法で焦点を特定するために任意の好適な機器対話を行う（すなわち、選択されたデータ及び／又は特定された焦点を音声起動又は「音声クリック」する）ことができる。

【００２５】

また、データ選択を行い、焦点を特定し、又はこれら以外の方法で単数又は複数の発話と関連づけて解釈されるデータを起動するために使用可能であることに加えて、ユーザはさらに、非音声入力機器１０５ｂを用いることにより、システム１００内において意味を有する専用の機器対話を行うことができる。例えば、専用の機器対話（「クリック」又は「音声クリック」と称することがある）は、所定期間続くクリック、所定期間連続して維持されるクリック、予め定められたシーケンスに従ってなされるクリック、又はその他の対話又は対話シーケンスであって入力機器１０５及び／又は音声クリックモジュール１０８が特定、検出、又はその他の方法で識別できるものを含むことができる。

【００２６】

一実施態様において、専用の機器対話は、単数又は複数の動作、クエリ、コマンド、タスク、又はその他のリクエストであってシステム１００において利用可能なアプリケーションもしくはサービスに対応付けられたものに関連づけられる。一実施態様において、専用の機器対話は、上述した2008年5月27日出願の「System and Method for an Integrated, Multi-Modal, Multi-Device Natural Language Voice Services Environment」と題する係属中の米国特許出願第12/127,343号において説明されているように、単数又は複数の動作、クエリ、コマンド、タスク、又はこれら以外のリクエストであってマルチデバイス環境に配置された様々な機器の任意のものと関連づけられているものをさらに含むことができる。例えば、タッチスクリーンディスプレイに表示された特定の領域又は要素をスタイラスでクリックする識別可能なシーケンスが、携帯電話で電話を開始し、ナビゲーション機器でルートを計算し、メディアプレイヤー用に音楽を購入し、又はこれら以外の種類のリクエストを行うための専用の機器対話（device interaction）又は音声クリック（voice-click）として定義される。

【００２７】

このように、入力機器１０５に接続された音声クリックモジュール１０８は、少なくとも一つの非音声機器対話の発生を検出するために、ユーザと非音声入力機器１０５ｂとの対話を継続的に監視することができる。この非音声機器対話を本明細書において「音声クリック」と称することがある。このため、検出された音声クリックは、マルチモーダル機器対話を処理するための追加的なコンテクストを提供することができる。このマルチモーダル機器対話には、少なくとも一つの音声クリック及び単数又は複数の自然言語発話を含むことができ、その各々がタスク記述（task specification）のためのコンテクストを提供することができる。このように、音声クリックは、一般に、現在の発話又は他の音声入力が単数又は複数の機器１０５との現時点での対話とともに処理されるべきことをシステム１００に対して知らせることができる。例えば、一実施態様において、現時点の機器対話は、ユーザによる選択、ハイライト、又は他の関心の焦点の特定、目的、又は単数又は複数の機器１０５に関連づけられた他の項目を含むことができる。このように、現時点の機器対話は、付随する発話の認識、解釈、及び理解を明確にするコンテクストを提供することができ、また、現時点の発話は、付随する機器対話によって提供されるコンテクストを改善する情報を提供することができる。

【００２８】

一実施態様における音声クリックモジュール１０８は、非音声入力機器１０５ｂの特定の特徴に基づいて検出される様々な音声クリック対話を決定することができる（例えば、

Amazon/VB Assets
Exhibit 1003
Page 446

音声クリック対話は、非音声入力機器１０５ｂをサポートする識別可能な対話を含むことができる）。例えば、マルチタッチディスプレイは、典型的には、表示された情報と対話するための様々な識別可能なジェスチャーをサポートするように構成されたタッチスクリーンディスプレイ機器を含む（例えば、ユーザは、特定のジェスチャー等の対話手法を用いて、マルチタッチスクリーンに表示された図形情報に対して拡大、縮小、回転、又はその他の制御を行うことができる）。このように、一例において、非音声入力機器１０５ｂはマルチタッチディスプレイを含むことができ、音声クリックモジュール１０８は、ユーザが非音声マルチタッチディスプレイ１０５ｂによってサポートされている識別可能な一又は複数のジェスチャーを行ったときに音声クリックの発生を検出するように構成される。

【００２９】

一実施態様において、ユーザは、音声クリックモジュール１０８によって検出される音声クリック対話をカスタマイズ又はそれ以外の方法で修正することができる。特に、音声クリックモジュール１０８によって検出された特定の機器対話を削除又は変更することができ、新しい機器対話を追加することもできる。このように、音声クリックモジュール１０８によって検出された音声クリック機器対話は、非音声入力機器１０５ｂ及び／又は音声クリックモジュール１０８が識別できる任意の適切な対話又は対話の任意の適切な組み合わせを含むことができる。

【００３０】

音声クリックモジュール１０８によってユーザが音声クリック機器対話を行っていることが検出されると、音声クリックモジュール１０８は、音声起動のために、当該音声クリック機器対話に関連づけられたコンテクスト情報を抽出することができる。特に、音声クリックモジュール１０８は、領域、項目、焦点、関心の焦点、又はその他のユーザによって選択されたデータに関連する情報を特定することができ、又は、これら以外にも、ユーザによって行われる特定の機器対話又は機器対話のシーケンスに関連する情報を特定することができる。このように、音声クリックモジュール１０８は、検出された音声クリックに関連して特定された情報を抽出することができる。この情報は、以前の、現在の、又は後続の単数又は複数の自然言語発話に関連づけられるコンテクスト情報として用いられる。

【００３１】

このように、音声クリックモジュール１０８における音声クリック（例えば，アイコンの選択、テキストの部分、地図表示における特定の座標、又はこれら以外の情報）の検出に応答して、音声クリックモジュール１０８は、動作、クエリ、コマンド、タスク、又はその他のリクエストであって検出された音声クリックを提供するために実行されるものを決定するために、自然言語発話音声入力（音声入力機器１０５ａによって受信される）を追加的なコンテクストとして用いるようにシステム１００に対して伝達することができる。このため、システム１００における様々な自然言語処理コンポーネントは、音声クリックと付随する自然言語発話とを組み合わせたコンテクストを用いて、音声クリック機器対話の意図を決定し、単数又は複数の動作、クエリ、コマンド、タスク、又はこれら以外のリクエストをマルチデバイス環境に配置された様々な機器の任意のものに対して適切に発出する（route）ことができる。

【００３２】

例えば、一実施態様において、マルチデバイス環境は、音声対応ナビゲーション機器を含むことができる。このように、例示的な音声クリック機器対話は、音声対応ナビゲーション機器と関連づけられたタッチスクリーンディスプレイ１０５ｂに表示された特定の交点にユーザがスタイラスを接触させることを含み、「この辺りにはどんなレストランがありますか？」等の発話をマイク１０５ａに提供することも含む。この例においては、音声クリックモジュール１０８は、音声クリックされた交点に関する情報を抽出することができ、この情報を付随する発話を処理するためのコンテクストとして用いることができる（すなわち、選択された交点は、ユーザの現在位置等の意味以外の、「この辺り」を解釈す

Amazon/VB Assets
Exhibit 1003
Page 447

るためのコンテクストを提供することができる）。また、上述のように、音声入力は、タスク記述を決定するための追加的なコンテクストとして使用することができる。このように、発話は、システム１００の様々な自然言語処理コンポーネントを用いた認識及び会話的な解釈としても用いられる。この点については以下でさらに詳しく説明する。

【００３３】

一実施態様において、自動音声認識装置（ＡＳＲ）１１０は、音声入力機器１０５ａによって受信された発話の単数又は複数の予備的な解釈を生成することができる。例えば、ＡＳＲ１１０は、単数又は複数の動的に適応される認識文法を用いて、シラブル、語、句、又はその他の発話の音響的特徴を認識することができる。一実施態様における動的な認識文法は、単数又は複数の音響モデル（例えば、2005年8月5日に出願された「System and Method for Responding to Natural Language Speech Utterance」と題する係属中の米国特許出願第11/197,504に記述されている。当該出願の開示内容は参照により全体として本明細書に組み込まれる。）に基づく音声ディクテーションを用いて音素列を認識するために用いられる。

【００３４】

一実施態様において、ＡＳＲ１１０は、マルチパス音声認識を実行するように構成されてもよい。主音声認識エンジンは、発話の主トランスクリプションを生成することができ（例えば、ディクテーション文法のリストを用いる）、続いて、単数又は複数の二次音声認識エンジンからの単数又は複数の二次トランスクリプションを要求する（例えば、未知語のためのデコイ語を有する仮想的なディクテーション文法を用いる）。一実施態様における主音声認識エンジンは、主トランスクリプションの信頼度に基づいて二次トランスクリプションを要求することができる。

【００３５】

ＡＳＲ１１０において用いられる認識文法は、様々な語彙、辞書、シラブル、語、句、又はこれら以外の発話を認識するための情報を含む。一実施態様における認識文法に含まれる情報は、所定の発話について正確に認識する可能性を向上させるために動的に最適化される（例えば、語又は句の不正確な解釈があった場合には、不正確な解釈を繰り返す可能性を減らすために当該不正確な解釈を文法から除去してもよい）。また、認識文法に含まれている情報を継続的に動的に最適化するために、様々な形態の情報を用いることができる。例えば、システム１００は、環境情報（例えば、ピアツーピアの関係（affinities）、当該環境における様々な機器の機能等）、過去に用いられた情報（例えば、頻繁に行われるリクエスト、以前のコンテクスト等）、又は現在の会話的ダイアローグ又は対話に関連して短期間で共有された情報等を含む情報を有することができる。

【００３６】

一実施態様において、認識文法における情報は、コンテクスト又はアプリケーション固有のドメインに従ってさらに最適化することができる。特に、類似の発話は、当該発話に関連するコンテクストに応じて異なる内容に解釈されてもよい。このコンテクストには、ナビゲーション、音楽、映画、天気、ショッピング、ニュース、言語、時間的な又は地理的な近さ、又はこれら以外のコンテクストもしくはドメインが含まれる。例えば、「traffic」という語を含む発話は、コンテクストがナビゲーションなのか（すなわち道路状況）、音楽なのか（すなわち、1960年代のロックバンド）、又は映画なのか（すなわち、スティーブン・ソダーバーグ監督の映画）によって、異なる解釈を与えられる可能性がある。したがって、ＡＳＲ１１０は、上述の係属中の米国特許出願及び／又は2006年8月31日に出願された「Dynamic Speech Sharpening」と題する係属中の米国特許出願第11/513,269号において説明されているように、様々な技術を用いて自然言語発話の予備的な解釈を生成することができる。これらの特許出願の開示内容は、参照により全体として本明細書に組み込まれる。

【００３７】

このように、ＡＳＲ１１０は、音声クリックに含まれる自然言語発話の単数又は複数の予備的な解釈を会話言語プロセッサ１２０に提供することができる。この会話言語プロセ

Amazon/VB Assets
Exhibit 1003
Page 448

ッサ１２０は、人間対人間の会話又は対話をモデルに構成された様々な自然言語処理コンポーネントを含むことができる。例えば、会話言語プロセッサ１２０は、意思決定エンジン１３０ａ、星座モデル１３０ｂ、単数又は複数のドメインエージェント１３０ｃ、コンテクストトラッキングエンジン１３０ｄ、誤認エンジン１３０ｅ、及び音声検索エンジン１３０ｆ等を含むことができる。また、会話言語プロセッサ１２０は、単数又は複数のデータレポジトリ１６０、及び、様々なコンテクスト又はドメインに関連づけられた単数又は複数のアプリケーション１５０に接続されてもよい。

【００３８】

このように、システム１００は、ユーザに協力的な会話を行わせ、ユーザの音声クリックを開始する意図に基づいて音声クリック機器対話を決定するために、会話言語プロセッサ１２０に関連づけられた様々な自然言語処理コンポーネントを用いることができる。より具体的には、意思決定エンジン１３０ａは、システム１００の機能やマルチデバイス環境における他の機器の機能に基づいて、所定のマルチモーダル機器対話の意味を定めることができる。例えば、ユーザが「この辺りにはどんなレストランがありますか？」という発話を決定するために特定の交点を音声クリックする上述の例を参照すれば、会話言語プロセッサ１２０は、音声クリックの会話の目的（conversational goal）を決定することができる（例えば、「どんな」は、データ取得を要求するクエリに関連する発話を示すことができる）。また、会話言語プロセッサ１２０は、コンテクストトラッキングエンジン１３０ｄを起動して、音声クリックのコンテクストを決定することができる。例えば、コンテクストトラッキングエンジン１３０ｄは、音声クリックコンテクストを決定するために、特定された焦点（すなわち、選択された交点）に関連づけられたコンテクストと、発話（すなわち、レストラン）に関連づけられたコンテクストとを組み合わせることができる。

【００３９】

その結果、音声クリックの組み合わされたコンテクスト（機器対話及び付随する発話の両方を含む）は、特定のクエリを発出するための十分な情報を提供することができる。例えば、クエリは、レストラン及び特定された交点に関連する様々なパラメータ又は基準を含むことができる。会話言語プロセッサ１２０は、処理のためにクエリが送られる特定の機器、アプリケーション、又はこれら以外のコンポーネントを選択することができる。例えば、一実施態様における会話言語プロセッサ１２０は、マルチデバイス環境における各機器の機能のモデルを含む星座モデル１３０ｂを評価することができる。一実施態様における星座モデル１３０ｂは、当該環境において各機器が利用できる情報処理リソース及びストレージリソースについての情報、並びに、ドメインエージェント、コンテクスト、機能、コンテンツ、サービス、又は機器の各々に関するこれら以外の情報の性質及び範囲を含むことができる。

【００４０】

このように、会話言語プロセッサ１２０は、星座モデル１３０ｂ及び／又は他の情報を用いて、起動可能な機器又は機器の組み合わせのいずれが、所定の音声クリック機器対話を処理するために好適な機能を有しているか決定することができる。例えば、上記の例を再び参照して説明すると、会話言語プロセッサ１２０は、音声クリックのコンテクストがナビゲーション機器との対話に関連することを決定し、そのため、ナビゲーションアプリケーション１５０を用いて処理するためにクエリを発出することができる。そして、クエリの結果が処理され（例えば、ベジタリアンレストランが好みであることなどのユーザに関する情報に基づいて結果を検討することができる）、出力機器１８０を介してユーザに返される。

【００４１】

図２は、本発明の様々な態様に従って、自然言語音声サービス環境においてマルチモーダル機器を同期させる例示的な方法のブロック図を示す。上述のように、マルチモーダル機器対話（又は「音声クリック」）は、一般に、ユーザが単数又は複数のマルチモーダル機器と単数又は複数の対話を行う一方、マルチモーダル機器との対話に関連する単数又は

Amazon/VB Assets
Exhibit 1003
Page 449

複数の自然言語発話も提供するときに発生する。一実施態様において、マルチモーダル機器との対話に関連するコンテクスト情報は、（例えば、特定の動作、クエリ、コマンド、タスク又は他のリクエストを開始するための）音声クリックの意図を決定するために、自然言語発話に関連するコンテクスト情報と関連づけられる。

【００４２】

一実施態様において、様々な自然言語処理コンポーネントは、いつ音声クリックが発生したか決定するために、マルチモーダル機器を継続的に聴取又はその他の方法で監視するように構成されてもよい。このため、図２に示した方法は、マルチモーダル機器を継続的に聴取又はその他の方法で監視するコンポーネントを補正又はその他の方法で構成するために用いることができる。例えば、一実施態様における自然言語音声サービス環境は、異なる機能又はサービスを提供する複数のマルチモーダル機器を含み、ユーザは、任意の機器対話における様々な機器又は機能に関連するサービスを要求するために単数又は複数の音声クリックを行うことができる。

【００４３】

マルチモーダル機器対話又は音声クリックを継続的に聴取することができるように、当該環境における前記複数の機器の各々は、音声クリックに関連する情報を受信するように構成される。このように、一実施態様において、工程２１０は、当該環境における前記複数の機器の各々のために機器リスナー（device listener）を設定することを含む。また、工程２１０は、単数又は複数の新しい機器が当該環境に追加されたことに応答して実行されてもよい。工程２１０において設定される機器リスナーは、単数又は複数の処理装置又は他のハードウェアコンポーネントにおいて実行されるように構成された命令、ファームウェア、又はこれら以外のルーチンの任意の好適な組み合わせを含んでもよい。当該環境における機器の各々に対応付けられた機器リスナーは、機器の機能、特徴、サポートされているドメイン、又はこれら以外の機器に関する情報を決定するために当該機器と通信することができる。一実施態様における機器リスナーは、コンピュータ付属機器用に設計されたUniversal Plug and Playプロトコルを用いて当該機器と通信するように構成されてもよいが、マルチモーダル機器と通信する任意の好適なメカニズムを用いることができる。

【００４４】

当該環境における機器の各々について機器リスナーが設定されたとき（又は、当該環境に追加された新しい機器について機器リスナーが設定されたとき）に、工程２２０において、様々な機器リスナーが同期される。特に、様々な機器の各々は、異なる内部クロック又はそれ以外のタイミング機構を有していてもよく、工程２２０は、機器それぞれの内部クロック又はタイミング機構に従って様々な機器リスナーを同期させることを含んでもよい。一実施態様において、機器リスナーを同期させることは、各機器リスナーの各々が内部クロック又は関連する機器のタイミングに関する情報を公にすることを含んでも良い。

【００４５】

その後、単数又は複数の機器について単数又は複数のマルチモーダル対話又は音声クリックが発生すると、対応付けられた機器リスナーは、工程２３０において、当該音声クリックに関連する情報を検出することができる。例えば、一実施態様において、工程２１０で設定された様々な機器リスナーは、上述の図１に示された音声クリックモジュールに対応付けられる。したがって、工程２３０は、単数又は複数の機器リスナー又は音声クリックモジュールが、ユーザと単数又は複数の機器との対話（例えば、当該機器に関連するデータを選択し、当該機器に関連する焦点又は関心の焦点を特定し、又は当該機器との単数又は複数の対話又は対話シーケンスを行うこと）の発生を検出することを含むことができる。また、工程２４０は、工程２３０において検出された機器対話に関連するユーザからの発話を取得することを含んでもよい。

【００４６】

例えば、ディスプレイ装置に表示されたウェブページを見ているユーザは、当該ウェブページ上で製品名を見て当該製品の購入に関するより多くの情報の入手を望む可能性があ

Amazon/VB Assets
Exhibit 1003
Page 450

る。ユーザは、当該商品名を含むウェブページからテキストを選択し（例えば、マウス又はキーボードを用いて当該テキストをハイライトすることにより）、その後、「Amazon.comで入手できますか？」と質問するために音声クリックを開始する。この例において、工程２３０は、ディスプレイ装置に関連づけられた機器リスナーが当該商品名に関連づけられたテキストの選択を検出することを含むことができ、一方、工程２４０は、Amazon.comにおける当該商品の在庫を問い合わせる発話を取得することを含むことができる。

【００４７】

上述のように、ユーザからの入力を受信する各機器は、内部クロック又はタイミング機構を有することができる。したがって、工程２５０において、各機器は、入力がいつ受信されたかをローカルで決定することができ、音声クリックモジュールに対して入力が受信されたことを通知することができる。特に、所定の音声クリックは、単数又は複数の他の機器との単数又は複数の追加的な対話に加えて、少なくとも音声入力機器を介して受信された自然言語発話を含むことができる。発話は、機器対話の前に、機器対話と同時に、又は機器対話の後に続いて受信される。これにより、工程２５０は、対応付けられた発話との相関のために機器対話のタイミングを決定することを含む。具体的には、工程２６０は、工程２２０を参照して説明したように同期された機器リスナー信号を用い、機器対話用の信号と発話用の信号とを連携させることを含んでもよい。機器対話及び発話信号を一致させる場合には、連携された音声コンポーネント及び非音声コンポーネントを含む音声クリック入力が生成される。音声クリック入力に対しては、その後、以下で詳細に述べる追加的な自然言語処理がなされる。

【００４８】

図３は、本発明の様々な態様に従って、自然言語音声サービス環境においてマルチモーダル機器対話を処理する例示的な方法のフロー図を示す。上述のように、マルチモーダル機器対話（又は「音声クリック」）は、一般に、ユーザが単数又は複数のマルチモーダル機器と対話する一方で当該機器対話に関連する単数又は複数の自然言語発話も提供するときに発生する。このため、一実施態様において、図３に示された方法は、単数又は複数の音声クリックがいつ発生したかを決定するために単数又は複数の自然言語処理コンポーネントが単数又は複数のマルチモーダル機器を継続して聴取し又はそれ以外の方法で監視する場合に実行することができる。

【００４９】

一実施態様において、単数又は複数の機器対話を音声クリックの開始として定義することができる。例えば、任意の所定の電子機器は、一般に、識別可能な様々の対話をサポートすることができ、所定の動作、コマンド、クエリ、又はその他の実行要求を実行することができる。このように、一実施態様において、機器対話の任意の適切な組み合わせを音声クリックとして定義することができる。この機器対話は、所定の電子機器が一意に認識可能なもの、又は、所定の電子機器が一意に認識可能な信号を生成するために用いることができるものである。ここで、音声クリックは、自然言語発話の処理を、関連する機器対話に対応付けられたコンテクストと共に行うことを示す信号を提供することができる。例えば、４方向又は５方向ナビゲーションボタンを有する機器は、特定の識別可能な対話をサポートすることができる。特定の方法でナビゲーションボタンを押すことにより、マップ表示の制御やルート計算等の特定のタスク又はそれ以外の動作が実行される。他の例において、ホイールセレクタを有するBlackBerry（登録商標）機器は、特定の焦点又は関心の焦点の上でカーソルを回転させること、特定のデータ又は所定のアプリケーションを選択するめにホイールを押下すること、又はその他の様々な対話等をサポートすることができる。機器対話を用いることにより、自然言語発話が当該機器対話と対応付けられたコンテクストとともに処理されるタイミングを示すことができるが、これに限られず、この特定の機器対話は所定の実装態様によって変化する。例えば、関連する機器対話は、タッチセンサー式スクリーン上で道具を指し示したり描いたりするジェスチャーをすること（例えば、耳の形の線を描くこと）、長いタッチやダブルタップ等の固有の対話方法を含むことができ、及び／又は、システムが上述した継続的聴取モードで動作している場合には、

Amazon/VB Assets
Exhibit 1003
Page 451

予め定められたコンテクスト命令語によって、現在の機器コンテクストを当該コンテクスト命令語に続く音声入力の部分とともに処理することを示すことができる（例えば、命令語が「OK」、「Please」、「Computer」、又はその他の好適なワードである場合には、ユーザはマップ上の特定の点を選択して「Please zoom in」と言ったり、Eメールが表示されたときに「OK read it」と言ったりすることができる）。

【００５０】

このように、工程３１０は、音声クリックの開始を伝達する単数又は複数の機器対話の発生を検出するために自然言語音声サービス環境においてマルチモーダル機器対話を処理することを含んでもよい。具体的には、工程３１０において検出される機器対話は、固有の、認識可能な、又はその他のユーザに関連する識別可能な信号を電子機器に生成させる任意の好適な対話を含むことができる。この信号は、ユーザが当該機器の特定の機能に応じてデータを選択し、焦点又は関心の焦点を特定すること、アプリケーション又はタスクを起動すること、又は他の方法で機器と対話することに関連して当該電子機器によって生成される。

【００５１】

工程３１０において検出される対話は、前記ユーザ対話に応答して機器により生成される上述の特定の信号に加えて、音声クリックの開始を伝達することができ、これにより、以前の、現在の、又は後続の自然言語音声入力は、工程３１０において検出された機器対話を解釈するための追加的なコンテクストを提供することになる。例えば、自然言語処理システムは一般に、特定の機器対話が発生したとき（例えば、マイクのスイッチを入れるためにボタンを押したとき）に、音声入力を受容するように構成される。このように、図３に示された方法において、これから到着する音声入力を知らせる機器対話は、電子機器との任意の好適な対話又は電子機器との対話の任意の好適な組み合わせをさらに含んでもよい。この対話は、ユーザが機器の特定の機能に応じてデータを選択すること、ユーザが焦点又は関心の焦点を特定すること、ユーザがアプリケーション又はタスクを起動すること、又はその他の方法でユーザが機器と対話することを含む。

【００５２】

このため、音声クリック機器対話が工程３１０において検出されると、工程３２０において、自然言語音声入力を工程３２０において検出された対話と対応付けるべきことを示す音声クリック信号が生成される。続いて、工程３３０は、工程３１０において検出された対話と対応付けられるユーザ発話を取得することを含むことができる。一実施態様において、工程３１０において検出された対話は、後から音声入力が提供されることを示すことができる。ただし、一又は複数の実施態様において、工程３３０において取得される発話は、工程３１０において検出される対話の前又は後に提供されてもよい（例えば、ユーザは「このアーティストをiTunes（登録商標）で調べる」等の発話を提供した後にメディアプレイヤー上でアーティスト名を音声クリックすることができ、又は、アーティスト名を音声クリックしている間に発話を提供することができ、又は、アーティスト名を音声クリックした後に発話を提供することができる）。

【００５３】

工程３４０は、音声クリック機器対話に関連する情報及び対応する自然言語発話が受信されると、当該機器対話及び当該対応する発話のためにコンテクスト情報を抽出し組み合わせることができる。具体的には、音声クリック機器対話から抽出されたコンテクスト情報は、領域、項目、焦点、関心の焦点、もしくはユーザによって選択されたデータに関連する情報、又は、ユーザによって行われた特定の機器対話もしくは特定の機器対話のシーケンスに関連する情報を含むことができる。その後、機器対話に関する抽出されたコンテクストは、工程３３０において取得された自然言語発話について抽出されたコンテクストと組み合わされる。組み合わされたコンテクスト情報は、工程３５０において、音声クリックの意図を決定するために用いることができる。

【００５４】

例えば、例示的な音声クリック機器対話において、ユーザは、格納されている音楽をメ

Amazon/VB Assets
Exhibit 1003
Page 452

ディアプレイヤーからバックアップストレージ機器に選択的に複製することができる。ユーザは、メディアプレイヤー上で音楽をブラウズしている間に、特定の楽曲を聴いて「アルバム全部をコピー」と言うことにより当該楽曲を音声クリックすることができる（例えば、当該楽曲を強調している間にメディアプレイヤー上の特定のボタンを長時間押下することによって音声クリックする）。この例において、工程３１０は、ボタンを長時間押下するという対話を検出することを含むことができる。これにより、工程３２０において音声クリック信号が生成される。続いて、「アルバム全部をコピー」という発話が工程３３０において取得され、当該音声クリック機器対話及び当該発話に対応するコンテクスト情報が、工程３４０において組み合わせられる。特に、機器対話のコンテクストは、選択された楽曲に関する情報等を含むことができる（例えば、当該コンテクストは、音楽ファイルのID3タグ等の当該楽曲に対応付けられたメタデータに含まれる情報をさらに含むことができる）。また、発話のコンテクストは，複製動作及び当該選択された楽曲を含むアルバムを特定する情報を含むことができる。

【００５５】

このようにして、マルチモーダル機器との音声クリック対話に関連するコンテクスト情報を、自然言語発話に関連するコンテクスト情報と組み合わせることができる。これにより、工程３５０は、音声クリック対話の意図を決定することができる。例えば、上述の例を参照すると、工程３５０において決定される意図には、強調された楽曲を含むアルバムをメディアプレイヤーからバックアップストレージ機器に複製する意図を含むことができる。このように、工程３５０において音声クリックの意図が決定されたことに応答して、単数又は複数のリクエストが工程３６０に適切に発出される。ここで説明した例では、工程３６０は、強調された楽曲を含むアルバムに対応するデータを全て特定するために、メディアプレイヤーに単数又は複数のリクエストを発出すること、及び、特定されたデータのメディアプレイヤーからバックアップストレージ機器への複製を管理することができる機器の任意の適切な組み合わせ（例えば、メディアプレイヤー及びストレージ機器の両方と接続されたパーソナルコンピュータ）に対して単数又は複数のリクエストを発出することを含むことができる。

