UNITED STATES PATENT AND TRADEMARK OFFICE

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APPLICATION NUMBER	FILING OR 371(C) DATE	FIRST NAMED APPLICANT	ATTY. DOCKET NO./TITLE
16/295,034	03/07/2019	Tatsumi Naganuma	SAJVP172US

CONFIRMATION NO. 1688

23623
AMIN, TUROCY & WATSON, LLP
200 Park Avenue
Suite 300
Beachwood, OH 44122

POWER OF ATTORNEY NOTICE

OC000000083673034

Date Mailed: 01/31/2025

NOTICE REGARDING CHANGE OF POWER OF ATTORNEY

This is in response to the Power of Attorney filed 01/17/2025.

- The Power of Attorney to you in this application has been revoked by the assignee who has intervened as provided by 37 CFR 3.71. Future correspondence will be mailed to the new address of record(37 CFR 1.33).

Questions about the contents of this notice and the requirements it sets forth should be directed to the Office of Data Management, Application Assistance Unit, at **(571) 272-4000** or **(571) 272-4200** or **1-888-786-0101**.

/ttran/

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APPLICATION NUMBER	FILING OR 371(C) DATE	FIRST NAMED APPLICANT	ATTY. DOCKET NO./TITLE
16/295,034	03/07/2019	Tatsumi Naganuma	SAJVP172US

CONFIRMATION NO. 1688

182086
DAIGNAULT IYER LLP
8229 Boone Boulevard
SUITE 450
VIENNA, VA 22182

POA ACCEPTANCE LETTER

OC000000083673176

Date Mailed: 01/31/2025

NOTICE OF ACCEPTANCE OF POWER OF ATTORNEY

This is in response to the Power of Attorney filed 01/17/2025.

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**.

/ttran/

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

PTO/AIA/82B (07-13)
Approved for use through 09/30/2025. OMB 0651-0035
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

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
16/295,034	03/07/2019

(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: 182086

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):

SOUNDCLEAR TECHNOLOGIES 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	Yi Lu	Date (Optional)	
Name	Yi Lu		
Title	Authorized Signatory, SOUNDCLEAR TECHNOLOGIES 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 1 forms are submitted.

A Federal agency may not conduct or sponsor, and a person is not required to respond to, nor shall a person be subject to a penalty for failure to comply with an information collection subject to the requirements of the Paperwork Reduction Act of 1995, unless the information collection has a currently valid OMB Control Number. The OMB Control Number for this information collection is 0651-0035. Public burden for this form is estimated to average 3 minutes per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the information collection. Send comments regarding this burden estimate or any other aspect of this information collection, including suggestions for reducing this burden to the Chief Administrative Officer, United States Patent and Trademark Office, P.O. Box 1450, Alexandria, VA 22313-1450 or email InformationCollection@uspto.gov. **DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS.** If filing this completed form by mail, send to: **Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

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

UNITED STATES
PATENT AND TRADEMARK OFFICE

P.O. Box 1450
Alexandria, VA 22313 - 1450
www.uspto.gov

ELECTRONIC ACKNOWLEDGEMENT RECEIPT

APPLICATION #	RECEIPT DATE / TIME	ATTORNEY DOCKET #
16/295,034	**01/17/2025 09:20:35 AM Z ET**	**SAJVP172US**

Title of Invention

WORD REPLACEMENT IN OUTPUT GENERATION FOR DETECTED INTENT BY VOICE CLASSIFICATION

Application Information

APPLICATION TYPE	Utility - Nonprovisional Application under 35 USC 111(a)	PATENT #	11244675
CONFIRMATION #	1688	FILED BY	Kevin Sprenger
PATENT CENTER #	68791756	FILING DATE	03/07/2019
CUSTOMER #	23623	FIRST NAMED INVENTOR	Tatsumi Naganuma
CORRESPONDENCE ADDRESS	-	AUTHORIZED BY	-

Documents

TOTAL DOCUMENTS: 2

DOCUMENT	PAGES	DESCRIPTION	SIZE (KB)
1.15.2025_POA_11244675_Signed.pdf	1	Power of Attorney	656 KB
1.17.2025_3.73Statement_PTO-96_11244675.pdf	3	Assignee showing of ownership per 37 CFR 3.73	117 KB

Digest

DOCUMENT	MESSAGE DIGEST(SHA-512)
1.15.2025_POA_11244675_Signed.pdf	2E9FF1C2A35D638E5D9FEBD31199D2238AB129D8A16D602E3A7C1D17624FB9E5B596367CE90CD54848306926E3C3D8354E0E37D5D8E8F9310A4944B6F5EF132F

1.17.2025_3.73Statement_PTO-96_11244675.pdf

B030CD16E9AFE32EFF9D524A36E81E4F60C22D8C0238653A23B7FDF3C7A8E8B930BFDBCF4B082ECCC63AB38E278FFF38CD966E1B1EA99953349EDFB0C436A646

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

New Applications Under 35 U.S.C. 111

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

National Stage of an International Application under 35 U.S.C. 371

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

New International Application Filed with the USPTO as a Receiving Office

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/96 (08-12)
Approved for use through 01/31/2013. OMB 0651-0031
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

STATEMENT UNDER 37 CFR 3.73(c)

Applicant/Patent Owner: JVC Kenwood Corporation

Application No./Patent No.: 11,244,675 Filed/Issue Date: 03/07/2019

Titled: Word Replacement in Output Generation for Detected Intent by Voice Classification

SoundClear Technologies, LLC, a corporation

(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: JVC Kenwood Corporation To: SoundClear Technologies, LLC

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

      Reel 067829, Frame 0011, or for which a copy thereof is attached.

   2. 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.

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

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

PTO/AIA/96 (08-12)
Approved for use through 01/31/2013. OMB 0651-0031
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

STATEMENT UNDER 37 CFR 3.73(c)

3. 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.

4. 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.

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.

/Kevin H Sprenger/	01/17/2025
Signature	Date
Kevin H. Sprenger	79,466
Printed or Typed Name	Title or Registration Number

[Page 2 of 2]

Privacy Act Statement

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

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

1. The information on this form will be treated confidentially to the extent allowed under the Freedom of Information Act (5 U.S.C. 552) and the Privacy Act (5 U.S.C 552a). Records from this system of records may be disclosed to the Department of Justice to determine whether disclosure of these records is required by the Freedom of Information Act.
2. A record from this system of records may be disclosed, as a routine use, in the course of presenting evidence to a court, magistrate, or administrative tribunal, including disclosures to opposing counsel in the course of settlement negotiations.
3. A record in this system of records may be disclosed, as a routine use, to a Member of Congress submitting a request involving an individual, to whom the record pertains, when the individual has requested assistance from the Member with respect to the subject matter of the record.
4. A record in this system of records may be disclosed, as a routine use, to a contractor of the Agency having need for the information in order to perform a contract. Recipients of information shall be required to comply with the requirements of the Privacy Act of 1974, as amended, pursuant to 5 U.S.C. 552a(m).
5. A record related to an International Application filed under the Patent Cooperation Treaty in this system of records may be disclosed, as a routine use, to the International Bureau of the World Intellectual Property Organization, pursuant to the Patent Cooperation Treaty.
6. A record in this system of records may be disclosed, as a routine use, to another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c)).
7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (*i.e.*, GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.
8. A record from this system of records may be disclosed, as a routine use, to the public after either publication of the application pursuant to 35 U.S.C. 122(b) or issuance of a patent pursuant to 35 U.