【００５６】

図４は、本発明の様々な態様に従って、自然言語音声サービス環境においてマルチモーダル機器対話を処理して単数又は複数のトランザクションリード又は「クリックスルー」を生成する例示的な方法のフロー図を示す。具体的には、図４に示された方法は、検出された単数又は複数の音声クリック機器対話に応答して実行される単数又は複数の動作と組み合わせてトランザクションリード又はクリックスルーを生成するために用いることができる。

【００５７】

例えば、工程４１０は、ユーザから受信した単数又は複数の音声クリック機器対話を検出することを含むことができる。このとき、音声クリック機器対話は、単数又は複数の関連する自然言語発話に結びつけられた単数又は複数の機器対話の任意の好適な組み合わせを含むことができる。次に工程４２０において音声クリック機器対話を行うユーザの意図が確定された後、工程４３０において、音声クリック対話を決定するために、確定された意図に基づいて単数又は複数のリクエストが単数又は複数の処理装置に発出される。一実施態様において、工程４１０、４２０、及び４３０は、図２及び図３を参照して説明した方法と類似の方法で実行することができる。これにより、機器対話のための信号は、単数又は複数の自然言語発話のための信号と連携し、コンテクスト情報は、音声クリック機器対話の意図を決定するために当該信号から抽出される。

【００５８】

図４に示した方法は、ユーザの意図に基づいて単数又は複数のリクエストを発出することに加えて、単数又は複数のクリックスルーに繋がる可能性のある単数又は複数のトランザクションリード（transaction lead）を生成することをさらに含むことができる。例えば、クリックスルーは、一般に、ユーザが電子広告をクリックし又は他の方法で電子広告

Amazon/VB Assets
Exhibit 1003
Page 453

を選択して当該広告に関連する単数又は複数のサービスにアクセスする行為を指す。多くの電子システムにおいて、クリックスルー又はクリックスルー率は、ユーザと電子広告との対話を計測するメカニズムを提供することができ、当該広告をユーザへ提供する主体に対する支払額を決定するために広告主によって用いられる様々な測定値を提供することができる。

【００５９】

このように、図４に記載された方法によって、広告又は推薦を含むトランザクションリードを生成することができる。これにより、特定の機器対話と組み合わせられたユーザの音声入力は、トランザクションリードを生成するための追加的な焦点（focus）を提供することができる。この方法において、ユーザに提供される広告又は推薦は、ユーザが対話する特定の情報との関連性が高くともよい。また、自然言語認知モデル及びユーザの嗜好に関する共有された情報を用いることにより、特定のユーザのためにカスタマイズされたターゲットトランザクションリードのための追加的なコンテクストを提供することができ、これにより、音声サービスプロバイダーに対する支払いを生み出すクリックスルーがより生じやすくなる。

【００６０】

このように、工程４４０は、音声クリック機器対話を行うユーザの意図に基づいて単数又は複数のリクエストを発出することに加えて、決定された意図に基づいて単数又は複数のトランザクションリードを生成することを含むことができる。具体的には、ターゲット広告を実行する任意の適切なシステムにおいてローカルの音声及び非音声コンテクストを状態データ（state data）として用いるという点で、対応する自然言語発話及び組み合わされた機器対話のコンテクストに基づいて、トランザクションリードをユーザに「より親密な」方法で処理することができる。例えば、ユーザがナビゲーション機器に表示された交点を選択し「この辺りにあるレストランを探す」と言う上述の例を参照すると、工程４４０において生成されるトランザクションリードは、当該交点に近いレストランの単数又は複数の広告又は推薦を含むことができる。このレストランは、ユーザの短期間及び長期間の嗜好（例えば、好みのレストランの種類、好みの価格帯等）に関する情報に基づいて、当該ユーザに関して絞り込まれる。

【００６１】

その後、トランザクションリードを、（例えば、地図表示上の選択可能な地点として）ユーザに提示することができる。工程４５０においては、単数又は複数の追加的なマルチモーダル機器対話が発生したか否か、又は、いつ発生したかを決定するために、引き続きユーザのマルチモーダル機器対話が監視される。追加的な対話が発生していない場合は、ユーザは当該トランザクションリードに従った行動を起こさなかったという決定がなされ、処理は終了する。追加的なマルチモーダル対話が起こったときには、工程４８０において、当該マルチモーダル入力を処理することにより入力の意図が決定され、単数又は複数のリクエストがその意図に応じて発出される。また、工程４６０は、マルチモーダル入力が工程４４０において生成されたトランザクションリードに関連するか否か決定することを含んでもよい。例えば、ユーザは、当該トランザクションリードに関連する追加の動作又は情報を要求する発話、非音声機器対話、又は音声クリック機器対話を提供することによって、広告又は推薦されたレストランの一つを選択することができる。この場合、工程４７０は、工程４４０において生成されたトランザクションリードに関連してトランザクションクリックスルーを処理することをさらに含むことができる。このトランザクションクリックスルーは、特定の主体への支払い額を決定し又はその他の方法で特定の主体（例えば、音声サービスのプロバイダー又はトランザクションリード又はトランザクションクリックスルーに関連する他の主体）の収入を生み出すために用いられる。

【００６２】

本発明の様々な実施形態は、ハードウエア、ファームウェア、ソフトウェア、またはこれらの適当な組み合わせによって実現される。本実施形態は、機械読み取り可能な媒体に記憶される命令によっても実装可能である。このような命令は、単数又は複数のプロセッ

Amazon/VB Assets
Exhibit 1003
Page 454

サによって読み出されて実行される。機械読み取り可能な媒体は、機械（例えば、コンピュータ装置）によって読み取り可能な形式の情報を保存し伝送する様々なメカニズムを含む。例えば、機械読み取り可能な記録媒体は、ＲＯＭ、ＲＡＭ、磁気ディスクストレージ媒体、光学ストレージ媒体、フラッシュメモリ装置等のストレージメディアを含む。また、機械読み取り可能な伝送媒体は、搬送波等の伝搬信号、赤外線信号、デジタル信号、又はこれら以外の伝送メディアを含む。さらに、ファームウェア、ソフトウェア、ルーチン、または命令は、上記開示において、所定の処理を実行する特定の例示的な態様及び実装形態及びの観点から説明されたが、そのような説明は便宜上のものに過ぎず、そのような処理は、実際には、コンピュータ装置、プロセッサ、制御装置、又はファームウェア、ソフトウェア、ルーチン、もしくは命令を実行するその他の装置によりなされるものであることは明らかである。

【００６３】

本明細書においては、自然言語音声サービス環境においてマルチモーダル機器対話を処理する技術を中心に説明しているが、本明細書において説明された特定の態様及び実装形態に関連して説明された自然言語処理機能に関しては、当該自然言語処理機能に加えて、又は自然言語処理機能に代えて、様々な追加的な自然言語処理機能を用いることができる。例えば、本明細書において説明されたシステム及び方法は、上述の係属中の米国特許出願において説明されている技術に加えて、2005年8月5日に出願された「System and Method for Responding to Natural Language Speech Utterance」と題する係属中の米国特許出願第11/197,504号、2005年8月10日に出願された「System and Method of Supporting Adaptive Misrecognition in Conversational Speech」と題する米国特許出願第11/200,164号、2005年8月29日に出願された「Mobile System and Method of Supporting Natural Language Human-Machine Interactions」と題する米国特許出願第11/212,693号、2006年10月16日に出願された「System and Method for a Cooperative Conversational Voice User Interface」と題する米国特許出願第11/580,926号、2007年2月6日に出願された「System and Method for Selecting and Presenting Advertisements Based on Natural Language Processing of Voice-Based Input」と題する米国特許出願第11/671,526、及び2007年12月11日に出願された「System and Method for Providing a Natural Language Voice User Interface in an Integrated Voice Navigation Services Environment」と題する米国特許出願第11/954,064号に記載された自然言語処理機能を用いることもできる。これらの特許出願の開示内容は、参照により全体として本明細書に組み込まれる。

【００６４】

したがって、本開示の様々な態様及び実装形態は、本明細書において特定の特性、構造、または特徴を含むように説明されるが、全ての態様や実装形態が必ずしも特定の特性、構造、または特徴を含むわけではない。さらに、特定の特性、構造、または特徴が所定の態様や実装形態に関連して説明される際には、明示的に説明されるか否かにかかわらず、そのような特性、構造または特徴は他の態様や実装形態に関連付けて含むことも可能である。このように、上記説明に対しては、本発明の範囲又は趣旨から逸脱することなく様々な変更や修正を行うことが可能である。このように、本明細書及び図面は例示に過ぎず、本発明念の範囲は、特許請求の範囲の記載によってのみ定められる。

Amazon/VB Assets
Exhibit 1003
Page 455

【図１】

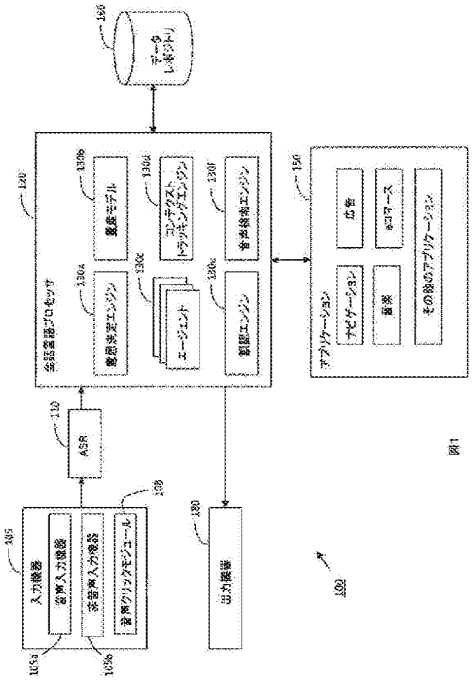


図1

【図２】

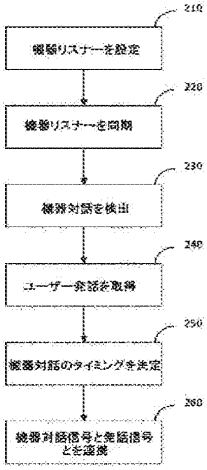


図2

【図３】

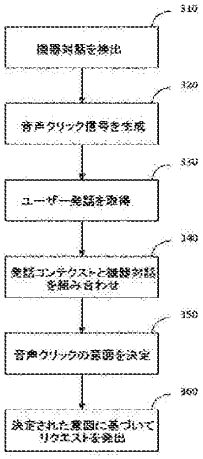


図3

【図４】

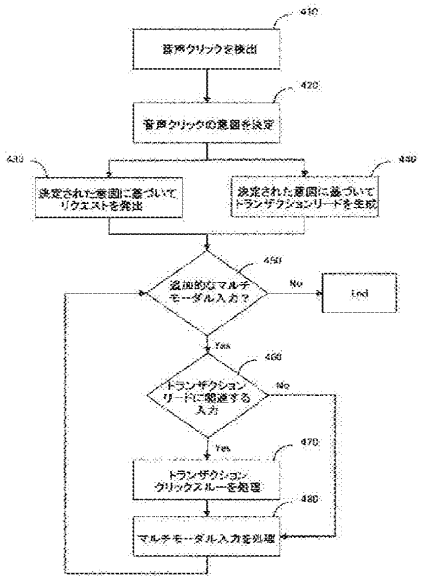


図4

【国際調査報告】

INTERNATIONAL SEARCH REPORT

International application No.
PCT/US 10/24895

A. CLASSIFICATION OF SUBJECT MATTER
IPC(8) - G10L 15/00 (2010.01)
USPC - 704/257
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: 704/257

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched
USPC: 704/270.1; 704/200; 704/9 (search term limited)

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)
Electronic Databases Searched: pubWEST(PGPB,USPT,USOC,EPAB,JPAB); googleScholar
Search Terms Used: natural language, multimodal, speech/voice identification/recognition, voice/keyboard/mouse click, context/intent, marketing/advertising

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X --- Y	US 2007/0050191 A1 (WEIDER et al.) 01 March 2007 (01.03.2007) Entire document, especially: para [0001], [0018], [0019], [0020], [0031], [0043], [0116], [0133], Fig. 7, 8	1-2, 7-11 and 16-18 --- 3-6 and 12-15
Y	US 2007/0043574 A1 (COFFMAN et al.) 22 February 2007 (22.02.2007) Entire document, especially: Abstract, para [0154], [0227]	3, 4, 12 and 13
Y	US 2008/0189110 A1 (FREEMAN et al.) 07 August 2008 (07.08.2008) Entire document, especially: para [0006], [0013], [0024], [0038] and Fig. 3	5, 6, 14 and 15
A	US 2006/0235927 A1 (CROSS) 25 September 2008 (25.09.2008)	1-18
A	US 2008/0091406 A1 (BALDWIN et al.) 17 April 2008 (14.04.2008)	1-18

☐ 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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"O" document referring to an oral disclosure, use, exhibition or other means
"P" document published prior to the international filing date but later than the priority date claimed
"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art
"&" document member of the same patent family

Date of the actual completion of the international search	Date of mailing of the international search report
29 March 2010 (29.03.2010)	13 APR 2010
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

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Ｆターム(参考) 5E501 AA02 AB03 BA05 CA03 CA04 CB05 CB09 CB15 CC14 EA07
EA21 FA45 FB04

Espacenet

Bibliographic data: JPH08263258 (A) — 1996-10-11

INPUT DEVICE, INPUT METHOD, INFORMATION PROCESSING SYSTEM AND MANAGEMENT METHOD FOR INPUT INFORMATION

Inventor(s): NANBA YASUHARU; TANO SHUNICHI; KOZUKA KIYOSHI ± (NANBA YASUHARU, ; TANO SHUNICHI, ; KOZUKA KIYOSHI)

Applicant(s): HITACHI LTD ± (HITACHI LTD)

Classification: - **international:** ***G06F17/27; G06F17/28; G06F3/048; G06F3/14; G06F3/16; G10L15/24;*** *G10L15/18;* (IPC1-7): G06F17/28; G06F3/14; G06F3/16; G10L3/00

- **cooperative:** **G06F17/271**; **G06F17/2755**; **G06F17/2785**; G10L15/18

Application number: JP19950064117 19950323 Global Dossier

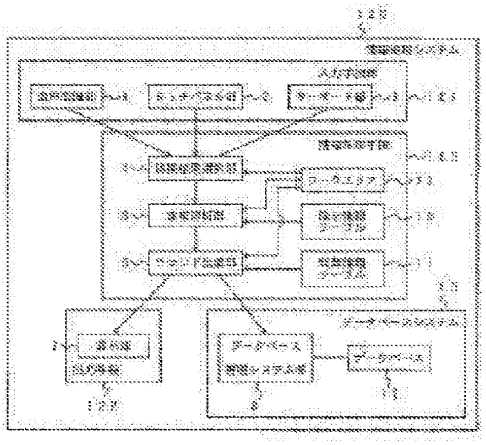
Priority number (s): JP19950064117 19950323

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Abstract of JPH08263258 (A)

PURPOSE: To input information which are mutually related to at arbitrary timing through plural input means without considering an input procedure. CONSTITUTION: The respective input means 1-3 accept input at all times, add input time to the recognized result and output them. A recognition result selection part 4 merges or divides the recognized result, estimates the input time on the recognized result which is newly generated by division and collects the results whose input time is close as semantic analysis units. A semantic analysis part 5 refers to an instruction information table 10, and converts the notified semantic analysis unit into an operation instruction content. A command generation part 6 refers to a control information table 11, converts the operation instruction content into a command and issues it to a display part 7 or a DBMS part 8.

Amazon/VB Assets
Exhibit 1003
Page 459



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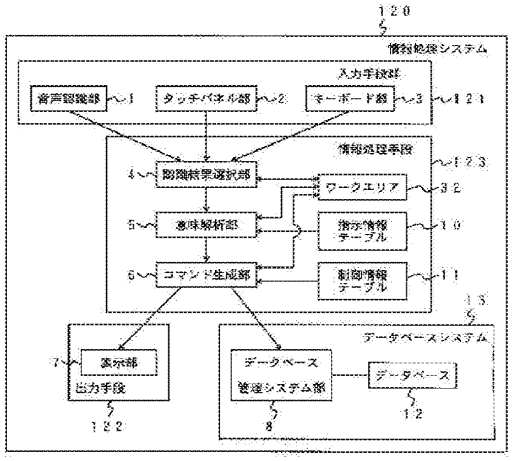
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(54)【発明の名称】　入力装置、入力方法、情報処理システムおよび入力情報の管理方法

(57)【要約】
【目的】入力手順を考慮することなく、相互に関連する情報を、複数の入力手段を介して任意のタイミングで入力する。
【構成】各入力手段１～３は、随時、入力を受け付け、その認識結果に入力時刻を付して出力する。認識結果選択部４は、認識結果を併合または分割し、分割により新たに生成した認識結果についてはその入力時刻を推定して、入力時刻の近いものを意味解析単位としてまとめる。意味解析部５は、指示情報テーブル１０を参照して、通知された意味解析単位を操作指示内容へ変換し、コマンド生成部６は、制御情報テーブル１１を参照して該操作指示内容をコマンドに変換し、表示部７またはＤＢＭＳ部８へ発行する。

機能ブロック図（図１）



Amazon/VB Assets
Exhibit 1003
Page 461

【特許請求の範囲】
【請求項１】外部からの情報の入力を受け付ける入力手段を複数備える入力装置において、
上記入力手段を介して受け付けられた入力情報の入力時刻を認識する手段と、
上記入力情報を、あらかじめ定められた解析最小単位になるように分割または併合して認識結果とする手段と、
上記認識結果の入力時刻を、入力手段に応じてあらかじめ定められた推定方法により推定する手段と、
上記複数の入力情報のうち、上記入力時刻の近いものをまとめて、意味解析単位として出力する手段とを有する認識結果選択部を、さらに備えることを特徴とする入力装置。
【請求項２】請求項１において、
上記複数の入力手段のうちの少なくとも一部は、入力情報とともに該入力情報の入力時刻を、上記認識結果選択部に通知する手段を備え、
上記入力時刻を認識する手段は、
上記入力手段から、入力情報とともに上記入力時刻が通知されれば、該時刻を該入力情報の入力時刻として認識し、
上記入力手段から、入力情報とともに入力時刻が通知されなければ、上記入力情報の通知を受け付けた時刻を入力時刻として認識することを特徴とする入力装置。
【請求項３】請求項１において、
上記入力時刻を認識する手段は、
上記入力情報の通知を受け付けた時刻を、該入力情報の入力時刻として認識することを特徴とする入力装置。
【請求項４】請求項１において、
上記推定方法は、
上記分割または併合のもととなった入力情報の入力時刻と、あらかじめ定められた推定入力速度とを基に、上記認識結果の入力時刻を推定する方法であることを特徴とする入力装置。
【請求項５】請求項１において、
上記複数の入力手段は、音声入力装置、タッチパネル、キーボード、マウス、視線認識装置、および図形認識装置のうちの、少なくともいずれかを含むことを特徴とする入力装置。
【請求項６】請求項１において、
上記入力情報のうちの少なくとも一つは、自然言語による情報であることを特徴とする入力装置。
【請求項７】請求項６において、
上記自然言語による入力情報の入力時刻の推定方法は、
上記自然言語の時間的属性に基づいて、入力時刻を推定する方法であることを特徴とする入力装置。
【請求項８】請求項７において、
上記自然言語の時間的属性は、該自然言語の入力操作に関する情報、文字列に関する情報、音声に関する情報、形態素に関する情報、構文に関する情報、前記制御手段に関する情報、および、前記制御対象機器に関する情報の内、少なくとも一つであることを特徴とする入力装置。
【請求項９】請求項６において、
上記自然言語による入力情報の解析最小単位は、
上記入力情報の段落、文、文節、単語、形態素、および、音素のいずれかに基づいて決定されることを特徴とする入力装置。
【請求項１０】請求項１において、
上記推定方法は、入力操作に関する情報、入力信号の強弱に関する情報、前記制御手段に関する情報、および、前記制御対象機器に関する情報の内、少なくとも一つ以上の情報から、入力時刻を推定する方法であることを特徴とする入力装置。
【請求項１１】複数の、外部からの情報の入力を受け付ける入力手段と、
上記入力手段を介して受け付けられた一以上の入力情報をまとめて意味解析単位とする認識結果選択部と、
上記意味解析単位に応じてあらかじめ定められた指示情報を出力する意味解析部と、
上記指示情報に応じてあらかじめ定められた処理を実行する処理実行手段とを備え、
上記認識結果選択部は、
上記入力手段を介して受け付けられた入力情報の入力時刻を認識する手段と、
上記入力情報を、あらかじめ定められた解析最小単位になるように分割または併合して認識結果とする手段と、
上記認識結果の入力時刻を、入力手段に応じてあらかじめ定められた推定方法により推定する手段と、
上記複数の入力情報のうち、上記入力時刻の近いものをまとめて、意味解析単位として上記意味解析部に通知する手段とを有することを特徴とする情報処理システム。
【請求項１２】請求項１１において、
上記意味解析単位と、該意味解析単位に対応する上記指示情報とをあらかじめ保持する指示情報テーブルを、さらに備え、
上記意味解析部は、
上記指示情報テーブルを参照して、上記通知された意味解析単位に対応する上記指示情報を検出し、該検出した指示情報を出力することを特徴とする情報処理システム。
【請求項１３】請求項１１において、
上記指示情報ごとに、対応する上記処理を示す情報を保持する制御情報テーブルとを、さらに備え、
上記処理実行手段は、
上記指示情報テーブルを参照して、上記指示情報に対応する上記処理を検出し、該検出した処理を実行することを特徴とする情報処理システム。
【請求項１４】請求項１１において、
上記複数の入力手段のうちの少なくとも一部は、入力情

Amazon/VB Assets
Exhibit 1003
Page 462

報とともに該入力情報の入力時刻を上記認識結果選択部に通知する手段を備え、
上記入力時刻を認識する手段は、
上記入力手段から、入力情報とともに入力時刻が通知されれば、該時刻を該入力情報の入力時刻として認識し、上記入力手段から、入力情報とともに入力時刻が通知されなければ、上記入力情報の通知を受け付けた時刻を入力時刻として認識することを特徴とする情報処理システム。
【請求項１５】請求項１１において、
上記入力時刻を認識する手段は、
上記入力情報の通知を受け付けた時刻を、該入力情報の入力時刻として認識することを特徴とする情報処理システム。
【請求項１６】請求項１１において、
上記推定方法は、
上記分割または併合のもととなった入力情報の入力時刻と、あらかじめ定められた推定入力速度とを基に、上記認識結果の入力時刻を推定する方法であることを特徴とする情報処理システム。
【請求項１７】請求項１１において、
上記複数の入力手段は、音声入力装置、タッチパネル、キーボード、マウス、視線認識装置、および図形認識装置のうちの、少なくともいずれかを含むことを特徴とする情報処理システム。
【請求項１８】請求項１１において、
コマンドに応じて作動する一以上の制御対象機器を、さらに備え、
上記処理実行手段の実行する処理は、
上記指示情報に応じてあらかじめ定められた上記コマンドを、上記制御対象機器に発行することを含むことを特徴とする情報処理システム。
【請求項１９】請求項１８において、
上記制御対象機器は、表示装置、データベースシステム、印書装置、ビデオテープレコーダ、音声合成装置、意思決定支援システム、エキスパートシステム、オペレーティングシステム、スケジュール管理システム、アドレス管理システム、ゲームシステム、およびナビゲーションシステムのうちの、少なくともいずれかを含むことを特徴とする情報処理システム。
【請求項２０】請求項１１において、
上記意味解析部は、上記意味解析単位に応じてあらかじめ定められた複数の指示情報の候補のうち、最も優先順位の高いものを指示情報として出力することを特徴とする情報処理システム。
【請求項２１】請求項１１において、
上記処理実行手段は、上記指示情報に応じてあらかじめ定められた複数の処理の候補のうち、最も優先順位の高いものを実行することを特徴とする情報処理システム。
【請求項２２】請求項１１において、
表示装置をさらに備え、
上記意味解析部は、
上記指示情報の候補を上記表示装置に表示し、上記入力手段を介して、該候補のうちのいずれかの選択を受け付けて、選択された上記候補を出力することを特徴とする情報処理システム。
【請求項２３】請求項１１において、
表示装置をさらに備え、
上記処理実行手段は、
上記処理の候補を、上記表示装置に表示し、上記入力手段を介して、該候補のうちのいずれかの選択を受け付けて、選択された上記候補を実行することを特徴とする情報処理システム。
【請求項２４】請求項１１において、
表示装置をさらに備え、
上記認識結果選択部は、上記意味解析単位を上記表示装置に表示することを特徴とする情報処理システム。
【請求項２５】請求項１１において、
表示装置をさらに備え、
上記意味解析部は、上記指示情報を上記表示装置に表示することを特徴とする情報処理システム。
【請求項２６】請求項１１において、
表示装置をさらに備え、
上記処理実行手段は、上記実行する処理の内容を示す情報を、上記表示装置に表示することを特徴とする情報処理システム。
【請求項２７】請求項１１において、
上記入力情報のうちの少なくとも一つは、自然言語による情報であることを特徴とする情報処理システム。
【請求項２８】請求項２７において、
上記自然言語による入力情報の入力時刻の推定方法は、上記自然言語の時間的属性に基づいて、入力時刻を推定する方法であることを特徴とする情報処理システム。
【請求項２９】請求項２８において、
上記自然言語の時間的属性は、該自然言語の入力操作に関する情報、文字列に関する情報、音声に関する情報、形態素に関する情報、構文に関する情報、前記制御手段に関する情報、および、前記制御対象機器に関する情報の内、少なくとも一つであることを特徴とする情報処理システム。
【請求項３０】請求項２７において、
上記自然言語による入力情報の解析最小単位は、
上記入力情報の段落、文、文節、単語、形態素、および、音素のいずれかに基づいて決定されることを特徴とする情報処理システム。
【請求項３１】請求項１１において、
上記推定方法は、入力操作に関する情報、入力信号の強弱に関する情報、前記制御手段に関する情報、および、前記制御対象機器に関する情報の内、少なくとも一つ以上の情報から、入力時刻を推定する方法であることを特

Amazon/VB Assets
Exhibit 1003
Page 463

徴とする情報処理システム。
【請求項３２】複数の入力手段を介して受け付けた複数の入力情報の管理方法において、
上記入力情報の入力時刻を認識するステップと、
上記入力情報を、あらかじめ定められた解析最小単位になるように分割または併合して認識結果とするステップと、
上記認識結果の入力時刻を、入力手段に応じてあらかじめ定められた推定方法により推定するステップと、
上記複数の入力情報のうち、上記入力時刻の近いものをまとめて、意味解析単位として管理するステップとを有することを特徴とする入力情報の管理方法。
【請求項３３】入力情報に該入力情報の入力時刻を付し、
複数の上記入力情報のうち、該入力情報の上記入力時刻が近いものをまとめることにより、入力内容を特定することを特徴とする入力方法。
【請求項３４】請求項１において、
上記入力時刻は、入力開始時刻および入力終了時刻のいずれかであることを特徴とする入力装置。
【請求項３５】請求項１１において、
上記入力時刻は、入力開始時刻および入力終了時刻のいずれかであることを特徴とする情報処理システム。
【発明の詳細な説明】
【０００１】
【産業上の利用分野】本発明は、情報処理装置における、複数の入力手段を同時に使用した入力の管理方法、およびそれを用いた入力信号解析装置に関する。
【０００２】
【従来の技術】従来より、システムの操作を行なう場合には、周知のグラフィカルユーザインタフェース（ＧＵＩ）技術に加え、自然言語インタフェースや音声入力インタフェース技術が知られている。例えば、自然言語インタフェースに関する技術には、谷らによる「自然言語インタフェース構築キット：ＩＦ－Ｋｉｔ」（電子情報通信学会技術報告，ＮＬＣ－９１－６２，Ｖｏｌ．９１，Ｎｏ．５３４，ｐｐ．２５－３２（１９９２））において、「入力された日本語文の解析結果である概念依存構造から検索言語ＳＱＬを生成する。」と記されている。また、音声入力インタフェースに関する技術には、山本らによる「メニューに基づく音声自然言語入力システム」（第４７回情報処理学会全国大会講演論文集，３－１６７）において、「メニューには自立語だけを表示し、ユーザはこの自立語を自由に活用させ、さらに任意の付属語系列を接続した文節単位での入力を音声で行う」と記されている。
【０００３】
【発明が解決しようとする課題】従来技術では、あるシステムを操作するために、単一の入力系統から操作指示命令が入力されている。例えば、従来の自然言語インタフェースでは、「Ａ地区のホテルの電話番号を教えて下さい。」と入力すると、対応するデータベースシステムの命令が生成されるが、この際、入力の解析は、キーボードなどの単一のインタフェースからの入力信号について行われる。すなわち、従来の自然言語インタフェースはＧＵＩとシステム上共存しているが、両インタフェースからの入力信号を同一機会に受け付け、両方の入力信号を考慮して解析しているわけではない。また、従来の音声入力インタフェースにおいても、メニュー選択というＧＵＩと、音声入力インタフェースとを切り換えて、いずれかからの入力のみを受け付け、解析するのであって、両インタフェースからの入力信号を同一機会に受け付け、その両方を考慮して解析してはいない。
【０００４】そこで、本発明は、複数の入力手段から入力された信号である入力情報をまとめて、入力内容を特定する入力方法および入力情報管理方法と、それらの方法を用いた入力装置と、該入力装置を備える情報処理システムとを提供することを目的とする。
【０００５】
【課題を解決するための手段】上記目的を達成するため、本発明では、入力情報に該入力情報の入力時刻を付し、複数の上記入力情報のうち、該入力情報の上記入力時刻が近いものをまとめることにより、入力内容を特定する入力方法が提供される。
【０００６】さらに、本発明では、複数の入力手段を介して受け付けた複数の入力情報の管理方法であって、入力情報の入力時刻を認識するステップと、該入力情報を、あらかじめ定められた解析最小単位になるように分割または併合して認識結果とするステップと、認識結果の入力時刻を、入力手段に応じてあらかじめ定められた推定方法により推定するステップと、複数の入力情報のうち、その入力情報の入力時刻が近いものをまとめて、意味解析単位として管理するステップとを有する入力情報の管理方法が提供される。
【０００７】なお、入力手段のうちの少なくとも一部が、入力情報とともに該入力情報の入力時刻を上記認識結果選択部に通知する手段を備える場合は、入力時刻を認識する手段は、入力時刻が通知されれば、その通知されたものを入力時刻を認識し、通知されなければ、入力情報の通知を受け付けた時刻を入力時刻として認識するようにしてもよい。また、入力手段に入力時刻を通知する手段がなければ、入力時刻を認識する手段は、入力情報の通知を受け付けた時刻を、該入力情報の入力時刻として認識することが望ましい。
【０００８】また、上記入力時刻の推定は、例えば、分割または併合のもととなった入力情報の入力時刻と、あらかじめ定められた推定入力速度とを基にして行うことができる。あるいは、該推定方法として、入力操作に関する情報、入力信号の強弱に関する情報、前記制御手段に関する情報、および、前記制御対象機器に関する情報

Amazon/VB Assets
Exhibit 1003
Page 464

の内、少なくとも一つ以上の情報から、入力時刻を推定する方法を用いてもよい。

【０００９】上記複数の入力手段としては、例えば、音声入力装置、タッチパネル、キーボード、マウス、視線認識装置、および図形認識装置などを用いることができる。また、自然言語による入力を受け付けるようにしてもよい。自然言語による入力情報については、自然言語の時間的属性に基づいて、入力時刻を推定することができる。ここで、自然言語の時間的属性には、該自然言語の入力操作に関する情報、文字列に関する情報、音声に関する情報、形態素に関する情報、構文に関する情報、前記制御手段に関する情報、または、前記制御対象機器に関する情報などがある。また、自然言語による入力情報の解析最小単位は、入力情報の段落、文、文節、単語、形態素、および、音素のいずれかに基づいて決定することができる。

【００１０】さらに、本発明では、これらの方法を用いた入力装置および情報処理システムが提供される。

【００１１】

【作用】本発明では、記憶装置内に格納された認識結果から適切な組合せの認識結果を取り出すべく、入力を行なった時点の時間情報を付与して認識結果を格納しておき、認識結果を取り出す際に、認識結果を入力した入力装置に関する情報だけでなく、各認識結果の時間情報をも考慮して（例えば、入力時刻の近いものを一纏めにして）取り出す。これにより、入力時刻や入力装置とは必ずしも束縛されない指示情報の認識結果を単位として、意味解析の前に一時的に記憶装置に蓄えられる。従って、この記憶装置から認識結果を選択的に纏め直してから意味解析を行なうことが可能である。複数の入力装置からの非同期的に操作指示をユーザが入力しても、それらの複数の操作指示の相互作用的な機能や相補的な機能を意味解析することが可能である。

【００１２】本発明による入力装置を利用するユーザは、複数のインタフェースを具備する入力装置または情報処理システムに対して、それらのインタフェースをユーザの自由意思で、時間的な排他的選択性を意識せずに、非同期に（いわば思い付いたままに）操作指示を与えることが可能になる。特に、日常的に使用している自然言語（英語、日本語など）や、マウスやアイコンを利用したＧＵＩを同時に用いて入力を行う場合、それらを組み合わせつつ、自然なタイミングで入力を行うことができ、例えばそれが操作指示であれば、形式言語（計算機向けに決められた特別な形式のコマンド）に不慣れなユーザであっても自由に制御対象機器を動作させることができる。

【００１３】以上のように、本発明によれば、ユーザが複数のインタフェースを同時に（あるいは別個に）利用したとしても、そこから入力された操作指示の内容を組み合わせて解析し、その入力された内容を特定することができるという顕著な効果を得ることができる。

【００１４】

【実施例】以下、本実施例を図面を用いて詳細に説明する。本実施例は、本発明を、音声認識装置とタッチパネルとキーボードとディスプレイとデータベースシステムとを備える情報処理システムにおける、出力やデータベースの検索／更新などの操作指示の入力に適用した場合のものである。本実施例においては、ディスプレイやデータベースシステムを制御対象機器と呼ぶ。

【００１５】本実施例を適用しない場合は、データベースシステムから何らかのデータを取り出す手段として、音声入力、タッチパネル入力、および、キーボード入力などの入力手段を介して入力された入力信号は、それぞれ別個に扱われ、受け付けられる情報の種類に応じて、いずれの入力手段を介してその入力を受け付けるかがあらかじめ定められている。従って、ユーザは、データや命令を入力するために、入力を行う入力手段を、所定の手順で順次切り替えなければならない。また、自動的に入力手段を切り替えるようにプログラムされたシステムの場合、ユーザは、自動的に行われる入力手段の切り替えに応じて、意図的に入力方法（音声や手の動作など）を変更しなければならない。

【００１６】本実施例において、ユーザからの操作指示とは、音声による自然言語文によって表される指示や、タッチパネル上のあらかじめ定められた領域に対する接触によって表わされる指示のことである。例えば、「これを詳細に」と音声で発声しながら、タッチパネル上のある位置（例えば、Ｘ座標が１２で、Ｙ座標が２３の位置）に指で接触するといった入力などが、この操作指示に含まれる。

【００１７】Ａ．情報処理システムの構成

（１）ハードウエア構成

図２に、本実施例の情報処理システム１２０のハードウェア構成を示す。本実施例の情報処理システム１２０は、プロセッサ１４と、それに接続する主記憶装置９、音声認識装置１６、タッチパネル１７、キーボード１８、ディスプレイ１９およびデータベースシステム１３と、音声認識装置１６に接続された音声入力装置１５とを備える。本発明の、主記憶装置９およびプロセッサ１４のハードウェアは、主記憶装置９に保持されたインストラクションを実行できる情報処理装置であれば、大型の計算機に限らず、ワークステーション、パーソナルコンピュータ、パーソナルデジタルアシスタント（ＰＤＡ）と呼ばれるものであっても良い。

【００１８】各装置９，１３～１９間の接続は、信号線により実現される。信号線は有線であると無線であるとを問わないが、本実施例では、各装置は、通信用モデムおよび通信回線を介して接続されている。通信用モデムや通信回線、あるいはそれらを使用する上で必要な通信規約（プロトコル）については、周知の技術を用いれば

Amazon/VB Assets
Exhibit 1003
Page 465

良いので、本明細書においては詳細な説明を省く。

【００１９】データベースシステム１３は、情報処理装置であり、独自に主記憶装置１３２と中央演算処理装置（ＣＰＵ）１３１と外部記憶装置１３３とを備える。外部記憶装置１３３にはデータベースが保持されており、主記憶装置１３２にあらかじめ保持されたインストラクションをＣＰＵ１３１が実行することにより、外部記憶装置１３３に保持されたデータベースを管理するデータベース管理システムが実現される。なお、データベースシステム１３の外部記憶装置１３３にデータベースを保持する代わりに、プロセッサ１４と直接接続した外部記憶装置を設け、ここにデータベースを保持してもよい。さらに、データベース管理システムの全部または一部に代えて、主記憶装置９に保持されたデータベース管理用のプログラムをプロセッサ１４が実行するようにしてもよい。

【００２０】また、音声入力装置１５と音声認識装置１６とが組み合わされて一装置となっていても構わない。音声入力装置１５として、本実施例ではマイクロホンを用いているが、電話端末の受話器など、他の装置を用いてもよい。さらに、音声認識装置１６の全部または一部に代えて、主記憶装置９に保持された音声認識用のプログラムをプロセッサ１４が実行するようにしてもよい。

【００２１】本実施例では、入力機器として、音声入力装置１５、タッチパネル１７、キーボード１８を用いているが、文字認識装置、マウス、自然言語フロントエンドプロセッサなど、他の入力機器を用いても良い。

【００２２】また、本実施例における制御対象機器は、ディスプレイ１９およびデータベースシステム１３であるが、この他に、ＶＴＲ（ビデオテープレコーダ）、音声合成装置、意志決定支援システム、エキスパートシステム、オペレーティングシステム、スケジュール管理システム、アドレス管理システム、ゲームシステム、ナビゲーションシステムなどを接続して、制御対象としても良い。

【００２３】主記憶装置９は、記憶装置であり、操作指示の解析に係るインストラクション群である処理プログラムの記憶領域３１と、処理プログラムの実行に際して使用される一時的記憶領域であるワークエリア３２と、指示情報テーブル１０と、制御情報テーブル１１とを備える。

【００２４】プロセッサ１４は、主記憶装置９の処理プログラム記憶領域３１に保持されたインストラクションを解釈、実行する演算処理装置である。なお、本実施例のプロセッサ１４は、タイムシェアリングにより複数のタスクを並行して実行することができる。

【００２５】（２）機能構成

図１に、本実施例における情報処理システム１２０の機能ブロック図を示す。本実施例の情報処理システム１２０は、図１に示すように、入力手段群１２１と、出力手段１２２と、情報処理手段１２３と、データベースシステム１３とを備える。情報処理手段１２３は、認識結果選択部４と、意味解析部５と、コマンド生成部６と、指示情報テーブル１０と、制御情報テーブル１１と、ワークエリア３２と、アプリケーションソフトウエア実行手段（図示せず）とを備える。

【００２６】ａ．入力手段

入力手段群１２１は、入力を受け付けて、その結果と入力を受け付けた時刻（以下、タイムスタンプと呼ぶ）とを認識結果選択部４に出力する、複数の入力手段からなり、音声認識部１と、タッチパネル部２と、キーボード部３とを備える。

【００２７】音声認識部１は、音声入力装置１５と音声認識装置１６とにより実現される。音声入力装置１５は、マイクロホンを介して音声の入力を受け付けて音声認識装置１６に通知し、音声認識装置１６は、通知された音声の信号を記号列に変換し、その結果と、その入力のタイムスタンプとを認識結果選択部４に出力する。

【００２８】タッチパネル部２は、タッチパネル１７と、該タッチパネル１７への接触の始点、終点、軌跡情報を抽出し、その結果と、その入力のタイムスタンプとを認識結果選択部４に出力する接触信号処理部（図示せず）とにより実現される。接触信号処理部は、処理プログラム記憶領域３１に保持されたインストラクションをプロセッサ１４が実行することにより実現される。

【００２９】キーボード部３は、キーボード１８と、該キーボード１８のキーが押下されたことを検出し、その結果と、その入力のタイムスタンプとを認識結果選択部４に出力する押下信号処理部（図示せず）とにより実現される。押下信号処理部は、処理プログラム記憶領域３１に保持されたインストラクションをプロセッサ１４が実行することにより実現される。

【００３０】なお、入力を検出した時刻を正確に認識する機能のない入力手段を使用する場合、各認識結果を出力する時刻や、認識結果選択部４が該認識結果を受け取った時刻で、このタイムスタンプを代用するようにすることもできる。また、認識結果毎のタイムスタンプが得られない場合、ある認識結果の集合を一纏まりとして一つの時刻で代表するようにしてもよい。これらのような場合、認識結果選択部４でタイムスタンプを補正することが望ましい。この補正の方法については後述する。

【００３１】入力手段は、入力を受け付け、その内容を出力する手段を備えていれば、本実施例に用いることができる。すなわち、音声認識装置、タッチパネル、キーボードは、市販の製品をそのまま、あるいは、それらを多少改良した装置を使用して差し支えない。従って、ここでは、これらの入力および認識装置それ自体の詳細なメカニズムの説明は省略する。本発明は、各入力および認識装置は、これらを並列的・同時的に利用する場合の方が、より効果的であるけれども、排他的・選択的に利

Amazon/VB Assets
Exhibit 1003
Page 466

用しても差し支えない。

【００３２】ｂ．制御対象

本実施例では、入力手段群１２１を介して受け付けられた操作指示に応じて、情報処理手段１２３のコマンド生成部６が指示（コマンド）を発行し、制御対象機器であるディスプレイ１９および／またはデータベースシステム１３を操作する。

【００３３】出力手段１２２は、コマンド生成部６からの表示命令によってディスプレイ上に表示を行なう表示部７を備える。表示部７は、ディスプレイ１９と、該ディスプレイ１９に、コマンド生成部６から表示を指示された情報を出力する画像表示部（図示せず）とにより実現される。画像表示部は、処理プログラム記憶領域３１に保持されたインストラクションをプロセッサ１４が実行することにより実現される。なお、画像表示部が表示命令に従ってディスプレイ１９に表示を行なう処理は周知の技術を用いることで足りるため、ここでは説明しない。また、出力手段１２２に、プリンタなど、他の手段を備えてもよい。

【００３４】データベースシステム１３は、データベース管理システム部８と、データベース１２とを備える。上述のように、データベース１２はデータベースシステム１３の外部記憶装置１３３に備えられた記憶領域である。また、データベース管理システム８は、データベースシステム１３の主記憶装置１３２にあらかじめ保持されたインストラクションをＣＰＵ１３１が実行することにより実現される。データベース管理システム１３は、コマンド生成部６からの指示に応じて、データベース１２に保持されたデータを更新／検索する。なお、データベース１２のデータ構造、および、データベース管理システム１３の処理は、いずれも周知の技術を用いることで足りるため、ここでは説明しない。

【００３５】ｃ．情報処理手段１２３

情報処理手段１２３の認識結果選択部４と意味解析部５とコマンド生成部６とアプリケーションソフトウエア実行手段（図示せず）とは、処理プログラム記憶領域３１に保持されたインストラクションをプロセッサ１４が実行することにより実現される。

【００３６】本実施例では、認識結果選択部４、意味解析部５、コマンド生成部６、およびアプリケーションソフトウエア実行手段が、それぞれ、タイムシェアリング可能なプロセッサ１４によるインストラクションの実行により実現される。そこで、各部４～６およびアプリケーションソフトウエア実行手段を、それぞれ独立したプログラムにより実現してもよく、また、マルチプロセス（マルチタスキング）の手法を用いて、情報処理手段１２３全体を一つのプログラムの実行により実現し、各部４～６を、そのプログラムに含まれるプロセスとして実現してもよい。

【００３７】また、本実施例では、同一のプロセッサ１４により各部４～６のインストラクションが実行されるが、計算機を複数備える分散システムとし、各部４～６をそれぞれ異なる計算機により実現してもよい。この場合、計算機間の接続は、記憶媒体を介して機能的に接続したものであってもよい。

【００３８】指示情報テーブル１０、制御情報テーブル１１、およびワークエリア３２は、主記憶装置９に備えられた記憶領域である。ワークエリア３２、指示情報テーブル１０や制御情報テーブル１１は記憶・読み出しできれば、同一の記憶装置に備えられていなくてもよく、複数の記憶装置を設け、これらの記憶領域を分散してもよい。

【００３９】認識結果選択部４は、入力手段群１２１から通知された認識結果とタイムスタンプとのペア（以下、認識情報と呼ぶ）を管理し、それらの情報やユーザからの選択に基づいて、該ペアを幾つかの組（以下では、この組のことを意味解析単位とも呼ぶ）に纏め、この組毎に意味解析部５に通知する。各組は、単数または複数の認識情報（認識結果とタイムスタンプとのペア）で構成されている。

【００４０】もし、装置を安価にしたり、あるいは、高速に処理したりする等の目的のために、認識結果選択部４を有しない構成によって本発明を実施することも考えられる。複数の認識情報をまとめずに、各認識情報をそれぞれ意味解析単位とみなすようにすれば、認識結果選択部４を省略することができるからである。とはいえ、並列的・同時的な認識結果を取り扱い、自然言語の処理等の複雑な解析操作を行うシステムにおいては、認識結果選択部４を備えることが望ましい。あらかじめ認識情報をまとめておくことで、意味解析部５の処理の負担を軽減できるからである。

【００４１】意味解析部５は、認識結果選択部４から通知された意味解析単位を受け付け、指示情報テーブル１０に保持された情報に基づいてその意味を解析し、その結果、制御に係る指示情報である意味解析結果をコマンド生成部６に出力する。

【００４２】コマンド生成部６は、意味解析部５から通知された意味解析結果を受け付け、制御情報テーブル１１に保持された情報に基づいて、制御対象機器７，１３を制御する信号を生成し、該制御信号を、表示部７またはデータベース管理システム部８に出力する。なお、以下では、説明を分かり易くするために、コマンド生成部６の出力する制御信号が、文字コードセットからなるシーケンス（以下ではコマンド文字列とも呼ぶ）である場合について説明するが、そうでない制御信号であっても同様である。例えば、その制御信号が文字列と１対１対応（または、１対多対応）で変換可能な制御システムであるならば、コマンド生成部６と制御対象機器との間に信号変換処理を組み込めば良い。

【００４３】指示情報テーブル１０は、意味解析単位と

Amazon/VB Assets
Exhibit 1003
Page 467

それに対応する操作指示内容との対応テーブルである。制御情報テーブル１１は、操作指示内容とコマンド文字列との対応テーブルである。これらのテーブルの具体例は後述する。いずれのテーブルも、高機能な意味解析やコマンド生成を行なう場合は、単純な一段の変換ではなく、多段階に変換する必要もでてくる場合がある。その場合、各段階ごとにテーブルを用意しておいても構わない。単純な操作指示あるいは制限された操作状況における操作指示として解析する場合は、本実施例のように、一段階だけでよい。

【００４４】上記複数の認識結果から計算機内部の操作対象モデルへ同定したり、認識結果からは明示的には得られない情報を補填したりするといった高度な意味解析に相当する機能も、この指示情報テーブル１０を多段階に利用することと本質的に同等である。例えば、機能連鎖構造のような意味ネットワークを用いて意味ネットワーク上を波及探索し意味表現を得るアルゴリズムである場合、波及元のノードとそれに接続するリンクの属性や条件を意味解析単位と捉えて記述し、また、波及先のノードを操作指示内容と捉えて記述し、適宜情報を伝播できるように後述の変数記述や関数記述を用いて指示情報テーブル１０記述し、波及先のノードを改めて波及元のノードとして捉えて、該指示情報テーブル１０を再度利用することで波及探索のアルゴリズムは実現できる。

【００４５】アプリケーションソフトウェア実行手段は、データの加工を行い、結果を表示部７に出力するためのアプリケーションソフトウェア（例えば、グラフ表示ソフトウエア、表計算ソフトウエア、ワードプロセッサ、スプレッドシートなどと呼ばれている種のソフトウエア）を実行する手段である。なお、アプリケーションソフトウエア実行手段は、表示部７に備えられていてもよい。また、グラフ表示等が不要であれば、アプリケーションソフトウエア実行手段は、なくても構わない。

【００４６】Ｂ．データ構造

（１）指示情報テーブル１０

図３に、本実施例における指示情報テーブル１０の具体例を模式的に示す。指示情報テーブル１０は、意味解析単位ごとに、意味解析単位を示す情報があらかじめ保持されている記憶領域２０と、操作指示内容を示す情報が保持されている記憶領域２１とを備えるテーブルである。具体的には、意味解析単位記憶領域２０には、認識結果とタイムスタンプのペアである認識情報のまとまり（意味解析単位）があらかじめ保持されている。また、操作指示内容記憶領域２１には、該認識情報に対応する操作指示機能、操作指示条件、および操作指示対象など、コマンド生成部６で意味解析単位に対応したコマンドを作成する際に必要となる項目とその値（または、値を導くための方法（関数など））が保持されている。操作指示内容２１における各項目とその値は、一部がなくてもよいし、複数あってもよい。

【００４７】なお、指示情報テーブル１０を複数回利用することで、意味解析単位から徐々に操作指示内容へ変換するようなアルゴリズムの場合、意味解析単位記憶領域２０および操作指示内容記憶領域２１には、認識結果やタイムスタンプや操作指示機能などが混在して保持されていても構わない。というのは、指示情報テーブル１０の目的は、意味解析部５において、意味解析単位から操作指示内容に変換するための情報を提供することにあるからであり、その変換の途中でどのようなデータ形式をとるか、あるいは、どのような情報や印（マーカ）を一時的に付与（あるいは伝播）しておくかに応じて、図３で示したもの以外にもいろいろなバリエーションが考えられよう。とはいえ、説明を簡略にする都合上、本実施例では、図３に示すように、指示情報テーブル１０は、意味解析単位記憶領域２０に保持された意味解析単位と、これに対応する操作指示内容（同じ行の操作指示内容記憶領域２１に保持されている）とで構成されているものとして説明する。

【００４８】図３に示した指示情報テーブル１０は、第１行目の意味解析単位記憶領域２０に、音声認識結果「これを詳細に」とそのタイムスタンプ「１４時２５分３３秒」のペア（認識情報）、および、タッチパネル認識結果「（１２（Ｘ座標），２３（Ｙ座標））」とそのタイムスタンプ「１４時２５分３１秒」のペア（認識情報）という２つの認識情報からなる意味解析単位を保持しており、同じ行の操作指示内容記憶領域２１には、これらの認識情報に対応して、操作指示機能「表示」と操作条件「詳細」と操作対象「WORK_TABLE_2」（「WORK_TABLE_2」は識別子名）とからなる操作指示内容が格納されている。これらの対応関係は、予め用意しておくことが望ましい。

【００４９】また、記憶される意味解析単位には、具体的な値（（１２，２３）など）を記述してもよいし、これらの値を自由変数あるいは定義域を持つ変数として記述したり、これらの変数を用いて意味解析単位２０内の他のペアの値に対して相対的な制限を付加すべく、式（例えば、「Ｔ＜Ｓ＋４」）を追加的に記述したり、あるいは、該変数を用いて操作指示内容２１側に記述すべき値（例えば、「WORK_TABLE_2」）を関数として記述しても良い。

【００５０】例えば、意味解析単位２０における「１２（Ｘ座標）」の代わりに変数Ｘを、「２３（Ｙ座標）」の代わりに変数Ｙを記述し、操作指示内容２１における操作対象「WORK_TABLE_2」のかわりに関数table_ID(Ｘ,Ｙ)（この関数は、変数Ｘと変数Ｙを引数とし、返り値として（例えば、座標（Ｘ，Ｙ）にある）テーブルの識別子名を返す関数とする）を記述してもよい。このような場合、指示情報テーブル１０を参照する処理は、指示情報テーブル１０の各項目への単純な文字列照合以外に、変数や関数をインタプリトする必要があるけれど

Amazon/VB Assets
Exhibit 1003
Page 468

も、その代わり記述すべき指示情報テーブル１０を量を大幅に減らすことができる場合がある。この参照時に、数字や変数や関数などのトークンを区別あるいは照合（例えば、数値「１２」と変数Ｘとをマッチングするなど）し、対応する措置（例えば、変数Ｘに数値「１２」を割り当てるなど）を講じる技術や、関数記述から実際の処理プログラムを適用し、その結果の値を返す技術などは、インタプリタやコンパイラなど周知の技術の全部または一部を利用することが可能であり、ここでは説明しない。

【００５１】これらの変数や式や関数を駆使した具体的な例を、図３の第２レコード（第２行目に保持されたレコード）に示す。音声認識結果「これを」とそのタイムスタンプ「変数Ｓ」のペア、音声認識結果「詳細に」とそのタイムスタンプ「変数Ｔ（但し、Ｔ＜Ｓ＋４）」、および、タッチパネル認識結果「（変数Ｘ，変数Ｙ）」とそのタイムスタンプ「変数Ｕ（但し、｜Ｕ－Ｓ｜＜２）」のペアという３つの認識情報からなる意味解析単位が２行目の意味解析単位記憶領域２０保持されており、これに対応して、２行目の操作指示内容記憶領域２１には、操作指示機能「表示」と操作条件「詳細」と操作対象「table_ID(Ｘ,Ｙ)」とからなる操作指示内容が予め格納されている。このように変数や制限式、関数を使うことで、予め決定しておくことが困難な値あるいは比較的に厳密なマッチングを必要としない値（例えば、入力時刻の「１４時２５分３３秒」）であっても、指示情報テーブル１０に所定の意味解析単位と操作指示内容を記述しておくことができる。以下では、「マッチング」を、「一致」とも表現することがある。

【００５２】なお、ここでは、変数や関数などの記述の前に符号（例えば、図３では「＠」）を付与しておき、明示的に他の記述と区別することで、記述上あるいは処理上の便宜を図るが、このような符号の付加は不可欠ではない。

【００５３】（２）制御情報テーブル１１

図４に、本実施例における制御情報テーブル１１の具体例を模式的に示す。制御情報テーブル１１は、操作指示内容ごとに、操作指示内容の記憶領域２２とコマンド文字列の記憶領域２３とを備えるテーブルである。

【００５４】制御情報テーブル１１の目的は、コマンド生成部６において操作指示内容からコマンド文字列を変換するために必要となる情報を提供することにあるので、その変換の途中でどのようなデータ形式をとるか、あるいは、どのような情報や印（マーカ）を一時的に付与（あるいは伝播）しておくかなどによって、いろいろなバリエーションが考えられよう。とはいえ、説明を簡略にする都合上、本実施例では図４に示すように制御情報テーブル１１は、操作指示内容記憶領域２２とコマンド文字列記憶領域２３とで構成されているものとして説明する。

【００５５】図３に図示された第１レコード（第１行目に保持されたレコード）の具体例を説明すると、第１レコードの操作指示内容（操作指示内容記憶領域２２に保持された情報）は、操作指示機能「表示」と操作条件「詳細」と操作対象「＠Ａ」という記述からなる。これに対応して、１行目のコマンド文字列記憶領域２３には、「Display -detail ＠Ａ」というコマンド文字列が保持されている。

【００５６】制御情報テーブル１１における各項目の記述も、指示情報テーブル１０と同様に変数や関数を含んだ記述を用いても構わない。この場合、コマンド文字列２３のことを、特に「コマンドテンプレート」と呼ぶ。

【００５７】意味解析部５とコマンド生成部６の処理方式が、それぞれ指示情報テーブル１０および制御情報テーブル１１を参照することによる単純な変換処理である場合には、指示情報テーブル１０の操作指示内容記憶領域２１に保持された情報と、制御情報テーブル１１の操作指示内容記憶領域２２に保持された情報とを同一のものとみなして、（同一項目がある場合にはその組合せに注意して）一つのテーブルにしても良い。しかし、通常、指示情報テーブル１０では、異なる意味解析単位が同一の操作指示内容に対応する場合が多いので、記憶資源の消費という観点からは必ずしも有効ではない。

【００５８】また、説明の都合上、操作指示内容および操作指示内容の記述は可読な文字列を用いているが、本実施例の主たる目的では計算機内部で処理することができれば良いので、実装上は、「Ａ００１」のような単なる識別記号であったり、記憶資源上の所在を示すポインタであったりしても良い。

【００５９】Ｃ．処理内容

（１）認識結果選択部４の処理

本実施例の解析システム１２０において、入力手段群が入力を受け付け、受け付けた入力情報とタイムスタンプとを、情報処理手段１２３の認識結果選択部４に通知すると、通知を受け付けた認識結果選択部４が起動される。図５に、本実施例における認識結果選択部４の処理の概要を示す。

【００６０】（１－１）ステップ４１

認識情報の通知を受け付けた認識結果選択部４は、最初に、各入力手段から出力された認識結果（入力情報）とタイムスタンプとをペアにして、ワークエリア３２に格納する（ステップ４１）。なお、もし、各入力手段１～３が認識結果を出力する際に、合わせてタイムスタンプをも通知する機能を備えていない場合には、認識結果選択部４が、入力手段からの通知を受理した時刻をタイムスタンプとして通知された認識結果に付与し、認識情報のペアを作成しても構わない。

【００６１】複数の入力手段からの通知は、非同期に行われる。従って、本ステップ４１は、他の処理を実行中にも随時入力を受け付けることができることが望まし

Amazon/VB Assets
Exhibit 1003
Page 469

い。そこで、本実施例では、各入力手段から認識情報が通知されると、認識結果選択部４に割込み処理が発生する。この割込み処理において、認識結果選択部４は、主記憶装置９にあらかじめ確保された記憶領域であるバッファ領域（図示せず）に、受け付けた認識情報を蓄える。本ステップ４１の実行において、認識結果選択部４は、このバッファ領域蓄えられた未処理の認識情報を一つ取り出して処理対象とする。このようにすることで、本実施例では、複数の入力手段からの通知を随時受け付け、順次処理することができる。

【００６２】（１－２）ステップ４２

次に、認識結果選択部４は、ワークエリア３２に保持された認識情報（認識結果とタイムスタンプとのペア）の内、認識結果を所定の方法で分割または併合し、元の認識結果をワークエリア３２から除き、必要があれば分割により生成した新たな認識結果のタイムスタンプを所定の推定方式で推定し、新たな認識結果とタイムスタンプとを認識情報として改めてワークエリア３２に格納する。この処理は、分割可能あるいは併合可能な認識結果がワークエリア３２内になくなるまで繰り返される（ステップ４２）。

【００６３】分割した認識結果とペアにするタイムスタンプは、分割する前の認識情報に含まれていたタイムスタンプと同一の値でも良いが、分割後の新たな認識結果を正確に処理するためには、分割前の認識情報のタイムスタンプと認識結果の態様とに基づいて新たに決定した値とすることが望ましい。

【００６４】所定の分割・併合方法としては、「認識結果が自然言語文である場合は、形態素解析と構文解析を用いて、処理後の認識結果が単文節になるように、分割または併合する」という方法などを予め用意しておく。ここで、形態素解析や構文解析の方法には、当業者によって周知の日本語解析処理や英語解析処理で用いられている処理を用いて構わない。

【００６５】例えば、「こ」という認識結果と「れを」という認識結果とがワークエリア３２に保持されている場合、認識結果選択部４は、上記の分割・併合方法によって、「これを」に併合され、併合後の認識情報には、「こ」と「れを」との両者のタイムスタンプのうち、遅い方がタイムスタンプとして付される。従って、ワークエリア３２から、「こ」という認識結果を含む認識情報と、「れを」という認識結果を含む認識情報とは削除され、「これを」という認識結果に「れを」のタイムスタンプが付与された認識情報が、ワークエリア３２に格納される。

【００６６】また、例えば、認識結果が「これを詳細に」であれば、この認識結果は、上記の分割・併合方法によって、「これを」と、「詳細に」とに分割される。従って、ワークエリア３２から、「これを詳細に」という認識結果を含む認識情報は削除され、「これを」という認識結果に推定されたタイムスタンプを付与された認識情報と、「詳細に」という認識結果に「これを詳細に」のタイムスタンプが付与された認識情報とが、ワークエリア３２に格納される。

【００６７】この他の分割・併合方法としては、イメージスキャナから一括して入力した文字のイメージデータを画像認識装置により１文字づつ分割したり、あるいは文節に併合したり、音声信号の強弱の変化を利用して発声の纏まりを作るべく分割または併合したり、キーボードやタッチパネルによる連続的な操作（ダブルクリックに続く移動操作など）をそれぞれの単位的な操作に分割したり、連続的に変化する情報については、その変位量に応じて分割または併合したりする場合などがある。

【００６８】入力装置からの時間的に半順序的な分割方法に限らず、時間的には同時的な信号を分割してもよい。例えば、音声と音（例えば、拍手や、物と物とがぶつかる音など）と音楽が同時にマイクロホンから入力された時、それぞれ別の認識結果として分割（または分別）したり、テレビカメラを入力装置として用いた場合に、一つの画像データから人の表情と動作を別々に分割（または抽出）してもよい。

【００６９】分割後の認識結果に対応するタイムスタンプを推定する方法は、元のタイムスタンプと、元の認識結果の態様から得られる情報の内、少なくともいずれか一方に基づいて推定を行なう。本実施例では、あらかじめ文字の入力速度を推定しておき、この推定された入力速度（本実施例では１文字／秒）を基に、分割前の入力終了時刻（分割前の認識情報のタイムスタンプ）から、分割により新たに生成された認識結果の入力終了時刻を推定する方法がある。

【００７０】推定される入力速度を、例えば１文字／秒とすると、認識結果の１文字が１秒に換算される。この推定方法を利用する場合を、先程の例の続きで説明すると、認識結果「これを」に対応するタイムスタンプの値は、元のタイムスタンプ（今の例では「１４時２５分３３秒」）と、元に認識結果の態様から得られる情報（例えば、「詳細に」の文字数が３文字であるなど）とから、元のタイムスタンプの値の３秒前の値、すなわち、「１４時２５分３０秒」と推定される。

【００７１】この他のタイムスタンプ推定方法としては、入力手段が音声認識装置やキーボードや手書き文字入力装置である場合は、それぞれ、元の認識結果を構成する音素の数量やキータッチ数や筆画数など（あるいはこれらの構成要素を複数利用することによって）に基づいて、分割後のタイムスタンプを推定する方法などがあるので、これらの方法を用いても良い。

【００７２】認識結果の分割の最小単位は、指示情報テーブル１０の意味解析単位記憶領域２０にあらかじめ保持されている内容に対応する。本実施例では、自然言語の文字列や音声は概ね文節を最小単位とし、タッチパネ

Amazon/VB Assets
Exhibit 1003
Page 470

ルからの位置情報は、座標（すなわち、Ｘ座標とＹ座標のペア）を最小単位として説明するが、これ以外の単位（例えば、発音記号、全角文字列、文、ポインティングの軌跡など）であっても、同様に本発明の処理が適用できることは、以下の詳細な説明および明細書から容易に類推できるであろう。

【００７３】このようにして、認識結果の各部分のタイムスタンプを推定することによって、複数の入力手段からの認識結果が同一の操作対象を指している場合、その照応同定の精度が向上する。すなわち、今の例では、「これを」が「１４時２５分３０秒」であるのに対し、タッチパネルを触った時刻が「１４時２５分３１秒」であることに基づいて、「これを」の操作対象が座標（１２，２３）付近のデータを指示していると考えられる。

【００７４】従来技術では正確な認識が困難な入力の例として、「これをここに」という入力について考える。入力結果の分割を行わない場合、「これを」に該当する情報および「ここに」と、それぞれ他の入力手段から得られた認識結果との照合を、精度よく行うことは困難である。

【００７５】しかし、本実施例では、入力を受け付けた認識結果（入力情報）「これをここに」を分割し、分割されて新たに生成した認識結果である「これを」および「ここに」に、それぞれ適切に補正されたタイムスタンプを付すので、これらの認識結果と、「これを」により指示される情報および「ここに」によい指示される情報として他の入力手段から得られる認識結果との照合を精度よく行うことができる。

【００７６】本実施例では、上述した認識結果の分割および入力時刻の推定は、各入力手段１～３のいずれの認識結果に対しても行われる。例えば、認識結果選択部４は、タッチパネル部２により受け付けられた認識結果についても、タッチパネル１７への接触の軌跡（例えば、座標の列（１２，２３），（１３，２５），（１４，２８）など）に含まれるそれぞれの座標ごとにタイムスタンプを推定し、付与する。これによって、「これを」に対応する座標、「ここに」に対応する座標を適切に決定するすることができるようになる。

【００７７】なお、入力手段から得られた認識結果が順序性を失うことなく複数のより小さな認識結果に分割可能な場合は、タイムスタンプの割当てはその順序性を反映して付与することが望ましい。特に、複数の入力手段から得られた複数の認識結果をそれぞれ順序性を反映して付与することで、認識結果のそれぞれの小さな分割後の認識結果どうしが対応づけやすくなるからである。複数の入力データの分割を時刻順に並べた時に、順に対応する可能性が強いという性質を「非交叉性」と呼ぶ。非交叉性が効果的に反映する入力例としては、音声で「これとこれ」と入力し、指で座標（１２，２３）を指示し次に座標（１３，２５）を指示したことで得られる軌跡を入力した場合、音声の前半の「これ」は後半の「これ」よりもタイムスタンプが早く、座標（１２，２３）は座標（１３，２５）よりもタイムスタンプが早くなるようにタイムスタンプを決定（または補正）することによって、それぞれ前半どうし、後半どうしが後の意味解析部５で同一の対象として処理しやすくなる。

【００７８】（１－３）ステップ４３

次に、認識結果選択部４は、ワークエリア３２に格納された認識情報が、所定の判断基準により意味解析単位として処理すべきか否か判断する（ステップ４３）。意味解析単位として処理すべきであると判断すれば、認識結果選択部４は処理をステップ４４に進め、そうでなければ、処理をステップ４１へ戻す。

【００７９】この判断基準は、具体的には、ワークエリア３２に所定の量のデータが蓄えられたことや、ある入力手段からの認識結果が到着した（または、途絶えた）ことや、入力が途絶えて所定の時間（例えば、実行時間として５秒）が経過したことや、ある特定のキー（リターンキーなど）が押下されたこと、あるいは、それらの組合せ的な事象（イベント）などである。これらを契機として、認識結果選択部４は、ステップ４４以降の処理を実行する。

【００８０】プログラムとして実現する場合、このイベントは、ウィンドウシステム等で一般に用いられている（マウスをクリックする等の）事象駆動信号をそのまま利用して実装しても構わず、何ら特別なものである必要はない。なお、ステップ４２は、ステップ４３の後で行なっても構わない。

【００８１】（１－４）ステップ４４

次に、認識結果選択部４は、ワークエリア３２に保持された認識情報を意味解析単位ごとに纏め、この意味解析単位ごとに、その内容を意味解析部５に出力する（ステップ４４）。

【００８２】なお、この意味解析単位は、ただ１つの認識情報から構成されても構わない。纏めるための基準としては、例えば、各認識情報におけるタイムスタンプが同一の値あるいは、その差が所定の値（例えば、５秒）以内であるときに、それらの認識情報を同一の意味解析単位にする。あるいは、選択すべき組の候補をユーザに提示し、ユーザからの選択指示に基づいて意味解析単位にする。あるいは、同一の入力手段から出力されたものどうしを同一の意味解析単位にする。あるいは、これらの選択基準を複合した基準を用いて、意味解析単位とする。

【００８３】１つの意味解析単位を出力する毎に、残りの意味解析単位を無視しても構わない。あるいは、残りの意味解析単位を再び認識結果とタイムスタンプのペアに戻してワークエリア３２に格納しなおし、次の意味解析単位を得るために改めてステップ４１から実行し直しても構わない。再び利用する場合、ステップ４２からス

Amazon/VB Assets
Exhibit 1003
Page 471

テップ４４を実行中に到着してワークエリア３２に格納されていた新たな認識結果とタイムスタンプとのペアとマージしても良く、この場合、ステップ４３における経過時刻（上記例では５秒）を計るタイマによる割込みが、他に組み合わすべきペアを受理しない内にステップ４４へ分岐してしまっても、再度ワークエリア３２に戻されるので、遅着したペアと意味解析単位を構成することができるという長所が有る。また、変化したシステムの状況に応じて、ワークエリア３２内の認識結果を操作（あるいは変形）しても構わない。

【００８４】（２）意味解析部５の処理

図６に、本実施例における意味解析部５の処理の概要を示す。ステップ４４において認識結果選択部４が意味解析単位の情報を通知すると、その通知を受けて意味解析部５が起動される。

【００８５】（２－１）ステップ５１

意味解析部５は、最初に、指示情報テーブル１０のレコード（意味解析単位と操作指示内容とからなる）のうち、認識結果選択部４から通知された意味解析単位に、意味解析単位記憶領域２０に保持されている意味解析単位の全部が一致するもの、一部が一致するもの、または、関連するものなど少なくとも１つ以上を選択し、それらのうち、最も優先順位の高いものを決定する（ステップ５１）。一部が一致した場合、不一致であった部分を一致させるべく、さらに別の意味解析単位を探すことを繰返しても良い。

【００８６】ここで、一致を行なうアルゴリズムは、簡易には、意味解析単位の記述が文字列として一致するか否か検査すれば良い。より複雑な場合として、指示情報テーブル１０内において変数記述やマクロ記述（別名記述）や一致範囲記述や関数記述などを行なう場合、それぞれ記述に応じて適切な知識を予め用意しておくとともに、ステップ５１の一致を検査する前に（あるいは、ステップ５１に応じて逐次的に）、変数記述やマクロ記述などを解析しておく必要がある。

【００８７】とはいえ、この記述に関する知識や解析は、周知のインタプリタなどで良く利用されている程度の機能を有するもので構わない。例えば、変数記述「＠Ｘ」に対して「１２」という数字が一致することができたり、マクロ記述「＠近称」に対して「これを」という文字列が一致することができたり、一致範囲記述「＠２０～３０」に対して（その間の数字であるところの）「２３」という数字が一致することができたり、関数記述「＠今日」に対して（実際の今日の日付に応じて）「８月２６日」という文字列が一致することができたりする。そこで、意味解析部５は、これらの一致を判定できさえすれば良い。ここで記号「＠」で始まる記述は、変数記述やマクロ記述を説明の都合上、区別するために付与しているが、実際の処理では、別の記号（または、構文）でも良いし、また、付与しなくとも良い。

【００８８】一致する度合いや関連する度合いとして、本実施例では、一致または関連の程度に応じて得点付けすることで、意味解析結果の解の候補に対して優先順位を付ける。なお、複数の解の候補が存在する場合、この優先順位などに基づいて、外部（ユーザ）に解の正誤を問いあわせる（確認あるいは、選択を受け付ける）ステップを、本実施例に加えることで、意味解析結果の信頼性を高めても良い。

【００８９】さらに、意味解析単位記憶領域２０に保持される記述に、意味解析単位に含まれる認識情報間に介在する制限を記述しても良い。例えば、「それぞれのタイムスタンプ間が５秒以内である」に相当する関係式や、「（ある特定の）タイムスタンプの値の近さ」に応じて一致する度合いの得点が変わるファジィ関数のような制限を記述し、これを利用して、一致するか否か、どの程度一致するかを判定して良い。

【００９０】（２－２）ステップ５２

次に、ステップ５２において、ステップ５１で決定された最も優先順位の高いレコードの操作指示内容記憶領域２１に保持された操作指示内容を、コマンド生成部６に出力する。

【００９１】なお、本実施例では、意味解析単位記憶領域２０に保持された情報に変数記述が使われているときは、操作指示内容記憶領域２１内で変数の値を参照することができる。例えば、座標の認識結果に関し、指示情報テーブル１０の各レコードのうちに、意味解析単位記憶領域２０に変数「＠Ｘ」と変数「＠Ｙ」とを含むものがあり、変数「＠Ｘ」が「１２」、変数「＠Ｙ」が「２３」に一致していたときには、操作指示内容の通知は、該変数を参照する記述「＠Ｘ」を値「１２」として、「＠Ｙ」を「２３」として行われる。さらに、関数記述と併用することで、「＠表示物（＠Ｘ，＠Ｙ）」は「＠表示物（１２，２３）」として扱われる。また、本実施例では、予め別に定義しておいた関数（今の例では、「＠表示物」）を呼びだすことにより操作指示内容の構成要素の具体的データ（処理対象が第１レコードであって、関数「＠表示物」が呼び出された場合は、操作指示対象「WORK_TABLE_2」）を得ることができる。ステップ５１の時と同様に、このような変数や関数の扱いも周知のインタプリタで用いられているのと同様の技術で容易に実現可能である。

【００９２】（３）コマンド生成部６の処理

図７に、本実施例におけるコマンド生成部６の処理の概要を示す。ステップ５２において意味解析部５が操作指示内容の情報を通知すると、その通知を受けてコマンド生成部６が起動される。

【００９３】（３－１）ステップ６１

コマンド生成部６は、最初に、制御情報テーブル１１に格納されたレコードのうちから、意味解析部５から出力された操作指示内容に、操作指示内容記憶領域２２に保

Amazon/VB Assets
Exhibit 1003
Page 472

持された情報の全部が一致するもの、または、一部が一致するもの、または、関連するものなど少なくとも１つ以上を選択し、それらのうち、最も優先順位の高いレコードを決定する（ステップ６１）。

【００９４】（３－２）ステップ６２

次に、コマンド生成部６は、ステップ６１で決定されたレコードのコマンド文字列記憶領域２３に保持された情報を、表示部７またはデータベースシステム部８に出力する（ステップ６２）。出力の宛先は、出力するコマンド文字列の内容に応じて決定される。

【００９５】なお、ステップ６１やステップ６２で行なわれる一致判定に関する方法や、変数記述等の取り扱い方法は、参照先のテーブルが制御情報テーブル１１であるということ以外は、それぞれ、ステップ５１とステップ５２と同様の方法で構わない。特に、本実施例においては、参照先のテーブルを別に指定することによって、処理上全く同一のルーチンを利用して構わない。

【００９６】Ｄ．機器構成の具体例

本実施例のシステム１２０の機器構成を、さらに具体的なデータに基づいて詳細に説明する。

【００９７】本実施例では、プロセッサ１４および主記憶装置９として、ワークステーションを用いる。データベースシステム８はワークステーション上に実現されたリレーショナルデータベースシステムを用いる。

【００９８】タッチパネル１７は、ユーザの手などによるパネルへの接触（あるいは接触するくらいの接近）によって、該接触位置を検出する装置である。透明の静電容量方式のパネルをディスプレイの表面に据え付けることにより、ポインティングを主たる目的として用い、パネルからの信号を検出するコントローラをＲＳ－２３２Ｃを介してワークステーションと接続して用いる。なお、ＲＳ－２３２Ｃは米国電子工業会（ＥＩＡ）が定めたコンピュータのインタフェース規格である。キーボード１８やディスプレイ１９は周知のものを使用すれば良く、特に説明を必要としないであろう。音声入力装置１５はマイクロホンを用いて、音声認識装置１６へ音声信号を入力する。音声認識装置１６は、音声に基づく信号に対応して所定の信号を出力する装置である。

【００９９】上記装置１５～１９は、所定の機能を具備すれば良く、他の製品でも代替可能である。例えば、性能と生産コストの都合から、音声認識装置からイントネーションの解析機能を取り除いた装置であっても本発明を実施することはできる。

【０１００】また、本実施例では、入力手段として音声認識装置１６やタッチパネル１７やキーボード１８を用いて説明するが、これらのすべての装置が必要というわけではなく、幾つかの入力手段を備えていれば、本発明を実施できる。また、同じ理由により、入力手段として、文字認識装置、マウス、データグローブ、データスーツによって、自然言語文やデータの入力を行なっても、本発明を実施することができる。このように実施できることは、以下の明細によって明らかになるであろう。

【０１０１】さらに、本実施例では、出力手段として、ディスプレイ１９やデータベースシステム８を用いて説明するが、これらのすべての装置が必要という分けではなく、幾つかの出力手段を備えていれば、本発明を実施できる。また、同じ理由により、出力手段として、音声合成装置やエキスパートシステムや意志決定支援システムやエアコンや電子レンジのように制御信号に基づいて制御されている装置を出力手段とすることもできる。このように、他の出力手段を用いても本発明を実施できることは、以下の明細によって明らかになるであろう。

【０１０２】なお、表示部７は、出力装置としてのディスプレイの他に、文字やグラフや表を出力するために必要となる処理を備え、ハードウェア、または、ソフトウェア（例えば、グラフ表示システム、表計算ソフト、ワードプロセッサ、スプレッドシートなどと呼ばれるアプリケーションソフトウェア）を用いて実現する。ここでは、説明の都合上、表示を目的としたコマンドに相当する操作指示命令を表示部７に命令することで適当な表示が行なえると仮定しておく。

【０１０３】同様に、データベースシステム８についても、検索を目的としたコマンドに相当する操作指示命令をデータベースシステム８に命令することでデータを検索し、検索結果を取得することができると仮定しておく。

【０１０４】このように、表示部７やデータベースシステム８は、通常の機能を備えていれば、どのようなものでも構わず、市販されているものを用いてもよい。また、コマンドに相当する操作指示命令を備えていない表示部７やデータベースシステム８であっても、それぞれ表示機能、検索機能に相当する１対１の制御体系が存在すれば、本発明を実施することは可能であることは以下の説明から容易に理解されるであろう。

【０１０５】Ｅ．処理の具体例

つぎに、本実施例のシステム１２０における操作指示解析処理の流れを、具体例を用いて詳細に説明する。なお、ここでは、「これを詳細に」という音声入力と、「これ」の内容の指示であるタッチパネル上の座標の入力とを伴う、表示内容の詳細化の指示を、操作指示の具体例として用いる。

【０１０６】（１）入力の受け付け

初めに、音声認識部１では、マイクロホンを介して、音声による「これを詳細に」という入力が受け付けられる。音声の入力にはマイクロホンを用いずに、電話受話器を用いても良い。

【０１０７】次に、該音声認識部１は、入力された音声を基に、音声認識し、対応する記号列に変換する。例えば、音声の音素やアクセントやイントネーションのマッ

Amazon/VB Assets
Exhibit 1003
Page 473

チングを音声認識装置が行ない、対応する自然言語文字列「これを詳細に」を出力する。

【０１０８】音声認識装置は、音声に対して１対１対応の記号列を出力すれば良く、「コレヲショウサイニ」や「ｋｏｒｅｗｏｓｙｏｕｓａｎｉ」や「ａｂｃｄｅｆ．．．」であっても構わないし、さらにこの出力をワープロで使われているかな漢字変換処理を施した結果である「これを詳細に」であっても構わない。従って、音声認識装置は、市販されているような周知の装置を使って構わない。とはいえ、機能的に同質な装置であれば、すなわち、複数の異なる音声波形に応じて、異なる記号列を出力する装置であれば、本発明を実施するのに十分であることは明らかであろう。

【０１０９】ここでは、以下の処理の説明上かな漢字混じり文「これを詳細に」を出力すると仮定する。しかし、認識結果選択部４や意味解析部５で必要とする情報を含む態様のデータであれば、かな漢字混じりの自然言語文でなくてもよい。例えば、指示情報テーブル１０の意味解析単位２０とマッチング可能な記号列であればどのような文字列であっても構わない。

【０１１０】また、音声認識装置は、記憶領域（バッファ）に情報を蓄えることができるので、ユーザが一音ずつまたは一単語ずつ区切って発声した入力であっても上記記号列を出力することができる。記憶領域（バッファ）については、当業者においては周知の技術であるので、詳細な説明は要しないであろう。

【０１１１】さらに、また、音声認識装置は入力に応じて一単語ごとに対応する記号列を出力しても構わない。音声入力装置と音声認識装置は物理的に組み合わされたものでも構わない。広く普及しているマイクロホンを使用する場合には、音声認識装置を別装置として提供した方が望ましい。この場合、各マイクロホンごとに音声認識装置を接続しても良いし、以下の処理を実行する計算機に接続する形態をとっても構わない。

【０１１２】また、音声認識装置は、本実施例のように、マイクロホンからの音声の入力に応じた時刻、例えば、一連の入力が完了した時刻に対応するデータを出力できることが望ましい。ここでは、音声認識装置から、「１４時２５分３３秒」と出力されると仮定する。タイムスタンプは、入力が完了した時刻である代わりに、入力を開始した時刻でも良いし、所定の取決めによって決定される時刻で良いが、説明上、以下では、入力が完了した時刻の場合を説明する。タイムスタンプが、入力を完了した時刻でない場合も、それぞれ同様の処理、あるいは、多少の改良の処理で対応できることは本実施例の後の説明から明らかになる。

【０１１３】このタイムスタンプは、本実施例の装置が内部で利用するためのものであり、この例のように可読な文字列である必要は必ずしもない。従って、計算機内部で独自にクロックをカウントしたようなものでも構わない。利用の状況によっては年や月や日付やミリ秒やマイクロ秒を含む時刻であっても構わないし、逆に時や分や秒を含んでいなくとも良い。

【０１１４】音声認識装置が時刻に関するデータを出力しない場合は、音声に対応するデータ（今の例では「これを詳細に」）を受け取ったワークステーションの処理プログラムの方で、受け取り時刻を付与する。シングルクロックで動作しているワークステーションであれば、このクロックを利用することにより一元的な時計を実現できるので、複数の入力装置が管理すべき時計の同期を合わせる必要がなくなり、処理が容易になるという長所がある。音声認識装置など各入力装置とワークステーションが通信回線等を介して遠隔地で利用される場合、ユーザからの各入力データがワークステーションへの到着時刻がずれるような利用環境では、各入力および認識装置（例えば、音声認識装置）が各認識結果（例えば、音声認識結果）に対してタイムスタンプを付与することが望ましい。なお、音声認識装置の一部が、ワークステーション上のプログラムとして処理されていても構わない。

【０１１５】ユーザは、ディスプレイに備え付けられたタッチパネル１７を、（通常、指によって）触ることにより、座標を入力する。これに応じて、タッチパネル部２は、接触を検出した箇所のＸ座標および座標を検出し、この座標データおよび接触時刻「１４時２５分３１秒」を出力する。なお、ここでは、接触された箇所は、Ｘ座標が１２、Ｙ座標が２３（以下では、これを簡略して（１２，２３）と表記する）であり、その接触時刻は「１４時２５分３１秒」であったものとして、説明を進める。

【０１１６】タイムスタンプを取り扱うにあたり、取り扱い方やシステム構成には先程の音声認識の場合と同様に幾つかのバリエーションがあるが、これらの取り扱い方やシステム構成は類推が容易なので、これ以上の説明は要しないであろう。

【０１１７】これまでに説明してきた音声と指による入力は、どちらか一方が他方より先行して入力しなければならないという制約はない。本実施例では、これらの２つ様式（モーダル、または、モダリティとも呼ばれる）による入力は、非同期的かつ随時的に受け付けられ、同一時刻に入力されても構わない。

【０１１８】また、それらの入力から認識結果を得る処理は、それぞれ別のプロセッサを用いて処理してもよい。しかし、プロセッサの処理速度は、通常十分に速いので、本実施例のように、単一のプロセッサによるマルチタスク（あるいはマルチプロセス）処理により複数のモーダルの入力データを処理することもできる。なお、これらの入力データを、単一のプロセッサにより認識結果選択部４の処理を実現するためには、割込み処理や排他処理により、（少なくとも、見かけ上）単一のバッフ

Amazon/VB Assets
Exhibit 1003
Page 474

ァリングを行なう必要がある。

【０１１９】本実施例における、２つの様式による入力操作の外観を、図８に示す。図８に示した例では、ディスプレイ１９の表示画面には、アプリケーションソフトウェア実行手段によりグラフ表示システムが実行された結果として、図形２５が表示されている。本実施例では、ディスプレイ１９の表示画面の表面に、タッチパネル１７が備え付けられている。タッチパネル１７は透明であるから、ディスプレイ１９に表示された画像は、タッチパネル１７を透過して外部から視認される。

【０１２０】タッチパネル１７を介しての入力は、このタッチパネル１７上の任意の点への接触を検出することによって受け付けられる。図８に示した例では、タッチパネル１７上の点８１（Ｘ座標が１２、Ｙ座標が２３の位置）が、指８２によって接触されている。これにより、点８１の座標（Ｘ座標が１２、Ｙ座標が２３）の入力が受け付けられたことになる。なお、本実施例では、この座標は、ディスプレイ１９上に表示された図形２５のある領域８３にあらかじめ定義された情報を意味する。

【０１２１】また、「これを詳細に」という音声が発せられると、この音声をマイクロホン１５が検知することにより、音声の入力も受け付けられる。本実施例では、この音声による入力と、タッチパネル１７への接触による入力とが同時に行われても、支障なく受け付けられる。

【０１２２】ここでは、タッチパネル１７への接触は１４時２５分３１秒に行われ、「これを詳細に」という音声入力は１４時２５分３３秒に終了したものとして説明しているが、この場合、音声認識部１は、「これを詳細に」という認識結果と「１４時２５分３３秒」というタイムスタンプとを、認識情報として認識結果選択部４へ通知し、タッチパネル部２は、「座標（１２、２３）」という認識結果と「１４時２５分３１秒」というタイムスタンプとを、認識情報として認識結果選択部４へ通知する。

【０１２３】（２）認識結果の選択

認識情報の通知を受け付けた認識結果選択部４は、以上のようにして入力された２つの様式による認識結果とタイムスタンプとのペア（認識情報）を、ワークエリア３２に格納する（ステップ４１）。このときのワークエリアの状態を、図９に模式的に示す。図９に示したように、ワークエリア３２には、認識結果の格納領域２６とタイムスタンプの格納領域２７とが、入力を受け付けた認識情報のレコード数分確保され、第１のレコードの認識結果格納領域２６には「これを詳細に」が、タイムスタンプ格納領域２７には「１４時２５分３３秒」が、第２のレコードの認識結果格納領域２６には（１２，２３）が、タイムスタンプ格納領域２７には「１４時２５分３１秒」が、それぞれ格納される。

【０１２４】ステップ４２では、認識結果選択部４は、まず、ワークエリア３２内の認識結果２６に着目し、これがより小さな認識結果に分割可能であるか否かを調べる。本実施例では、分割方法として「文節分割」を用いる。認識結果選択部４は、音声認識の結果である自然言語文「これを詳細に」に対して形態素解析および構文解析を行い、小さな文節に分割可能であること、すなわち、認識結果「これを詳細に」は、「これを」と「詳細に」とに文節分割できることを検出する。

【０１２５】つぎに、認識結果選択部４は、分割によって生じた新たな認識結果のタイムスタンプを推定する。本実施例では、推定方法として「１文字を１秒として換算するという推定方法」を用いる。認識結果選択部４は、認識結果「これを」に対応するタイムスタンプの値を、元の認識結果「これを詳細に」のタイムスタンプ（入力終了時刻）である「１４時２５分３３秒」から、「詳細に」の文字数３文字に相当する時間（３秒間）を減じて得られる時刻、すなわち、元のタイムスタンプの値の３秒前である「１４時２５分３０秒」と推定する。また、認識結果センタ部４は、分割によって生じたもう一つの認識結果「詳細に」のタイムスタンプは、元の認識結果のタイムスタンプと同一の「１４時２５分３３秒」とする。

【０１２６】なお、「文節分割」によって３つ以上に分割されるような場合でも同様に、順に後方の文節からタイムスタンプを決定して行くことができる。また、先程説明したような、上記以外の分割方法や推定方法を一つあるいは複数利用する場合についても、ほぼ同様にして、認識結果を分割したり、タイムスタンプを推定したりすることができることは類推可能であろう。

【０１２７】このようにして認識結果を分割し、さらに、該認識結果のタイムスタンプを推定すると、認識結果選択部４は、分割した元の認識情報をワークエリア３２から削除し、図１０に示すように、分割により増加したレコードの分の領域２６，２７を確保して、分割により新たに生成した認識情報のレコードをワークエリア３２に格納する。

【０１２８】ステップ４１～４２の処理中（先の通知から５秒以内）に、他の入力についての認識情報が通知された場合には、認識結果選択部４は、ステップ４３において、所定の判断基準（本実施例では、５秒以上ユーザからの入力がないこと）により、同一意味解析単位として処理すべき認識情報がさらに入力されたものと判断して、処理をステップ４１に戻す。

【０１２９】しかし、ここでは、上述した２つの認識結果以外の入力は行われない場合を例にしているので、先の通知から５秒以内に新たな通知はない。そこで、認識結果選択部４は、ステップ４３において、所定の判断基準（本実施例では、５秒以上ユーザからの入力がないこと）により、同一意味解析単位として処理すべき認識情

Amazon/VB Assets
Exhibit 1003
Page 475

報はすべて解析したものと判断して、ステップ４４に処理を進める。

【０１３０】ステップ４３の判断基準としては、入力データの中にある特定の概念や記号が含まれていることを理由にステップ４４へ処理を進めるようにしてもよい。例えば、入力データに「動詞の命令形」が含まれていたり、音声による入力で語尾が上がっていたり、キーボードからの入力では「。」のキーが押下されたり、リターンキーが押下されたりした場合、あるいは、これらを併用して本ステップの判断基準として設定しても構わない。

【０１３１】次に、認識結果選択部4は、ステップ４４において、タイムスタンプが近い（今の例では、５秒以内の）認識情報をまとめて意味解析単位として、意味解析部５へ出力して、処理を終了する。従って、ここでは、ワークエリア３２に保持された３つの認識情報（図１０に図示）が、一つの意味解析単位として意味解析部５へ出力される。

【０１３２】（３）操作指示内容の検出

通知を受けた意味解析部５は、認識結果選択部４の出力した意味解析単位と、予め用意された指示情報テーブル１０内の意味解析単位２０とを照合し、一致するレコードを検出する（ステップ５１）。

【０１３３】今、指示情報テーブル１０が、図３に示す具体的データを保持しているとすると、通知された意味解析単位は、指示情報テーブル１０の第２レコード（２行目の領域に保持されたレコード）と一致する。すなわち、認識結果「これを」に対するタイムスタンプ「１４時２５分３０秒」が「変数Ｓ」に一致（この一致の仕方は、通常、ユニフィーケーションとも呼ばれている（以下同様））し、認識結果「詳細に」に対するタイムスタンプ「１４時２５分３３秒」が「変数Ｔ」に一致すると共に、変数Ｓと変数Ｔの間の関係式「Ｔ＜Ｓ＋４」を満たし、さらに、タッチパネルからの認識結果として「１２」が「変数Ｘ」に「２３」が「変数Ｙ」に一致し、該認識結果に対するタイムスタンプ「１４時２５分３１秒」が「変数Ｕ」に一致すると共に、変数Ｓと変数Ｕの間の関係式「｜Ｕ－Ｓ｜＜２」を満たしている。従って、意味解析部５は、通知された意味解析単位と一致するものとして、第２レコードを検出する。なお、一致する対象は、複数のレコードであってもよいが、その場合は何らかの方法（例えば、ユーザに選択させる等）で、この時点あるいはこれ以降の時点で一つに絞ることが望ましい。そこで、本実施例では、意味解析部５は、複数のレコードが検出された場合には、一致の度合い等により定められる優先順位に従って、最も高い優先順位を有するレコードを、つぎのステップ５２の処理対象とする。

【０１３４】次に、意味解析部５は、ステップ５１で一致を検出したレコードの操作指示内容記憶領域２１に保持されているデータを、コマンド生成部６に出力する（ステップ５２）。

【０１３５】今の例では、第２レコードの操作指示内容記憶領域２１には、操作指示機能として「表示」が、操作指示条件として「詳細」が、操作対象として「@tableID(@Ｘ，@Ｙ)」が、それぞれ保持されている。操作対象は関数記述してあるが、ステップ５１において、変数Ｘおよび変数Ｙが、それぞれ、１２、２３であったので、この関数は「@tableID(12,23)」と等価である。さらに、予め関数tableIDは、引数の座標に対応して、そこにあるテーブルの識別子名を返す関数として用意されている。そこで、結果的に操作対象として例えば「WORK_TABLE_2」を得ることができる。従って、意味解析部５が実際にコマンド生成部６に通知する操作指示内容は、操作指示機能が「表示」であり、操作指示条件が「詳細」であり、操作対象が「WORK_TABLE_2」である。

【０１３６】なお、このような変数参照や関数適用は、本実施例のようにステップ５２の中で行なっても良いし、さもなくば、ステップ５２では記号列のまま出力し後述のコマンド生成部６の中で行なっても良い。

【０１３７】（４）コマンドの生成

操作指示内容の通知を受けたコマンド生成部６は、意味解析部５で出力された操作指示機能と、予め用意された制御情報テーブル１１内の操作指示内容２２とを照合し、一致するものを取り出す（ステップ６１）。

【０１３８】今、制御情報テーブル１１が図４に示す具体的データを保持しているとすると、通知された操作指示内容は、制御情報テーブル１１の第１レコード（１行目の領域に保持されたレコード）に一致する。制御情報テーブル１１内の記述も先程の指示情報テーブルと同様に変数記述や式記述や関数記述があってもよい。この例では、操作対象として「WORK_TABLE_2」が「変数Ａ」に一致する。そこで、コマンド生成部６は、通知された操作指示内容と一致するものとして、第１レコードを検出する。なお、ここで用いている具体例では、検出されるレコードは一つであるが、複数のレコードが検出された場合には、コマンド生成部６は、一致の度合い等により定められる優先順位に従って、最も高い優先順位を有するレコードを、つぎのステップ６２の処理対象とする。

【０１３９】次に、コマンド生成部６は、ステップ６１で検出した第１レコードの、コマンド文字列記憶領域２３に保持されたデータを、表示部７またはデータベース管理システム部８へ出力する（ステップ６２）。

【０１４０】今の例では、出力されるコマンド文字列は、「Display -detail @Ａ」である。変数Ａを参照することで、該コマンド文字列として、結果的に「Display -detail WORK_TABLE_2」を得ることができる。なお、コマンド文字列は、表示部７またはデータベース管理システム部８が管理するデータへのコマンドである。説明の都合上、ここでは、コマンド文字列「Display -detai

Amazon/VB Assets
Exhibit 1003
Page 476

1 WORK_TABLE_2」は、識別子「WORK_TABLE_2」なるテーブルの持つ情報（属性やカラムデータやセルデータなど）を表示出力することを指示する、表示部７へのコマンドであるとする。とはいえ、コマンド生成部６は、制御対象機器を操作するためのコマンドさえ生成できれば良く、生成されたコマンド文字列の構文的な正しさや実行可能性を必ずしも保証する必要はない。

【０１４１】今の例では該操作指示内容を表示部７に対する表示命令として変換したが、対応するコマンド文字列２３にＳＱＬ(Structured Query Language)などの検索言語を記述することでデータベース管理システム部８への検索／更新命令へ変換することもできる。つまり、「これを詳細に」という音声と座標（１２，２３）の指示という入力信号に基づく意味解析の結果である操作指示内容が同一であっても、制御情報テーブル１１に定義されたコマンド文字列によって、「表示内容を詳細にする」命令を出力したり、「詳細な情報を得るべく検索する」命令を出力したりすることができる。

【０１４２】なお、これらの対応関係を両方とも制御情報テーブル１１に用意しておき、別の手段（例えば、ユーザへの問い合わせ）で、より適切な命令を出力しても構わない。コマンド文字列が実行できるかどうか、どのシステムで実行すべきか、さらなる記号的変形や信号的変換が必要かどうかを判断し実行するために、コマンド生成部６による処理と、表示部７やデータベースシステム８の処理間に、コマンド文字列についての判断、変形、変換等の処理を挟んでいてもよい。

【０１４３】（５）コマンドの実行

コマンド文字列の通知を受けた表示部７は、通知されたコマンド文字列に従い、図１１に示すようにディスプレイ１９の表示画面に表示する画像を変更する。すなわち、今の例では、表示部７が該コマンドを実行した結果、ディスプレイの表示が変更されて、表示画面上にウインド（すでに表示されている画像の上に重ねて表示される矩形領域）が表示される。該ウインドには、指示された領域８３にあらかじめ定義されているデータの詳細な内容があらかじめ保持されているテーブル（図示せず）の内容が表示される。

【０１４４】Ｆ．本実施例の効果

以上のようにして、本実施例によれば、時間的な同時性を考慮することで、音声による自然言語文と指による位置の指定とによる複数のインタフェースからの入力信号が意味する操作指示内容を相補的に補完しつつ解析し、制御対象機器（ディスプレイやデータベースシステムなど）を操作する制御装置が提供される。

【０１４５】ここで、今の例を用いて「相補的な補完」について説明する。もし音声だけの入力「これを詳細に」であった場合は、「これ」がどの対象であるかは特定が困難であるし、もし座標（１２，２３）の指示だけの入力であった場合はその座標が何を指しているか（例えば、表示物なのか、表示物のより小さな構成要素なのか、あるいは、ディスプレイ自体なのかなど）、あるいは、その指示対象を如何に処理すべきなのかは特定が困難である。しかし、本実施例によれば、両入力情報が操作指示内容として足りない部分を互いに補いあって解釈される。このように、互いに足りない部分を補うことを、「相補的な補完」と呼ぶ。

【０１４６】本実施例では、入力された情報について、複数のインタフェースからの入力信号から適切に入力時刻が推定され、推定された時刻を基にして、複数の入力手段を介してそれぞれ受け付けられた入力情報を相互に関連付け、その意味する操作指示内容が相補的に補完して解釈される。さらに、解釈された操作指示内容に応じて、本実施例では、制御対象機器を制御すべくコマンド文字列が生成される。従って、本実施例によれば、複数のインタフェースからの入力情報から適切な単一の操作対象を同定することができる。

【０１４７】また、本実施例の解析装置を利用するユーザは、複数のインタフェースを具備する情報処理システムに対して、それらのインタフェースをユーザの自由意志で、時間的な排他的選択性を意識せずに、非同期に（あるいは同時的に）、いわば思い付いたままに操作指示を与えることができる。従って、本実施例によれば、マウスやキーボードなど複数のインタフェースを決められた手順で切り替えて操作するという煩雑な手続が不要であり、日常的に使用している自然言語やＧＵＩを組み合わせて、任意のタイミング（同時を含む）で操作指示を入力し、制御対象機器を動作させることができる。

【０１４８】さらに、本実施例では、自然言語の解析手法を用いるため、形式言語（計算機向きに決められた特別な形式のコマンド）に習熟する必要がなく、また、任意のタイミングで入力を受け付けるため、入力の手順に習熟する必要もない。従って、操作に不慣れなユーザであっても、自由に制御対象機器を動作させることができる。

【０１４９】以上のように、本実施例によれば、単数あるいは複数の入力手段からの複数の様式（モード）を同時に解析し、制御対象機器を動作させることができるインタフェース（これは、しばしば、マルチモーダルインタフェースと呼ばれることもある）を提供することができる。

【０１５０】なお、本実施例では、意味解析結果およびコマンド生成結果に複数の候補がある場合、最も優先順位の高いものが選択され、出力されるが、認識結果や意味解析結果やコマンド生成結果を、それぞれユーザに対しても出力し、ユーザによる選択を受け付けるようにしてもよい。このようにすれば、ユーザが誤りを早期に発見したり、補足的な情報を追加指示できたりするからである。

【０１５１】Ｇ．他の構成例

Amazon/VB Assets
Exhibit 1003
Page 477

本実施例では、入力手段群１２１を入力装置として説明したが、入力手段群１２１と認識結果選択部４と、意味解析部５と、指示情報テーブル１０とを合わせて、一つの入力装置とすることもできる。この場合の機能ブロック図の例を図１６に示す。

【０１５２】図１６に示した構成例では、情報処理システム１５０は入力装置１５１とコマンド処理装置１５２とを備える。入力装置１５１は、複数の入力手段１～３を有する入力手段群１２１と、認識結果選択部４、意味解析部５、ワークエリア３２、および指示情報テーブル１０を備える情報処理手段１２３ａとを備え、複数の入力手段１～３より入力された情報を分割および／または併合し、意味解析単位にまとめて出力する装置である。コマンド処理装置１５２は、コマンド生成部６、制御情報テーブル１１、および第２のワークエリア３２ｂを有する処理実行手段１２３ｂと、出力手段１２２と、データベースシステム１３とを備え、意味解析単位にまとめられた操作指示を受け付けて、コマンドを生成し、それを出力手段７またはデータベースシステム１２に出力して実行させる装置である。コマンド処理装置１５２全体を、情報処理システム１５０の処理実行手段と考えることもできる。なお、第２のワークエリア３２ｂが、コマンド生成部８の処理のための一時的記憶領域である。

【０１５３】このような構成を採る場合、入力装置１５１とコマンド処理装置１５２とを、それぞれ独立した情報処理装置により実現してもよい。この場合のハードウエア構成例を図１７に示す。

【０１５４】図１７に示した構成例では、入出力装置１５１は、主記憶装置９ａとプロセッサ１４ａと、音声入力装置１５と、音声認識装置１６と、タッチパネル１７と、キーボード１８とを備える情報処理装置からなる。情報処理手段１２ａの構成要素のうち、指示情報テーブル１０およびワークエリア３２は、主記憶装置９ａに確保された記憶領域であり、認識結果選択部４および意味解析部５は、主記憶装置９ａの処理プログラム記憶領域３１ａに保持されたインストラクションをプロセッサ１４ａが実行することにより実現される。

【０１５５】また、コマンド処理装置１５２は、主記憶装置９ｂとプロセッサ１４ｂと、ディスプレイ１９と、データベースシステム１３とを備える情報処理装置からなる。処理実行手段１２３ｂのうち、第２のワークエリア３２ｂおよび制御情報テーブル１１は、主記憶装置９ｂに確保された記憶領域であり、コマンド生成部６は、主記憶装置９ｂの処理プログラム記憶領域３１ｂに保持されたインストラクションをプロセッサ１４ｂが実行することにより実現される。なお、データベースシステム１３のＣＰＵ１３１と、コマンド処理装置１５２のプロセッサ１４ｂは、同一の装置であってもよい。

【０１５６】Ｈ．他の実施例

上述の説明では、タッチパネル１７と音声入力装置１５とを介して受け付けられた入力を相補的に補完して解釈する場合を例に用いたが、他の入力手段を用いて入力を受け付けてもよい。そこで、つぎに他の入力手段を用いる場合の例を２つ挙げて説明する。

【０１５７】（１）音声認識装置と視線認識装置

本発明の実施例の変形例として、入力手段に音声認識部１と視線認識部１４１とを用いる場合について説明する。この場合のハードウエア構成を図１２に示し、機能ブロック図を図１３に示す。本実施例では、図１３に示すように、入力手段群１２１に、さらに視線認識部１４１を備える。この視線認識部１４１は、図１２に示す視線認識装置１４２により実現される。なお、以下の説明では、前の実施例と同様である箇所は、説明を省略している。

【０１５８】ここで、視線認識装置は、ユーザがどこを注視しているかを検出する装置である。例えば、ユーザの眼球に赤外線を当ててその反射から視線を認識したり、テレビカメラなどを利用してユーザの顔（特に、目）を撮影し、その画像データから視線を認識したりする。本実施例の視線認識装置は、視線の認識結果を時系列的に（例えば、０．１秒毎に）取得し、その視線の認識結果（例えば、座標の値や方向ベクトル）毎に、タイムスタンプを付与して、出力する装置である。

【０１５９】ユーザの視線が或る点から別の点に向かって移動した場合、得られる視線認識結果から、軌跡が得られる。本実施例では、この軌跡上に存在する対象物に基づいて、連続的に得られる幾つかの視線認識結果を一つのデータの単位として併合した場合、例えば、併合後の認識結果（すなわち、該対象物）に対する時間的属性（タイムスタンプや時間の範囲）を推定し付与する。より具体的には、軌跡と対象物の輪郭との交点におけるタイムスタンプを、先の視線認識結果とタイムスタンプのペアから補間的に決定すれば良い。

【０１６０】さらに、このような状況において、同時的にユーザが音声による指示「これとこれとこれを詳細に。」を入力したと仮定する。これまでに説明した実施例と同様にして、タイムスタンプに基づいて、それぞれの「これ」を対応する「（視線認識結果の軌跡上の或る）対象物」として解析することができる。従って、この解析結果に基づいて、対応するコマンドシーケンスが生成可能である。

【０１６１】このようにして、本実施例によれば、認識装置が連続的な認識結果を出力するような場合であっても、これらの認識結果を対象物毎に適切に併合し、さらに、それらの対象物毎の時間的属性を推定し付与し直すことで、この認識結果と、他の認識装置からの認識結果とを相補的に補完して操作指示内容を解析することができる。

【０１６２】（２）音声認識装置と図形認識装置

本発明の実施例のさらなる変形例として、入力手段に音

Amazon/VB Assets
Exhibit 1003
Page 478

声認識部1と図形認識部143とを用いる場合について説明する。この場合のハードウエア構成を図14に示し、機能ブロック図を図15に示す。本実施例では、図15に示すように、入力手段群121に、さらに図形認識部143を備える。この図形認識部143は、図14に示す図形認識装置144により実現される。なお、以下の説明では、前の実施例と同様である箇所は、説明を省略している。

【0163】ここで、図形認識装置144は、手書きおよび印刷の文字や図形を認識する装置である。例えば、ユーザの手にしたペン先の動き（特に、ストローク）に応じて文字や図形を認識したり、テレビカメラやイメージスキャナなどを利用して取得した画像データから所定の方式で図形および文字を認識したりする。

【0164】本実施例の図形認識装置144は、ペン型の小型イメージスキャナのペン先の移動を検出することにより、該スキャナの移動した軌跡によって定義される情報を認識する装置である。すなわち、図形認識装置144は、例えば、イメージスキャナをユーザが手に持ち、任意の図形や文字をイメージスキャナのペン先で描いたり、あらかじめ用意された図面や書面上の図形や文字をなぞることにより、その文字や図形またはなぞられた領域にあらかじめ定義されたデータを認識する。さらに、図形認識装置144は、その入力のタイムスタンプとして、該イメージスキャナが読み取りを開始した時刻、及び、読み取りを終了した時刻を検出し、認識された文字とともに出力する。

【0165】ここでは、同時的にユーザが音声による指示「この地図をこの人にメールしろ。」が入力され、さらに、「この地図」との音声入力中にイメージスキャナを介して地図の指示入力され、「この人」との音声入力中にアドレス帳などに記載された人名がイメージスキャナを介して入力された場合について説明する。

【0166】これまでの説明と同様に、認識結果選択部4は、各入力手段1，143からの認識結果のデータを分割または併合して、適切に時間的属性を推定し付与し直す。この場合、地図や人名が複数入力されている場合でも、時間的属性を用いることで、音声入力のタイムスタンプと比べて、より近い方の人名へ同定することができる。

【0167】因みに、地図を入力した際に余計な文字や図形をイメージスキャナで取り込んだとしても、音声入力からのデータと連携させることによって、地図の部分のみを意味解析の対象として扱うことができる。また、同様にして、アドレス帳のうち人名以外の文字列や罫線にユーザの興味がないことも音声入力「この人」の意味解析から認識されるため、イメージスキャナから入力される雑多な情報についても、適宜要求されている情報を選択することができ、適切に意味解析できる。

【0168】本実施例によれば、上記のようにユーザが無意識的に余計なデータを必要となるデータと一緒に入力してしまった場合でも、入力に係る時間的属性、および、他の入力装置からの情報を利用して適切な認識や解析を行う方法を提供することができる。

【0169】

【発明の効果】本発明によれば、ユーザは、複数のインタフェースをユーザの自由意志で、時間的な排他的選択性を意識せずに、非同期に（あるいは同時的に）、いわば思い付いたままに操作指示を与えることが可能になる。また、日常的に使用している自然言語やＧＵＩ等を組み合わせることにより、言語の形式や入力手順に捕らわれることなく、自由に操作指示を入力することができる。このように、複数の入力手段を介して複数の情報が入力された場合、本発明のシステムは、入力された複数の操作指示間の関係を適切に考慮して正しく制御対象機器を動作させることができる。すなわち、本発明によれば、複数の入力手段にまたがり、個々の入力手段を介する情報では意味が不完全または不十分な場合であっても、複数の入力の操作指示内容を互いに補完すべく意味解析することで、適切に制御対象機器を制御できる。

【0170】さらに、本発明によれば、入力および認識装置から認識結果が一括して処理された場合でも、認識結果を分割し、分割後のそれぞれの認識結果に対して、その態様に基づいて適切な入力時刻を付与（または補正）することで、他の入力および認識装置からの認識結果との照合の精度を高めることができる。

【図面の簡単な説明】

【図1】実施例における機能ブロックを表す図である。

【図2】実施例におけるハードウェア構成図である。

【図3】実施例における指示情報テーブルの具体例を示す模式図である。

【図4】実施例における制御情報テーブルの具体例を示す模式図である。

【図5】実施例における認識結果選択部の処理の概要を示すフローチャートである。

【図6】実施例における意味解析部の処理の概要を示すフローチャートである。

【図7】実施例におけるコマンド生成部の処理の概要を示すフローチャートである。

【図8】実施例における入力操作の外観を示す説明図である。

【図9】実施例における分割前の認識情報を保持するワークエリアを示す模式図である。

【図10】実施例における分割後の認識情報を保持するワークエリアを示す模式図である。

【図11】実施例において、操作指示の結果表示される画面の例を示す説明図である。

【図12】実施例におけるハードウェア構成図である。

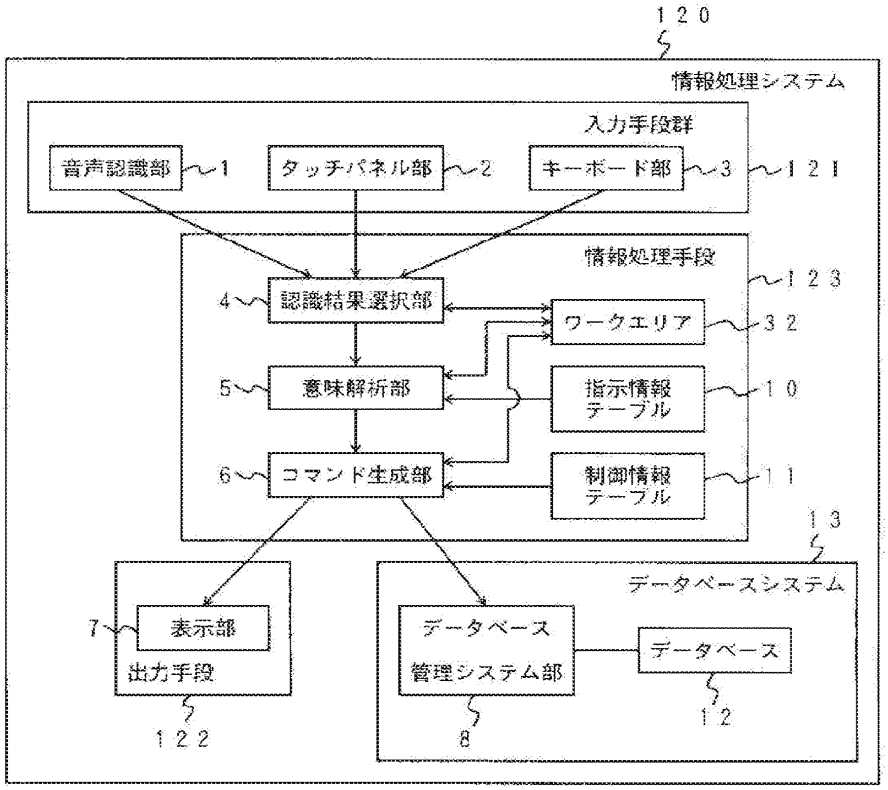
【図13】実施例における機能ブロックを表す図である。

Amazon/VB Assets
Exhibit 1003
Page 479

【図１４】実施例におけるハードウェア構成図である。
【図１５】実施例における機能ブロックを表す図である。
【図１６】実施例における機能ブロックを表す図である。
【図１７】実施例におけるハードウェア構成図である。
【符号の説明】
１…音声認識部、２…タッチパネル部、３…キーボード部、４…認識結果選択部、５…意味解析部、６…コマンド生成部、７…表示部、８…データベース管理システム部、９…主記憶装置、９ａ…入力装置の主記憶装置、９ｂ…コマンド処理装置の主記憶装置、１０…指示情報テーブル、１１…制御情報テーブル、１２…データベース、１３…データベースシステム、１４…プロセッサ、１４ａ…入力装置のプロセッサ、１４ｂ…コマンド処理装置のプロセッサ、１５…音声入力装置、１６…音声認識装置、１７…タッチパネル、１８…キーボード、１９…ディスプレイ、２５…出力された図形、３１，３１ａ，３１ｂ…処理プログラム記憶領域、３２…ワークエリア、３２ｂ…第２のワークエリア、８１…接触点、８２…指、８３…図形上の領域、１１１…ウインド、１２０…情報処理システム、１２１…入力手段群、１２２…出力手段、１２３，１２３ａ…情報処理手段、１２３ｂ…処理実行手段、１３１…データベースシステムの中央演算処理装置（ＣＰＵ）、１３２…データベースシステムの主記憶装置、１３３…データベースシステムの外部記憶装置、１４１…視線認識部、１４２…視線認識装置、１４３…図形認識部、１４４…図形認識装置、１５０…情報処理システム、１５１…入力装置、１５２…コマンド処理装置。

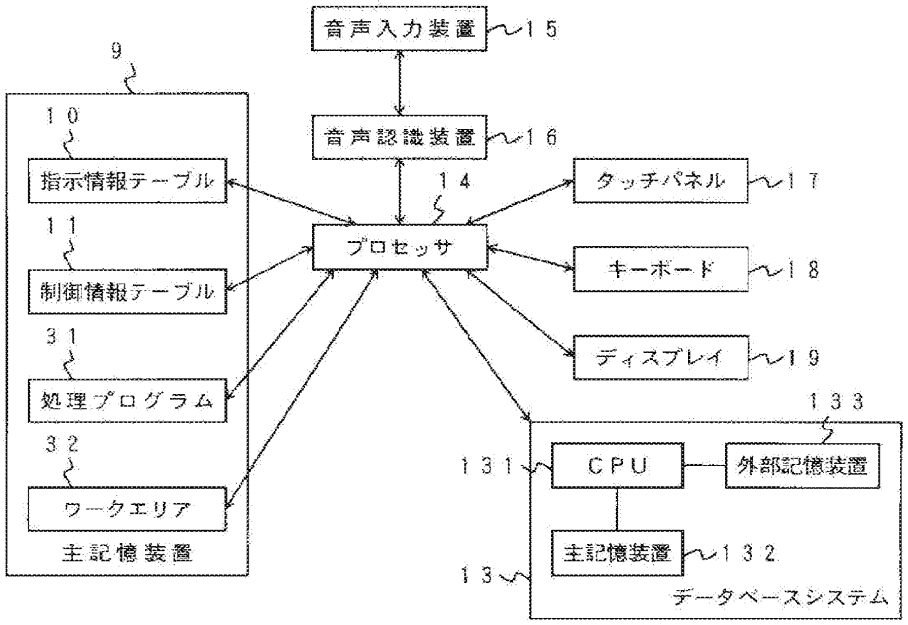
【図１】

機能ブロック図（図１）



【図２】

ハードウェア構成図（図２）



【図３】

図３

２０ 意味解析単位	２１ 操作指示内容
「これを詳細に」「１４時２５分３３秒」 （１２，２３）（１４時２５分３１秒）	操作指示機能：表示 操作指示条件：詳細 操作指示対象：WORK_TABLE_2
「これを」「@S」 「詳細に」「@T（但し、@T<@S＋４）」 （@X,@Y）（@U（但し、「@U－@S｛<２｝）」	操作指示機能：表示 操作指示条件：詳細 操作指示対象：@table_ID(@X,@Y)

１０

【図４】

図４

３３ 操作指示内容	２８ コマンド文字列
操作指示機能：表示 操作指示条件：詳細 操作指示対象：@A	Display -detail:@A

１１

【図９】

図９

２６ 認識結果	１３ ２７ タイムスタンプ
「これを詳細に」 （１２，２３）	「１４時２５分３３秒」 「１４時２５分３１秒」

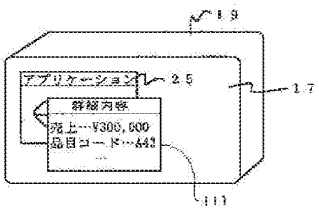
【図１０】

図１０

２６ 認識結果	１３ ２７ タイムスタンプ
「これを」	「１４時２５分３０秒」
「詳細に」	「１４時２６分３３秒」
（１２，２３）	「１４時２５分３１秒」

【図１１】

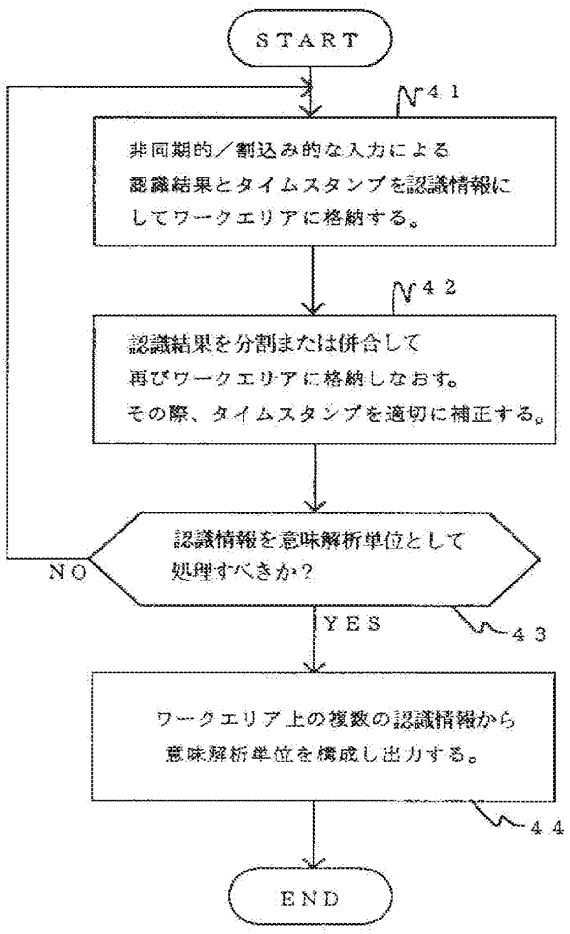
図１１



Amazon/VB Assets
Exhibit 1003
Page 481

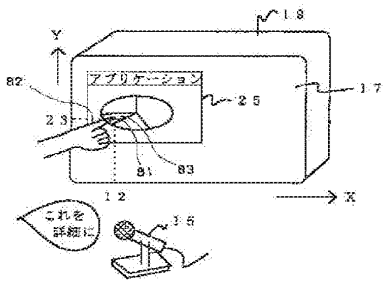
【図5】

認識結果選択部の処理の概要フローチャート（図5）



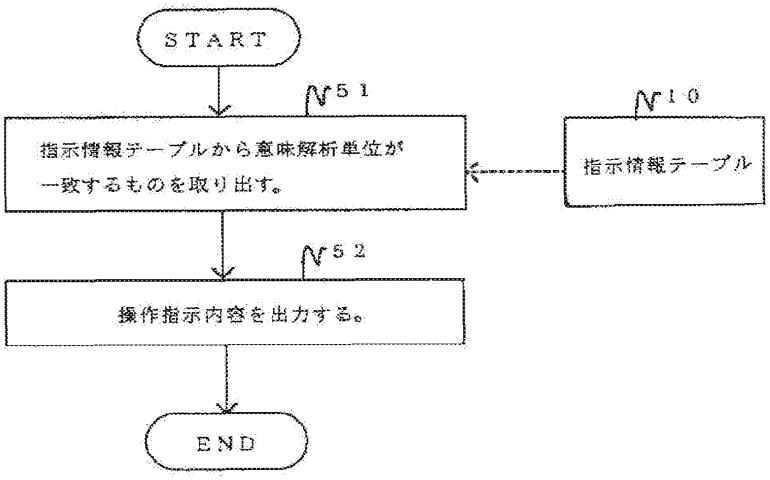
【図8】

図8



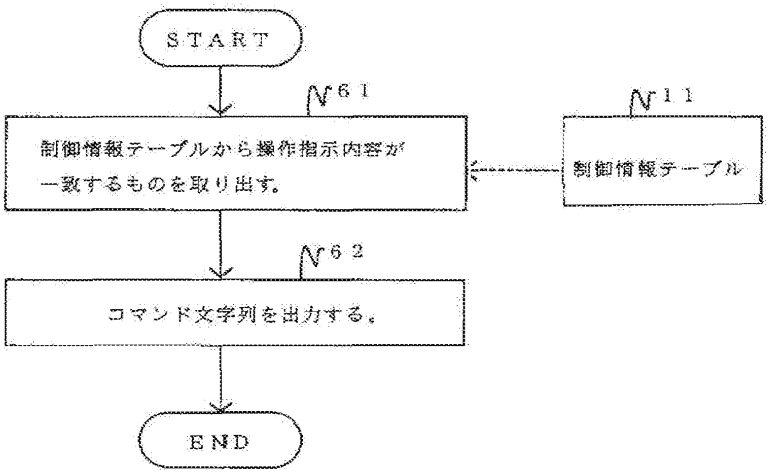
【図6】

意味解析部の処理の概要フローチャート（図6）



【図7】

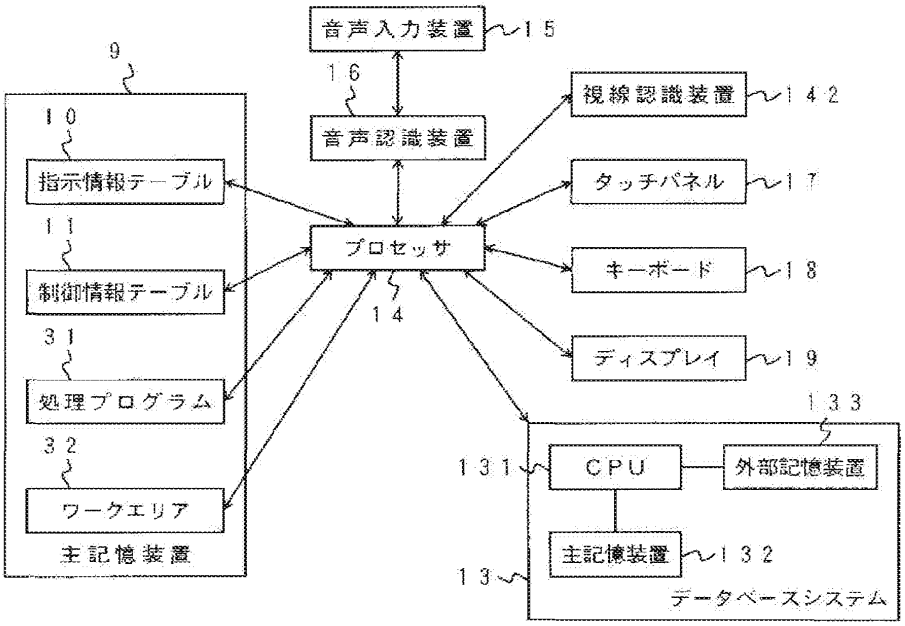
コマンド生成部の処理の概要フローチャート（図7）



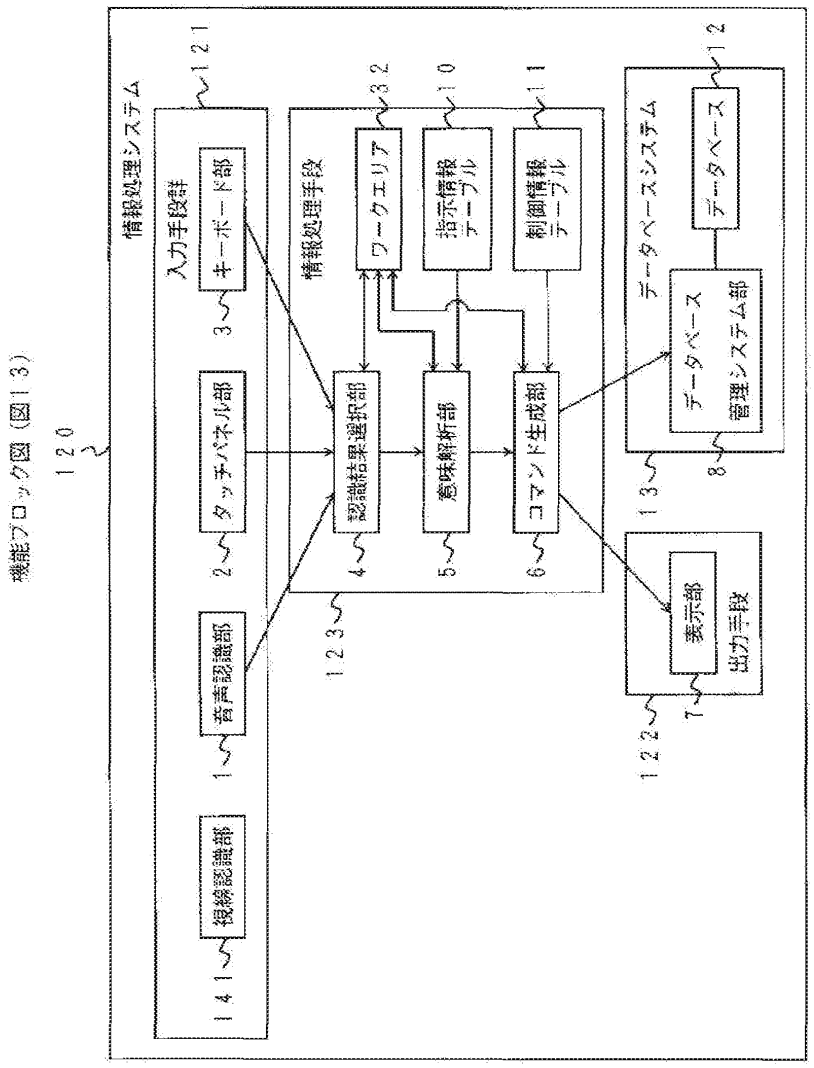
Amazon/VB Assets
Exhibit 1003
Page 483

【図12】

ハードウェア構成図（図12）

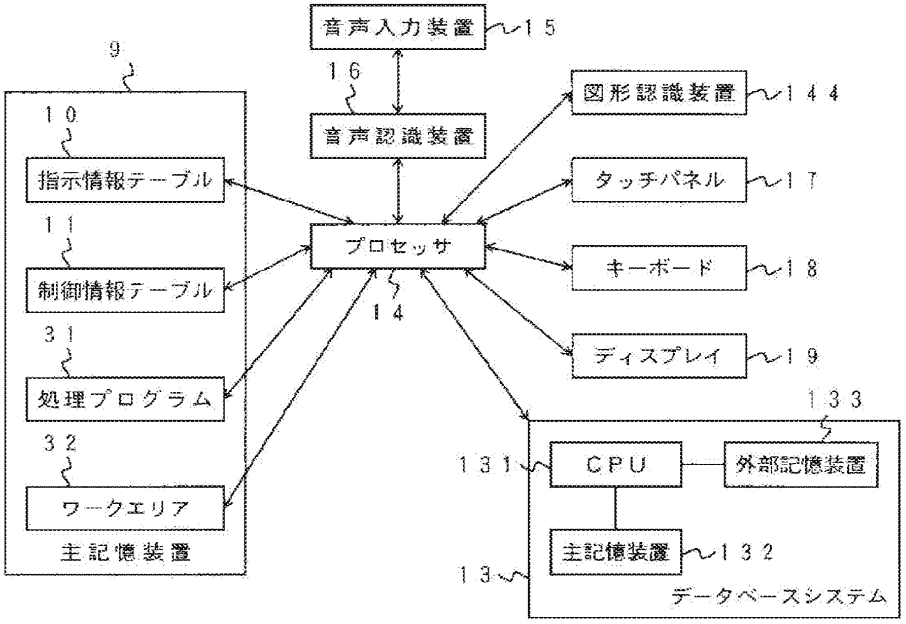


【図13】


機能ブロック図（図13）
120
情報処理システム
入力手段群
121
視線認識部
141
音声認識部
1
タッチパネル部
2
キーボード部
3
情報処理手段
123
認識結果選択部
4
意味解析部
5
コマンド生成部
6
ワークエリア
32
指示情報テーブル
10
制御情報テーブル
11
データベースシステム
12
データベース
管理システム部
8
13
出力手段
122
表示部
7

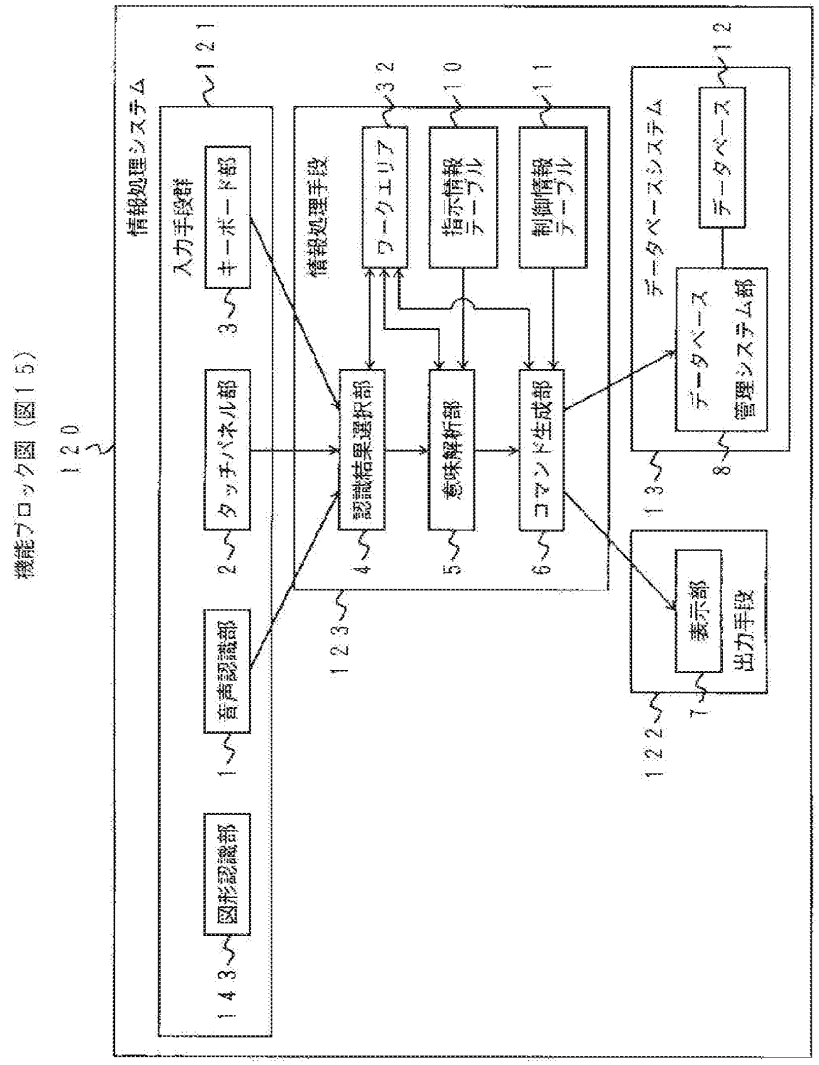
【図14】

ハードウェア構成図（図14）



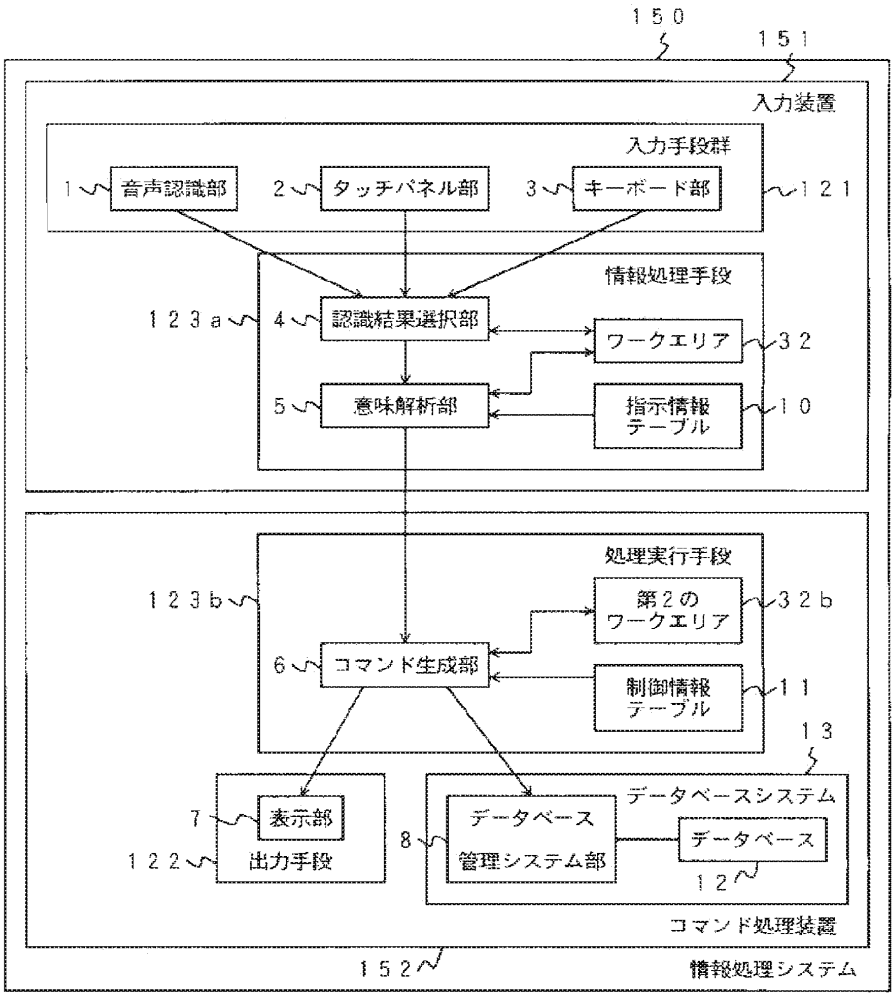
【図15】

機能ブロック図（図15）



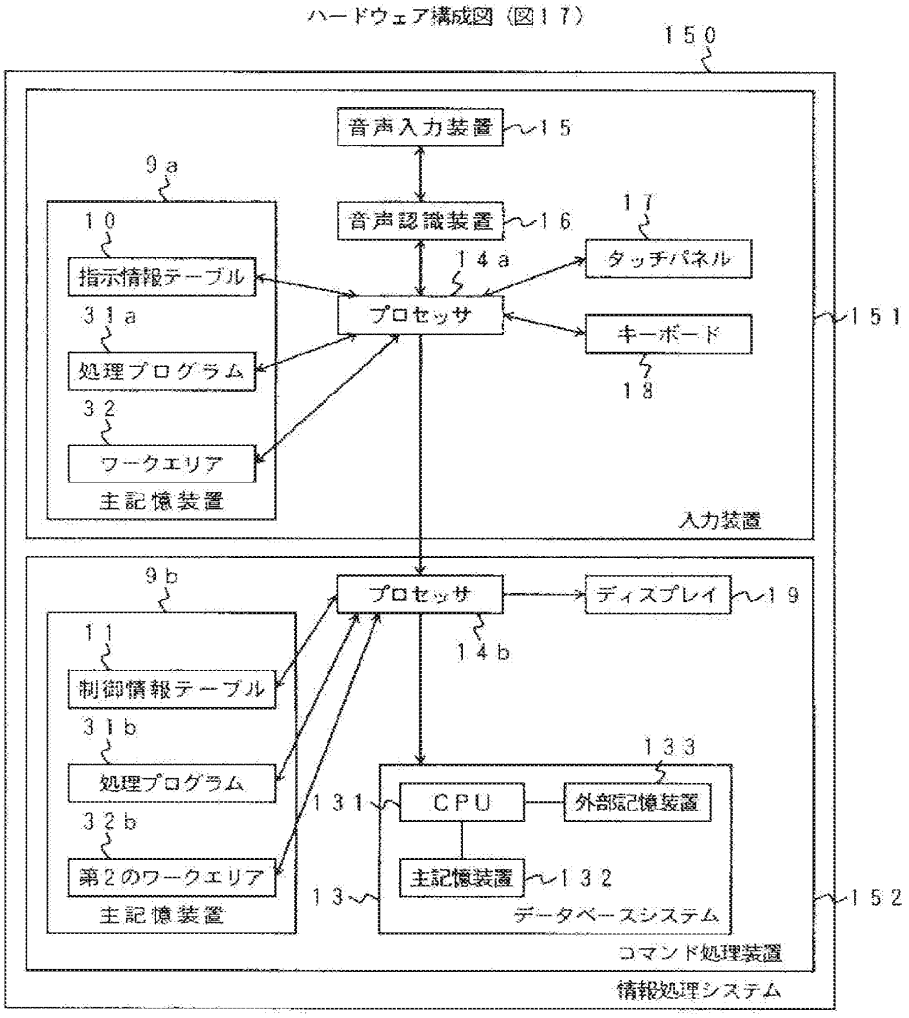
【図16】

機能ブロック図（図16）



【図17】

ハードウェア構成図（図17）



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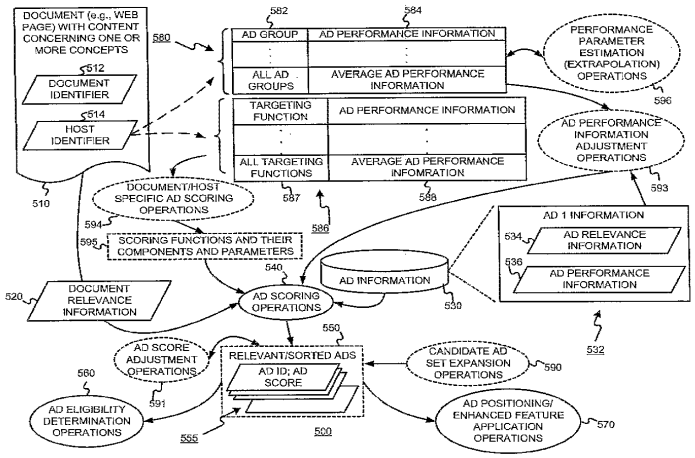
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[Continued on next page]

(54) Title: IMPROVING CONTENT-TARGETED ADVERTISING USING COLLECTED USER BEHAVIOR DATA



(57) Abstract: A content-targeting ad system is provided with a user behavior (e.g., selection (e.g., click), conversion, etc.) feedback mechanism. The performance of individual ads, or groups of ads, may be tracked on a per document (e.g. per URL) and/or on a per host (e.g. per Website) basis. The performance of ad targeting functions may also be tracked on a per document, and/or per host basis. Such user behavior feedback data may be processed (e.g., aggregated) into useful data structures. Such user behavior feedback data (raw or processed) may then be used in a content-targeting ad system to improve ad quality, improve user experience, and/or maximize revenue.

WO 2005/010702 A2

SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

Declarations under Rule 4.17:

— *as to applicant's entitlement to apply for and be granted a patent (Rule 4.17(ii)) for the following designations AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, UZ, VC, VN, YU, ZA, ZM, ZW, ARIPO patent (BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG)*

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IMPROVING CONTENT-TARGETED ADVERTISING USING COLLECTED USER BEHAVIOR DATA

§ 0. RELATED APPLICATION

This application claims the benefit of U.S. Provisional Application Serial No. 60/489,322, (incorporated herein by reference) "entitled "COLLECTING USER BEHAVIOR DATA SUCH AS CLICK DATA, GENERATING USER BEHAVIOR DATA REPRESENTATIONS, AND USING USER BEHAVIOR DATA FOR CONCEPT REINFORCEMENT FOR CONTENT-BASED AD TARGETING," filed on July 22, 2003 and listing Alex Carobus, Claire Cui, Deepak Jindal, Steve Lawrence and Narayanan Shivakumar as inventors.

The present invention is not limited to any specific embodiments described in that provisional.

§ 1. BACKGROUND OF THE INVENTION

§ 1.1 FIELD OF THE INVENTION

The present invention concerns advertising. In particular, the present invention concerns improving content-targeted advertising.

§ 1.2 RELATED ART

Traditional Advertising

Advertising using traditional media, such as television, radio, newspapers and magazines, is well known. Unfortunately, even when armed with demographic studies and entirely reasonable assumptions about the typical audience of various media outlets, advertisers recognize that much of their ad budget is simply wasted. Moreover, it is very difficult to identify and eliminate such waste.

Amazon/VB Assets
Exhibit 1003
Page 492

Online Advertising

Recently, advertising over more interactive media has become popular. For example, as the number of people using the Internet has exploded, advertisers have come to appreciate media and services offered over the Internet as a potentially powerful way to advertise.

Advertisers have developed several strategies in an attempt to maximize the value of such advertising. In one strategy, advertisers use popular presences or means for providing interactive media or services (referred to as "Websites" in the specification without loss of generality) as conduits to reach a large audience. Using this first approach, an advertiser may place ads on the home page of the New York Times Website, or the USA Today Website, for example. In another strategy, an advertiser may attempt to target its ads to more narrow niche audiences, thereby increasing the likelihood of a positive response by the audience. For example, an agency promoting tourism in the Costa Rican rainforest might place ads on the ecotourism-travel subdirectory of the Yahoo Website. An advertiser will normally determine such targeting manually.

Regardless of the strategy, Website-based ads (also referred to as "Web ads") are often presented to their advertising audience in the form of "banner ads" – i.e., a rectangular box that includes graphic components. When a member of the advertising audience (referred to as a "viewer" or "user" in the Specification without loss of generality) selects one of these banner ads by clicking on it, embedded hypertext links typically direct the viewer to the advertiser's Website. This process, wherein the viewer selects an ad, is commonly referred to as a "click-through" ("Click-through" is intended to cover any user selection.). The ratio of the number of click-throughs to the number of impressions of the ad (i.e., the number of times an ad is displayed) is commonly referred to as the "click-through rate" or "CTR" of the ad.

A "conversion" is said to occur when a user consummates a transaction related to a previously served ad. What constitutes a conversion may vary from case to case and can be determined in a variety of ways. For example, it may be the case that a conversion occurs when a user clicks on an ad, is referred to the advertiser's web page, and consummates a purchase there before leaving that web page. Alternatively, a conversion may be defined as a user being shown an ad, and making a purchase on the advertiser's web page within a predetermined time (e.g., seven days). In yet another alternative, a conversion may be defined by an advertiser to be any measurable/observable user action such as, for example, downloading a white paper, navigating to at least a given depth of a Website, viewing at least a certain number of Web

Amazon/VB Assets
Exhibit 1003
Page 493

pages, spending at least a predetermined amount of time on a Website or Web page, etc. Often, if user actions don't indicate a consummated purchase, they may indicate a sales lead, although user actions constituting a conversion are not limited to this. Indeed, many other definitions of what constitutes a conversion are possible. The ratio of the number of conversions to the number of impressions of the ad (i.e., the number of times an ad is displayed) is commonly referred to as the conversion rate. If a conversion is defined to be able to occur within a predetermined time since the serving of an ad, one possible definition of the conversion rate might only consider ads that have been served more than the predetermined time in the past.

Despite the initial promise of Website-based advertisement, there remain several problems with existing approaches. Although advertisers are able to reach a large audience, they are frequently dissatisfied with the return on their advertisement investment. Some have attempted to improve ad performance by tracking the online habits of users, but this approach has led to privacy concerns.

Online Keyword-Targeted Advertising

Similarly, the hosts of Websites on which the ads are presented (referred to as "Website hosts" or "ad consumers") have the challenge of maximizing ad revenue without impairing their users' experience. Some Website hosts have chosen to place advertising revenues over the interests of users. One such Website is "Overture.com," which hosts a so-called "search engine" service returning advertisements masquerading as "search results" in response to user queries. The Overture.com Website permits advertisers to pay to position an ad for their Website (or a target Website) higher up on the list of purported search results. If such schemes where the advertiser only pays if a user clicks on the ad (i.e., cost-per-click) are implemented, the advertiser lacks incentive to target their ads effectively, since a poorly targeted ad will not be clicked and therefore will not require payment. Consequently, high cost-per-click ads show up near or at the top, but do not necessarily translate into real revenue for the ad publisher because viewers don't click on them. Furthermore, ads that viewers would click on are further down the list, or not on the list at all, and so relevancy of ads is compromised.

Search engines, such as Google for example, have enabled advertisers to target their ads so that they will be rendered in conjunction with a search results page responsive to a query that is relevant, presumably, to the ad. The Google system tracks click-through statistics (which is a performance parameter) for ads and keywords. Given a search keyword, there are a limited

Amazon/VB Assets
Exhibit 1003
Page 494

number of keyword targeted ads that could be shown, leading to a relatively manageable problem space. Although search result pages afford advertisers a great opportunity to target their ads to a more receptive audience, search result pages are merely a fraction of page views of the World Wide Web.

5

Online Content-Targeted Advertising

Some online advertising systems may use ad relevance information and document content relevance information (e.g., concepts or topics, feature vectors, etc.) to "match" ads to 10 (and/or to score ads with respect to) a document including content, such as a Web page for example. Examples of such online advertising systems are described in:

- U.S. Provisional Application Serial No. 60/413,536 (incorporated herein by reference), entitled "METHODS AND APPARATUS FOR SERVING RELEVANT ADVERTISEMENTS," filed on September 24, 2002 and listing Jeffrey A. Dean, 15 Georges R. Harik and Paul Bucheit as inventors;
- U.S. Patent Application Serial No. 10/314,427 (incorporated herein by reference), entitled "METHODS AND APPARATUS FOR SERVING RELEVANT ADVERTISEMENTS," filed on December 6, 2002 and listing Jeffrey A. Dean, Georges R. Harik and Paul Bucheit as inventors;
- 20 U.S. Patent Application Serial No. 10/375,900 (incorporated herein by reference), entitled "SERVING ADVERTISEMENTS BASED ON CONTENT," filed on February 26, 2003 and listing Darrell Anderson, Paul Bucheit, Alex Carobus, Claire Cui, Jeffrey A. Dean, Georges R. Harik, Deepak Jindal, and Narayanan Shivakumar as inventors; and
- U.S. Patent Application Serial No. 10/452,830 (incorporated herein by reference), 25 entitled "SERVING ADVERTISEMENTS USING INFORMATION ASSOCIATED WITH E-MAIL," filed on June 2, 2003 and listing Jeffrey A. Dean, Georges R. Harik and Paul Bucheit as inventors.

Generally, such online advertising systems may use relevance information of both candidate advertisements and a document to determine a score of each ad relative to the document. The 30 score may be used to determine whether or not to serve an ad in association with the document (also referred to as eligibility determinations), and/or to determine a relative attribute (e.g., screen position, size, etc.) of one or more ads to be served in association with the document. The determination of the score may also use, for example, one or more of (1) one or more

Amazon/VB Assets
Exhibit 1003
Page 495

performance parameters (e.g., click-through rate, conversion rate, user ratings, etc.) of the ad, (2) quality information about an advertiser associated with the ad, and (3) price information (e.g., a maximum price per result (e.g., per click, per conversion, per impression, etc.)) associated with the ad.

5

The Need to Improve Online Content-Targeted Advertising

A given document, such as a Web page for example, may be relevant to a number of different concepts or topics. However, users requesting a document, in the aggregate, may 10 generally be more interested in one relevant topic or concept than others. Therefore, when serving ads, it would be useful to give preference to ads relevant to the topic or concept of greater general interest, than ads relevant to less popular topics or concepts. This is less of a challenge in the context of keyword-targeted advertisements served with search results pages, since a user's interest can often be discerned from his or her search query. A user's interest in a 15 requested document is much more difficult to discern, particularly when the document has two or more relevant topics or concepts.

§ 2. SUMMARY OF THE INVENTION

20 The present invention provides a user behavior (e.g., selection (e.g., click), conversion, etc.) feedback mechanism for a content-targeting ad system. The present invention may track the performance of individual ads, or groups of ads, on a per document (e.g. per URL) and /or per host (e.g. per Website) basis. The present invention may process (e.g., aggregate) such user behavior feedback data into useful data structures. The present invention may also track the 25 performance of ad targeting functions on a per document, and/or per host basis. The present invention may use such user behavior feedback data (raw or processed) in a content-targeting ad system to improve ad quality, improve user experience, and/or maximize revenue.

§ 3. BRIEF DESCRIPTION OF THE DRAWINGS

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Figure 1 is a high-level diagram showing parties or entities that can interact with an advertising system.

Amazon/VB Assets
Exhibit 1003
Page 496

Figure 2 is a diagram illustrating an environment in which, or with which, the present invention may operate.

Figure 3A is a bubble diagram of content-targeted ad serving environment in which, or with which, the present invention may be used. Figure 3B is a bubbled diagram of an alternate ad serving technique.

Figure 4 is a bubble diagram of a first embodiment of the present invention in an environment such as that of Figure 3A.

Figure 5 is a bubble diagram of a second embodiment of the present invention in an environment such as that of Figure 3B.

Figure 6 is a bubble diagram illustrating a post-ad scoring application of the present invention.

Figure 7 is a bubble diagram illustrating a pre-ad scoring application of the present invention.

Figure 8 is a bubble diagram illustrating an application of the present invention to ad scoring.

Figure 9 is a flow diagram of an exemplary method for collecting and aggregating data in a manner consistent with the present invention.

Figure 10 is a flow diagram of an exemplary method for expanding a set of candidate ads in a manner consistent with the present invention.

Figure 11 is a flow diagram of an exemplary method for adjusting an ad score in a manner consistent with the present invention.

Figure 12 is a flow diagram of an exemplary method for adjusting (temporarily) ad performance information in a manner consistent with the present invention.

Figure 13A and 13B are flow diagrams of exemplary methods for document specific or host specific scoring of ads in a manner consistent with the present invention.

Figure 14 is a flow diagram of an exemplary method for estimating and/or adjusting ad performance information in a manner consistent with the present invention.

Figure 15 is a diagram illustrating an example of the operation of the method of Figure 14.

Figure 16 is a block diagram of apparatus that may be used to effect at least some of the various operations that may be performed and store at least some of the information that may be used and/or generated consistent with the present invention.

Amazon/VB Assets
Exhibit 1003
Page 497

§ 4. DETAILED DESCRIPTION

The present invention may involve novel methods, apparatus, message formats and/or data structures for improving content-targeted advertising. The following description is presented to enable one skilled in the art to make and use the invention, and is provided in the context of particular applications and their requirements. Various modifications to the disclosed embodiments will be apparent to those skilled in the art, and the general principles set forth below may be applied to other embodiments and applications. Thus, the present invention is not intended to be limited to the embodiments shown and the inventors regard their invention as any patentable subject matter described.

In the following, environments in which, or with which, the present invention may operate are described in § 4.1. Then, exemplary embodiments of the present invention are described in § 4.2. Finally, some conclusions regarding the present invention are set forth in § 4.3.

§ 4.1 ENVIRONMENTS IN WHICH, OR WITH WHICH, THE PRESENT INVENTION MAY OPERATE

§ 4.1.1 EXEMPLARY ADVERTISING ENVIRONMENT

Figure 1 is a high level diagram of an advertising environment. The environment may include an ad entry, maintenance and delivery system (simply referred to an ad server) 120. Advertisers 110 may directly, or indirectly, enter, maintain, and track ad information in the system 120. The ads may be in the form of graphical ads such as so-called banner ads, text only ads, image ads, audio ads, video ads, ads combining one of more of any of such components, etc. The ads may also include embedded information, such as a link, and/or machine executable instructions. Ad consumers 130 may submit requests for ads to, accept ads responsive to their request from, and provide usage information to, the system 120. An entity other than an ad consumer 130 may initiate a request for ads. Although not shown, other entities may provide usage information (e.g., whether or not a conversion or click-through related to the ad occurred) to the system 120. This usage information may include measured or observed user behavior related to ads that have been served.

The ad server 120 may be similar to the one described in Figure 2 of U.S. Patent Application Serial No. 10/375,900, mentioned in § 1.2 above. An advertising program may

Amazon/VB Assets
Exhibit 1003
Page 498

include information concerning accounts, campaigns, creatives, targeting, etc. The term "account" relates to information for a given advertiser (e.g., a unique e-mail address, a password, billing information, etc.). A "campaign" or "ad campaign" refers to one or more groups of one or more advertisements, and may include a start date, an end date, budget information, geo-targeting information, syndication information, etc. For example, Honda may have one advertising campaign for its automotive line, and a separate advertising campaign for its motorcycle line. The campaign for its automotive line have one or more ad groups, each containing one or more ads. Each ad group may include targeting information (e.g., a set of keywords, a set of one or more topics, etc.), and price information (e.g., maximum cost (cost per click-though, cost per conversion, etc.)). Alternatively, or in addition, each ad group may include an average cost (e.g., average cost per click-through, average cost per conversion, etc.). Therefore, a single maximum cost and/or a single average cost may be associated with one or more keywords, and/or topics. As stated, each ad group may have one or more ads or "creatives" (That is, ad content that is ultimately rendered to an end user.). Each ad may also include a link to a URL (e.g., a landing Web page, such as the home page of an advertiser, or a Web page associated with a particular product or server). Naturally, the ad information may include more or less information, and may be organized in a number of different ways.

Figure 2 illustrates an environment 200 in which the present invention may be used. A user device (also referred to as a "client" or "client device") 250 may include a browser facility (such as the Explorer browser from Microsoft, the Opera Web Browser from Opera Software of Norway, the Navigator browser from AOL/Time Warner, etc.), an e-mail facility (e.g., Outlook from Microsoft), etc. A search engine 220 may permit user devices 250 to search collections of documents (e.g., Web pages). A content server 210 may permit user devices 250 to access documents. An e-mail server (such as Hotmail from Microsoft Network, Yahoo Mail, etc.) 240 may be used to provide e-mail functionality to user devices 250. An ad server 210 may be used to serve ads to user devices 250. The ads may be served in association with search results provided by the search engine 220. Content-relevant (also referred to as "content-targeted") ads may also be served in association with content provided by the content server 230, and/or e-mail supported by the e-mail server 240 and/or user device e-mail facilities.

As discussed in U.S. Patent Application Serial No. 10/375,900 (introduced above), ads may be targeted to documents served by content servers. Thus, one example of an ad consumer 130 is a general content server 230 that receives requests for documents (e.g., articles, discussion threads, music, video, graphics, search results, Web page listings, etc.), and retrieves the

Amazon/VB Assets
Exhibit 1003
Page 499

requested document in response to, or otherwise services, the request. The content server may submit a request for ads to the ad server 120/210. Such an ad request may include a number of ads desired. The ad request may also include document request information. This information may include the document itself (e.g., page), a category or topic corresponding to the content of the document or the document request (e.g., arts, business, computers, arts-movies, arts-music, etc.), part or all of the document request, content age, content type (e.g., text, graphics, video, audio, mixed media, etc.), geo-location information, document information, etc.

The content server 230 may combine the requested document with one or more of the advertisements provided by the ad server 120/210. This combined information including the document content and advertisement(s) is then forwarded towards the end user device 250 that requested the document, for presentation to the user. Finally, the content server 230 may transmit information about the ads and how, when, and/or where the ads are to be rendered (e.g., position, click-through or not, impression time, impression date, size, conversion or not, etc.) back to the ad server 120/210. Alternatively, or in addition, such information may be provided back to the ad server 120/210 by some other means.

Another example of an ad consumer 130 is the search engine 220. A search engine 220 may receive queries for search results. In response, the search engine may retrieve relevant search results (e.g., from an index of Web pages). An exemplary search engine is described in the article S. Brin and L. Page, "The Anatomy of a Large-Scale Hypertextual Search Engine," Seventh International World Wide Web Conference, Brisbane, Australia and in U.S. Patent No. 6,285,999 (both incorporated herein by reference). Such search results may include, for example, lists of Web page titles, snippets of text extracted from those Web pages, and hypertext links to those Web pages, and may be grouped into a predetermined number of (e.g., ten) search results.

The search engine 220 may submit a request for ads to the ad server 120/210. The request may include a number of ads desired. This number may depend on the search results, the amount of screen or page space occupied by the search results, the size and shape of the ads, etc. In one embodiment, the number of desired ads will be from one to ten, and preferably from three to five. The request for ads may also include the query (as entered or parsed), information based on the query (such as geolocation information, whether the query came from an affiliate and an identifier of such an affiliate), and/or information associated with, or based on, the search results. Such information may include, for example, identifiers related to the search results (e.g., document identifiers or "docIDs"), scores related to the search results (e.g., information retrieval

Amazon/VB Assets
Exhibit 1003
Page 500

("IR") scores such as dot products of feature vectors corresponding to a query and a document, Page Rank scores, and/or combinations of IR scores and Page Rank scores), snippets of text extracted from identified documents (e.g., Web pages), full text of identified documents, topics of identified documents, feature vectors of identified documents, etc.

The search engine 220 may combine the search results with one or more of the search-based advertisements provided by the ad server 120/210. This combined information including the search results and advertisement(s) is then forwarded towards the user that submitted the search, for presentation to the user. Preferably, the search results are maintained as distinct from the ads, so as not to confuse the user between paid advertisements and presumably neutral search results.

Finally, the search engine 220 may transmit information about the ad and when, where, and/or how the ad was to be rendered (e.g., position, click-through or not, impression time, impression date, size, conversion or not, etc.) back to the ad server 120/210. Alternatively, or in addition, such information may be provided back to the ad server 120/210 by some other means.

Finally, the e-mail server 240 may be thought of, generally, as a content server in which a document served is simply an e-mail. Further, e-mail applications (such as Microsoft Outlook for example) may be used to send and/or receive e-mail. Therefore, an e-mail server 240 or application may be thought of as an ad consumer 130. Thus, e-mails may be thought of as documents, and targeted ads may be served in association with such documents. For example, one or more ads may be served in, under over, or otherwise in association with an e-mail.

Although the foregoing examples described servers as (i) requesting ads, and (ii) combining them with content, one or both of these operations may be performed by a client device (such as an end user computer for example).

Figure 3A is a bubble diagram of content-targeted ad serving environment 300 in which, or with which, the present invention may be used. Ad scoring operations 340 may use document relevance information 320 of (e.g., derived from) a document 310, as well as ad relevance information 334 for each of one or more ads 332, to determine a plurality of ads (or ad identifiers) and associated ad scores 355. The ads 355 may be limited to those deemed relevant (on a absolute and/or relative basis) and may be sorted 350. Such ad scores 355 can then be used by ad eligibility determination operations 360 and/or ad positioning/enhanced feature application operations 370.

Amazon/VB Assets
Exhibit 1003
Page 501

Note that the ad scoring operations 340 may also consider other information in their determination of ad scores, such as ad performance information 336, price information (not shown), advertiser quality information (not shown), etc.

The present invention may, of course, also be used in other environments, such as in a search engine environment disclosed above or that disclosed in U.S. Patent Nos. 6,078,916; 6,014,665 and 6,006,222; each titled "Method for Organizing Information" and issued to Culliss on June 20, 2000, January 11, 2000, and December 21, 1999, respectively, and U.S. Patent Nos. 6,182,068 and 6,539,377 each titled "Personalized Search Methods" and issued to Culliss on January 30, 2001 and March 25, 2003 respectively.

As shown in Figure 3B, the scoring operation may involve multiple stages. For example, a first scoring operation 390 may use document relevance information 320 and ad information 330 to determine a first ad score 391. The first score may be a relevancy score 391. These scores 391 may be filtered by a filtering operation 394 to generate eligible ads 397. A second scoring operation 396 may provide a second (e.g., ranking) score 399 to one or more eligible ads.

The ad relevance information and document relevance information may be in the form of various different representations. For example, the relevance information may be a feature vector (e.g., a term vector), a number of concepts (or topics, or classes, etc.), a concept vector, a cluster (See, e.g., U.S. Provisional Application Serial No. 60/416,144 (incorporated herein by reference), titled "Methods and Apparatus for Probabilistic Hierarchical Inferential Learner" and filed on October 3, 2002, which describes exemplary ways to determine one or more concepts or topics (referred to as "PHIL clusters") of information), etc. Exemplary techniques for determining content-relevant ads, that may be used by the present invention, are described in U.S. Patent Application Serial No. 10/375,900 introduced above

Various way of extracting and/or generating relevance information are described in U.S. Provisional Application Serial No. 60/413,536 and in U.S. Patent Application Serial No. 10/314,427, both introduced above. Relevance information may be considered as a topic or cluster to which an ad or document belongs. Various similarity techniques, such as those described in the relevant ad server applications, may be used to determine a degree of similarity between an ad and a document. Such similarly techniques may use the extracted and/or generated relevance information. One or more content-relevant ads may then be associated with a document based on the similarity determinations. For example, an ad may be associated with a document if its degree of similarity exceeds some absolute and/or relative threshold.

Amazon/VB Assets
Exhibit 1003
Page 502

In one exemplary embodiment of the present invention, a document may be associated with one or more ads by mapping a document identifier (e.g., a URL) to one or more ads. For example, the document information may have been processed to generate relevance information, such as a cluster (e.g., a PHIL cluster), a topic, etc. The matching clusters may then be used as query terms in a large OR query to an index that maps topics (e.g., a PHIL cluster identifiers) to a set of matching ad groups. The results of this query may then be used as first cut set of candidate targeting criteria. The candidate ad groups may then be sent to the relevance information extraction and/or generation operations (e.g., a PHIL server) again to determine an actual information retrieval (IR) score for each ad group summarizing how well the criteria information plus the ad text itself matches the document relevance information. Estimated or known performance parameters (e.g., click-through rates, conversion rates, etc.) for the ad group may be considered in helping to determine the best scoring ad group.

Once a set of best ad groups have been selected, a final set of one or more ads may be selected using a list of criteria from the best ad group(s). The content-relevant ad server can use this list to request that an ad be sent back if K of the M criteria sent match a single ad group. If so, the ad is provided to the requestor.

Performance information (e.g., a history of selections or conversions per URL or per domain) may be fed back in the system, so that clusters or Web pages that tend to get better performance for particular kinds of ads (e.g., ads belonging to a particular cluster or topic) may be determined. This can be used to re-rank content-relevant ads such that the ads served are determined using some function of both content-relevance and performance. A number of performance optimizations may be used. For example, the mapping from URL to the set of ad groups that are relevant may be cached to avoid re-computation for frequently viewed pages. Naturally, the present invention may be used with other content-relevant ad serving techniques.

§ 4.1.2 DEFINITIONS

Online ads, such as those used in the exemplary systems described above with reference to Figures 1 and 2, or any other system, may have various intrinsic features. Such features may be specified by an application and/or an advertiser. These features are referred to as "ad features" below. For example, in the case of a text ad, ad features may include a title line, ad text, and an embedded link. In the case of an image ad, ad features may include images, executable code, and an embedded link. Depending on the type of online ad, ad features may

Amazon/VB Assets
Exhibit 1003
Page 503

include one or more of the following: text, a link, an audio file, a video file, an image file, executable code, embedded information, etc.

When an online ad is served, one or more parameters may be used to describe how, when, and/or where the ad was served. These parameters are referred to as "serving parameters" below. Serving parameters may include, for example, one or more of the following: features of (including information on) a page on which the ad was served, a search query or search results associated with the serving of the ad, a user characteristic (e.g., their geographic location, the language used by the user, the type of browser used, previous page views, previous behavior), a host or affiliate site (e.g., America Online, Google, Yahoo) that initiated the request, an absolute position of the ad on the page on which it was served, a position (spatial or temporal) of the ad relative to other ads served, an absolute size of the ad, a size of the ad relative to other ads, a color of the ad, a number of other ads served, types of other ads served, time of day served, time of week served, time of year served, etc. Naturally, there are other serving parameters that may be used in the context of the invention.

Although serving parameters may be extrinsic to ad features, they may be associated with an ad as serving conditions or constraints. When used as serving conditions or constraints, such serving parameters are referred to simply as "serving constraints" (or "targeting criteria"). For example, in some systems, an advertiser may be able to target the serving of its ad by specifying that it is only to be served on weekdays, no lower than a certain position, only to users in a certain location, etc. As another example, in some systems, an advertiser may specify that its ad is to be served only if a page or search query includes certain keywords or phrases. As yet another example, in some systems, an advertiser may specify that its ad is to be served only if a document being served includes certain topics or concepts, or falls under a particular cluster or clusters, or some other classification or classifications.

"Ad information" may include any combination of ad features, ad serving constraints, information derivable from ad features or ad serving constraints (referred to as "ad derived information"), and/or information related to the ad (referred to as "ad related information"), as well as an extension of such information (e.g., information derived from ad related information).

A "document" is to be broadly interpreted to include any machine-readable and machine-storable work product. A document may be a file, a combination of files, one or more files with embedded links to other files, etc. The files may be of any type, such as text, audio, image, video, etc. Parts of a document to be rendered to an end user can be thought of as "content" of the document. A document may include "structured data" containing both content

Amazon/VB Assets
Exhibit 1003
Page 504

(words, pictures, etc.) and some indication of the meaning of that content (for example, e-mail fields and associated data, HTML tags and associated data, etc.) Ad spots in the document may be defined by embedded information or instructions. In the context of the Internet, a common document is a Web page. Web pages often include content and may include embedded information (such as meta information, hyperlinks, etc.) and/or embedded instructions (such as Javascript, etc.). In many cases, a document has a unique, addressable, storage location and can therefore be uniquely identified by this addressable location. A universal resource locator (URL) is a unique address used to access information on the Internet.

"Document information" may include any information included in the document, information derivable from information included in the document (referred to as "document derived information"), and/or information related to the document (referred to as "document related information"), as well as an extensions of such information (e.g., information derived from related information). An example of document derived information is a classification based on textual content of a document. Examples of document related information include document information from other documents with links to the instant document, as well as document information from other documents to which the instant document links.

Content from a document may be rendered on a "content rendering application or device". Examples of content rendering applications include an Internet browser (e.g., Explorer or Netscape), a media player (e.g., an MP3 player, a Realnetworks streaming audio file player, etc.), a viewer (e.g., an Abobe Acrobat pdf reader), etc.

A "content owner" is a person or entity that has some property right in the content of a document. A content owner may be an author of the content. In addition, or alternatively, a content owner may have rights to reproduce the content, rights to prepare derivative works of the content, rights to display or perform the content publicly, and/or other proscribed rights in the content. Although a content server might be a content owner in the content of the documents it serves, this is not necessary.

"User information" may include user behavior information and/or user profile information.

"E-mail information" may include any information included in an e-mail (also referred to as "internal e-mail information"), information derivable from information included in the e-mail and/or information related to the e-mail, as well as extensions of such information (e.g., information derived from related information). An example of information derived from e-mail information is information extracted or otherwise derived from search results returned in

Amazon/VB Assets
Exhibit 1003
Page 505

response to a search query composed of terms extracted from an e-mail subject line. Examples of information related to e-mail information include e-mail information about one or more other e-mails sent by the same sender of a given e-mail, or user information about an e-mail recipient. Information derived from or related to e-mail information may be referred to as "external e-mail information."

Various exemplary embodiments of the present invention are now described in § 4.2.

§ 4.2 EXEMPLARY EMBODIMENTS

Recall from Figures 3A and 3B that the ad scoring operations may use ad performance information. The present inventors recognized that such performance information (e.g., click-through rate for the ad) is often tracked and maintained globally, across all documents and all concepts. However, using such global performance information may not provide the best results in certain cases. The present invention may be used to track, aggregate and use performance information on a document (e.g., a Web page), host (e.g., Website), and/or concept level to improve the serving of content-targeted ads.

The present invention may include one or more of (1) a user behavior (e.g., click) data gathering stage, (2) a user behavior data preprocessing stage, and (3) a user behavior data based ad score determination or adjustment stage. Exemplary embodiments, for performing each of these stages are described below. Specifically, exemplary methods and data structures for gathering user behavior data and preprocessing such user behavior data are described in § 4.2.2. Then, exemplary methods for determining or adjusting ad scores using such user behavior data are described in § 4.2.3. The present invention is not limited to the particular embodiments described. First, however, the application of various aspects of the present invention to a content-targeted ad serving environment such as that 300 and 300' of Figures 3A and 3B is described in § 4.2.1.

§ 4.2.1 USE OF THE PRESENT INVENTION IN A CONTENT-TARGETED AD SERVING ENVIRONMENT

As can be appreciated from the following example, document specific (and/or host specific) click feedback (or some other tracked user behavior) may be used to improve a content-targeting ad serving system, such as those described in the provisional and utility patent applications listed and incorporated by reference above. Consider a typical Website like

Amazon/VB Assets
Exhibit 1003
Page 506

www.wunderground.com that hosts weather pages about different cities. Consider three (3) Web pages about weather in Lake Tahoe, Las Vegas and Hurley, Wisconsin.

First, click feedback may be useful to improve the quality of ads. For example, a content-targeted ad system may serve ads by generating a query based on concatenating, using a Boolean "OR" operation, several concepts from a Web page. Thus, the query = "Lake Tahoe OR barometer OR Squaw Valley" may be generated using these determined concepts from a Web page about the weather in Lake Tahoe. These are different concepts, and may lead to ads about barometers, Lake Tahoe hotels, and Squaw Valley ski rentals. In such cases, it may be difficult to choose the "right" ads (or set of ads) to serve. Again, the "right" ads (or set of ads) are likely different on a per Web page basis. For a Las Vegas related Web page, the most reasonable ad(s) may be for hotels there. For a Hurley, WI related Web page, it is likely those checking weather there are not necessarily visiting there and need hotels, but may be more interested in weather-related instruments. For a Lake Tahoe related Web page, users are more likely to select ads for lift tickets and ski rentals. As this example shows, three similarly structured Web pages may have different "click responses" for unrelated topics or concepts. Ad performance parameters (e.g., click through rates (CTRs) are useful and may be maintained on a per-URL basis. The present invention may use such information to choose "better" and more interesting ads depending on the Web page and using information about what others have clicked on.

Click feedback may also be useful for purposes of "correct" auctioning of ad spots/enhanced ad features. For example, ad systems may use search query information (e.g., keyword) CTR (referred to simply as "search CTR") for auctioning ad spots on a search results Web page. But this is not particularly relevant to content CTR. For example, search CTR for the keyword "barometer" may be high if that's what users are searching for. However, for in the context of a content-targeting ad system, ads with a barometer concept targeting are unlikely to generate any clicks if served with a weather page on Las Vegas. Ads with a hotel concept targeting and/or real estate concept targeting are more likely to generate clicks if served with such a Las Vegas weather page. Thus, search CTR information which may be useful when auctioning ad spots on a search results page may not be useful (e.g., for determining an estimated cost per thousand impressions (ECPMs) and the cost per click (CPCs)) in the context of auctioning ad spots on a content Web page. The present invention may be used to determine a better CTR for each ad (or ad group), using per-URL CTR statistics.

Amazon/VB Assets
Exhibit 1003
Page 507

Click feedback may also be useful for purposes of extrapolating performance information from transient ads (or ad groups). Advertisers, ads, and/or ad groups may be considered to be transient in that they may reduce their budgets, may opt-out or end their campaigns, etc. However, click feedback information for ads served with a Web page for Bally's Hotel in Las Vegas or MGM Grand, may be applied to (perhaps with a lower weight) other ads that share similar characteristics (e.g., that have similar concepts or concept targeting) when considering whether or not to serve such ads with the Web page. The present invention may be used to extrapolate click feedback information from prior clicked ads, to new ads and show "related" ads (that trigger the same concepts) to compensate for reduced ads inventory.

Figure 4 is a bubble diagram of a first embodiment 400 of the present invention in an environment such as that of Figure 3A. As was the case with the environment 300 of Figure 3A, ad scoring operations 440 may use document relevance information 420 of a document 410, as well as ad relevance information 434 for each of one or more ads 432, to determine a plurality of ads (or ad identifiers) and associated ad scores 455. The ads 455 may be limited to those deemed relevant (on a absolute and/or relative basis) and may be sorted 450. Such ad scores 455 can then be used by ad eligibility determination operations 460 and/or ad positioning/enhanced feature application operations 470. Various operations, shown in phantom, may use performance data 480 of ads for the particular document. Operations for collecting and/or aggregating ad performance data on a per-document, per-host, and/or per-concept basis are not shown. In any event, as indicated by table 480, ad performance information 484 (e.g., click through rate, conversion rate, etc.) as well as underlying parts of such performance information (e.g., impression counts, selection counts, conversion counts, etc.) (not shown) may be tracked for each of a number of ads (or ad groups) 482 on a per document basis. For example, as illustrated in Figure 4, a document 410 may be associated with a table 480 (e.g., using a document identifier 412). Average ad (or average ad group) performance 484 for all ads (or ad groups) 482 for a given document may also be determined and stored.

The present invention may perform one or more of the operations depicted in phantom. These operations may use the document-specific ad (or ad group) performance information 480. Candidate ad set expansion operations 490 may be used to increase the number of "relevant" or "eligible" ads using, at least, the document-specific ad (or ad group) performance information 480. Ad score adjustment operations 491 may be used to adjust already determined scores of ads 455 using, at least, the document-specific ad (or ad group) performance information 480. Ad performance information adjustment operations 493 may be used to adjust (temporarily) ad

Amazon/VB Assets
Exhibit 1003
Page 508

performance information 436 (or may be used instead of, or in combination with, ad performance infuriation 436) using, at least, the document-specific ad or (ad group) performance information 480. Finally, performance parameter estimation (extrapolation) operations 496 may be used to populate, and/or adjust and supplement ad (or ad group) performance information 484. Exemplary methods for performing these operations are described later.

Figure 5 is a bubble diagram of a second embodiment 500 of the present invention in an environment such as that of Figure 3A. As was the case with the environment 300 of Figure 3, ad scoring operations 540 may use document relevance information 520 of a document 510, as well as ad relevance information 534 for each of one or more ads 532, to determine a plurality of ads (or ad identifiers) and associated ad scores 555. The ads 555 may be limited to those deemed relevant (on a absolute and/or relative basis) and may be sorted 550. Such ad scores 555 can then be used by ad eligibility determination operations 560 and/or ad positioning/enhanced feature application operations 570. Various operations, shown in phantom, may use performance data 584 of ads (or ad groups) 582 and/or performance data 588 of targeting functions 587 for the particular document or host (e.g., Website).

Operations for collecting and/or aggregating ad performance data on a per-document, per-host, and/or per-concept basis are not shown. In any event, as indicated by table 580, ad (or ad group) performance information 584 (e.g., click through rate, conversion rate, etc.) as well as underlying parts of such performance information (e.g., impression counts, selection counts, etc.) (not shown), may be tracked for each of a number of ads (or ad groups) 582 on a per host basis. Similarly, as indicated by table 586, ad (or ad group) performance information 588, as well as underlying parts of such performance information. (not shown) may be tracked for each of a number of targeting functions 587 on a per-host basis. For example, as illustrated in Figure 5, a host 514 of a document 510 may be associated with tables 580 and 586. Average ad (or ad group) performance 584, 588 for all ads (or ad groups) 582, 587 for a given host may also be determined and stored.

The present invention may perform one or more of the operations depicted in phantom. These operations may use the host-specific ad performance information 580 and/or host specific targeting function ad performance information 586. (To simplify the drawing, the use of this information 580 and 586 by some of the operations is not indicated.) Candidate ad set expansion operations 590 may be used to increase the number of "relevant" or "eligible" ads using, at least, the host-specific ad (or ad group) performance information 480. Ad score adjustment operations 591 may be used to adjust already determined scores of ads 555 using, at

Amazon/VB Assets
Exhibit 1003
Page 509

least, the host-specific ad (or ad group) performance information 580. Ad performance information adjustment operations 593 may be used to adjust (temporarily) ad performance information 536 (or may be used instead of, or in combination with, ad performance information 436) using, at least, the host-specific ad (or ad group) performance information 580. Document/host specific ad scoring operations 594 may be used to choose an appropriate scoring function and/or adjust scoring function components and/or parameters 595 used by the ad scoring operations 540. For example, different scoring functions could use different ad targeting techniques (e.g. keyword-based, concept-based, document concept-based, host concept-based, etc.) or a combination of different ad targeting techniques with various weightings. Finally, performance parameter estimation (extrapolation) operations 596 may be used to populate, and/or adjust and supplement ad (or ad group) performance information 584. Exemplary methods for performing these operations are described later.

As can be appreciated from the foregoing, various operations, consistent with the present invention, may be used to consider document specific performance information (e.g., ad, ad group, targeting function, etc.) applied before, during, or after ad scoring.

For example, Figure 6 illustrates ad score adjustment operations 691 (Recall, e.g., 491 and 591 of Figures 4 and 5, respectively.) that use document specific ad performance information 680 to generate an adjusted score 699 from an initial score 655. The initial score 655 may have previously been generated by ad scoring operations 640 using (general) ad performance information 636, document information 620 and other ad information (e.g., targeting information, price information, advertiser quality information, etc.) 632. Thus, Figure 6 illustrates the use of document specific ad performance information after ad scoring.

Figure 7 illustrates ad performance mixing (adjustment) operations 793 (Recall, e.g., 493 and 593 of Figures 4 and 5, respectively.) that use document specific ad performance information 780 to adjust (general) ad performance information 736 to generate mixed (or adjusted) ad performance information 798. Ad scoring operations 740 can the use such mixed ad performance information 798, as well as other ad information 732 and document information 720, to generate an ad score 750. Thus, Figure 7 illustrates the use of document specific ad performance information before ad scoring.

Figure 8 illustrates the use of document specific (or host specific) targeting function performance information by scoring selection/adjustment operations 894 to select a scoring function and/or to adjust parameters of a scoring function 895. Ad scoring operations 840 then use the selected scoring function, and/or the scoring function parameters, as well as ad

Amazon/VB Assets
Exhibit 1003
Page 510

information 832 and document information 820, to generate an ad score 850. Thus, Figure 8 illustrates the use of (e.g., document, host, etc.) specific targeting function performance information during the ad scoring.

Although the foregoing operations were described with reference to document specific performance information, the performance information can be specific to some grouping of documents (e.g., host specific, document cluster specific, etc.). In addition, although the foregoing operations were described with reference to ad performance information, performance information of some grouping of ads (e.g., ad groups, etc.) may be used.

§ 4.2.2 STORING AND AGGREGATING USER BEHAVIOR DATA

Figure 9 is a flow diagram of an exemplary method 900 for collecting and aggregating data in a manner consistent with the present invention. Each time an ad is served in association with a document, the document (and/or host) identifier (e.g., a URL) may be logged, an ad (and/or an ad group) identifier may be logged, and impression information may be logged. (Block 910) Various user behavior information may be accepted. (Block 920) For example, a document identifier, an ad (or ad group) identifier, user behavior information and cost information (e.g., cost per selection, cost per conversion) may be accepted. Alternatively, or in addition, a host identifier, an ad (or ad group) identifier, user behavior information and cost information may be accepted. Alternatively, or in addition, a host identifier, a targeting function (or targeting functions), user behavior information , and cost information may be accepted. Such user behavior information may be accepted continuously (e.g., as it occurs), or incrementally (e.g., in batches). Counts and/or statistics may then be updated based on the accepted and logged information. (Block 930) The information may be thresholded using counts. (Block 940) Data may be adjusted (e.g., smoothed) using some measure of data confidence. (Block 950) The updated counts and/or statistics may then be stored. (Block 960) A document identifier (e.g., a URL) or a host identifier (e.g., a home page URL) may be used as a lookup key to the stored counts and/or statistics. (Block 960)

Referring back to block 910, the present invention may use an offline process to aggregate logs of user behavior (e.g., using a front end Web server, such as Google Web Server), and record statistics on a per-URL, per-domain information basis. For example, all clicks, and a sample of ad impressions can be collected (e.g., twice a day). This data may be referred to below as "Daily-Decoded Log Data."

Amazon/VB Assets
Exhibit 1003
Page 511

Referring back to blocks 920 and 930, from the above data, and an AdGroupCreativeId-to-AdGroup mapping, summary data structures may be generated. The following data structures are useful for a content ads system that works off an AdGroup granularity, which is why that is being used as the unit of aggregation. Other units of aggregation (e.g., AdGroupCreativeId, or similar units) are possible, and the following data structures can be modified accordingly. In the following, "numimprs" means number of impressions, "numclicks" means number of user selections (e.g., clicks), "avgcpc" means average cost per selection (e.g., click), and "avgctr" means average selection (e.g., click-through) rate.

(1) URL:-> {AdGroup, numimprs, numclicks, avgcpc} + avgctr

(2) Host:-> {AdGroup, numimprs, numclicks, avgcpc} + avgctr

(3) Host:-> {targeting-feature, numimprs, numclicks, avgcpc} + avgctr

(4) AdGroup:-> {numimprs, numclicks, avgcpc} + avgctr

To generate the foregoing data structures, the present invention may aggregate over the last K days (e.g., 2 months) of Daily-Decoded-LogData, and maintain information for all keys where numimprs > threshold_num_imprs or numclicks > threshold_num_clicks. Average performance information may also be generated and stored. For example, average user behavior over all (a) ad groups per document; (b) ad groups per host and (c) targeting functions per host, may be determined.

Referring back to block 940, this aggregation is an example of a "counting + thresholding" problem, where there is a long tail of entries. That is, typically the counters for all URLs/AdGroups may be maintained, and counters that don't reach the threshold at a time of aggregation may be discarded. Since this may be considered to be a classic "iceberg" query, and the present invention may use known techniques (See, e.g., the paper M. Fang, N. Shivakumar, H. Garcia-Molina, R. Motwani, J. Ullman, "Computing Iceberg Queries Efficiently," 24th International Conference on Very Large Databases, (August 24-27, 1998) (incorporated herein by reference).) to perform thresholding early.

Referring back to block 950, a refined embodiment of the present invention may employ data smoothing. The "confidence" of click statistics may vary a lot for different ads and URLs. For example, ad X may have gotten 200 clicks out of 1000 impressions, while ad Y may have gotten 1 click out of 5 impressions. Although both ads have the same CTR, the confidence level

Amazon/VB Assets
Exhibit 1003
Page 512

of the statistics for ad X is higher than those for ad Y. To reflect such a confidence parameter, the present invention may "smooth" the CTR values towards the mean content-ads CTR as follows:

SmoothedCTR = (Clicks + 1) / (Impressions + 1 / BaseCTR)

There can also be different ways to smooth the CTR values. One alternative is to use the following:

SmoothedCTR = CTR * confidence + BaseCTR * (1 - confidence)

where confidence is set based on the number of impressions. Confidence may also be a function of other characteristics of the data, such as age of the data sample.

There are many different ways to collect and store the click statistics in a manner consistent with the present invention, in addition to the options for maintaining the click statistics data structures mentioned above. Statistics may be collected for the entire time period. Alternatively, statistics may be collected and loaded in an incremental manner. The statistics may be stored in files and loaded into memory at runtime. Alternatively, or in addition, they can be stored in a database and retrieved at run time. Although an offline mechanism for compute feedback periodically was described, such feedback computation could be made online, in realtime too.

Having described exemplary techniques for logging and aggregating user behavior data to generate data structures such as those 480, 580, 586 of Figures 4 and 5, various methods that may use one or more of these data structures in a manner consistent with the present invention are now described in § 4.2.3 below.

§ 4.2.3 DETERMINING AND/OR ADJUSTING AD SCORES USING STORED USER BEHAVIOR DATA

§ 4.2.3.1 CANDIDATE AD SET EXPANSION

Figure 10 is a flow diagram of an exemplary method 1000 for expanding a set of candidate ads (Recall, e.g., operations 490 and 590.) in a manner consistent with the present invention. A document identifier (e.g., a URL) is accepted. (Block 1010) A first predetermined number (e.g., K, wherein K may range from 0 to 500 in one embodiment) of the best performing ads (or ad groups) are determined for the document using the stored/aggregated user behavior data. (Block 1020) Finally, a set of candidate ads, including at least the first predetermined number of best performing ads (or ad groups) is determined. (Block 1030) The set of candidate

Amazon/VB Assets
Exhibit 1003
Page 513

ads may include ads that would be determined under normal processing. Although not shown, whether or not to expand the original set of ads, and/or the number K of ads to expand it by, may depend on the absolute and/or relative performance of the ads of the original set.

As can be appreciated from the foregoing, this aspect of the present invention permits ads that don't necessarily perform particular well globally (e.g., over all documents) but do perform well for a given document (or for a given host) to be eligible to be served in association with the given document.

In one exemplary embodiment of the present invention, for each URL, those AdGroups with the top K highest CTRs are appended to the AdGroup candidates obtained from normal scoring mechanisms. This may be done using the data structure: *URL:-> {AdGroup, numimprs, numclicks, avgcpc} + avgctr.*

§ 4.2.3.2 AD SCORE ADJUSTMENT TECHNIQUES

§ 4.2.3.2.1 AD SCORE ADJUSTMENT

Figure 11 is a flow diagram of an exemplary method 1100 for adjusting an ad score (Recall, e.g., operations 491 and 591) in a manner consistent with the present invention. Ad (or ad group) candidates and their respective scores (Recall, e.g., 455 and 555) are accepted. (Block 1110) A document identifier (e.g., URL) and/or host identifier (Website home page URL) may be accepted. (Block 1120). As indicated by loop 1130-1160, a number of acts are performed for each accepted ad (or ad group) candidate. More specifically, document specific and/or host specific ad (or ad group) performance information is accepted. (Block 1140) Average performance information for the document and/or host over all ads (or ad groups) may also be accepted. Then, the ad (or ad group) score is adjusted using the accepted document specific and/or host specific performance information (and using the average performance information). (Block 1160) When all ad (ad group) candidates have been processed, the method 1100 is left. (Node 1170)

As can be appreciated from the foregoing, a score of an ad, which may be a function of at least the ad's performance without regard to the document with which it was served, may be adjusted using document specific and/or host specific performance information for the ad.

In one exemplary embodiment of the present invention, AdGroup candidates and concepts (e.g., PHIL clusters) are re-scored using their CTR on the given Web page or host.

Amazon/VB Assets
Exhibit 1003
Page 514

This may be done using the data structure *URL:-> {AdGroup, numimprs, numclicks, avgcpc} + avgctr.*

The method 1100 of Figure 11 is an example of the post-scoring application of document (and/or host) specific performance information. (Recall, e.g., Figure 6).

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§ 4.2.3.2.2 AD PERFORMANCE ADJUSTMENT

Figure 12 is a flow diagram of an exemplary method 1200 for adjusting (temporarily) ad performance information (Recall, e.g., operations 493 and 593.) in a manner consistent with the 10 present invention. Eligible ad (or ad group) candidates and ad (or ad group) performance information is accepted. (Block 1210) A document identifier (e.g., URL) and/or a host identifier is accepted. (Block 1220) As indicated by loop 1230-1260, a number of acts are performed for each accepted ad (or ad group) candidate. More specifically, document specific and/or host specific ad (or ad group) performance information is accepted. (Block 1240) 15 Average performance information for the document and/or host over all ads (or ad groups) may also be accepted. Then, the ad (or ad group) performance information is adjusted using the accepted document specific and/or host specific performance information (and using the average performance information). (Block 1250) When all ad (ad group) candidates have been processed, the method 1200 is left. (Node 1270)

20 As can be appreciated from the foregoing, for purposes of determining a score of an ad with respect to a given document, the ad's performance, which normally does not consider the document with which it was served, may be adjusted using document specific and/or host specific performance information for the ad. The method 1200 of Figure 12 is an example of the pre-scoring application of document (and/or host) specific information. (Recall, e.g., Figure 7.)

25 In one exemplary embodiment of the present invention, Web page, Website, or content-ads specific selection statistics are sent to an ad server so it can use these in determining an ad score (e.g., for use in assigning ad positions/ad features). This may be done using one or more of the following data structures:

URL:-> {AdGroup, numimprs, numclicks, avgcpc} + avgctr;

30 *Host:-> {AdGroup, numimprs, numclicks, avgcpc} + avgctr; and*

(AdGroup:-> {numimprs, numclicks, avgcpc} + avgctr).

Consistent with the present invention, the selection statistics may be attached to each AdGroup in an AdGroup list sent to an ad server. The present invention may use URL-level statistics if

Amazon/VB Assets
Exhibit 1003
Page 515

they exist. Otherwise, the present invention may use the host-level (e.g., Website home page URL level) statistics, the AdGroup statistics across all content-ads properties, or, in a less preferred case, the content-ads mean AdCTR.

§ 4.2.3.2.3 DOCUMENT/HOST SPECIFIC AD SCORING FUNCTION DETERMINATION

Figure 13A illustrates an exemplary method 1300 for selecting a document (or host) specific scoring function (Recall, e.g., operations 594.) in a manner consistent with the present invention. A document (or host) identifier is accepted. (Block 1305) A scoring function (that had served ads for the document) with the best performance is determined. (Block 1310) (Recall, e.g., information 586 of Figure 5.) The determined scoring function is then used to score one or more ads (Block 1315) before the method 1300 is left (Node 1320).

Figure 13B is a flow diagram of an exemplary method 1350 for document specific or host specific scoring of ads (Recall, e.g., operations 594.) in a manner consistent with the present invention. Note that an ad score may be determined using a function. The function may include variables (e.g., concepts, keywords, price information, performance information, a similarity metric, and/or advertiser quality information, etc.) and constants (e.g., numbers used to give weights to the variables, raise the variables to an exponential power, etc.)

A document identifier (e.g., URL) and/or host identifier are accepted 1355. As indicated by loop 1360-1375, a number of acts are performed for each component/parameter of an ad scoring function. More specifically, document specific and/or host specific performance information for the given component/parameter is accepted. (Block 1365) The average performance information for the document and/or host over all parameters/components may also be accepted. The importance of the component/parameter in the scoring is then adjusted using such accepted document specific and/or host specific performance information (as well as the accepted average performance information). (Block 1370) After all of the components/parameters have been processed, the method 1350 is left. (Node 1380)

An exemplary application of this feature of the present invention is now provided. Assume that ads can be targeted using, among other things, both location and time-of-day. Assume further that ads targeted using location have performed better than ads targeted using time-of-day when served with a particular Web page. In this case, when determining ads to serve with the particular Web page, a location component of a targeting function can be weighted more than a time-of-day component of a targeting function.

Amazon/VB Assets
Exhibit 1003
Page 516

Note that various aspects of the methods 1300 and 1350 of Figures 13A and 13B, respectively, may be used in combination.

As can be appreciated from the foregoing, this aspect of the present invention permits document (and/or host) specific performance related to a scoring function and/or a component thereof, (which may be more general than document and/or host specific performance related to a given ad) to be used. Thus, for example, for a Web page concerning the categories "automobiles" and "Rolls Royce," ads concerning the category "luxury real estate" may have had better performance than ads concerning the "automobiles". Thus, when that document is to be served, weights corresponding to the categories "automobiles" and "luxury real estate" may be adjusted accordingly. As another example, ads served using host relevance (e.g., concept) targeting may have performed better than those served using document relevance (e.g., concept) targeting, which may have performed better than those targeted solely on performance and price information. This may affect which scoring function is used, or how scores from different scoring functions are weighted in determining a final score.

In an exemplary embodiment of the present invention, out of a possible space of and targeting functions, particular targeting functions may be chosen to use for a URL (e.g., default-content, parent-url, url-keywords) given click statistics for that host and targeting function. This may be done using the data structure: *Host:-> {targeting-function, numimprs, numclicks, avgcpc} + avgct.*

The methods of Figures 13A and 13B are examples of applying document (and/or host) specific information during scoring. (Recall, e.g., Figure 8.)

§ 4.2.3.3 CONCEPT-BASED AD PERFORMANCE ESTIMATION/EXTRAPOLATION

Figure 14 is a flow diagram of an exemplary method 1400 for estimating and/or adjusting ad performance information in a manner consistent with the present invention. Document concepts (and/or host concepts) are accepted or extracted. (Block 1405) As indicated by loop 1410-1465, a number of acts are performed for each of the concepts accepted or extracted. More specifically, a first set of concept-relevant ads is determined. (Block 1415) Then, as indicated by loop 1420-1430, for each of the concept-relevant ads determined, document specific (and/or host specific) performance information is looked up. (Block 1425) Then, it is determined whether or not there are any ads not determined to be concept-relevant,

Amazon/VB Assets
Exhibit 1003
Page 517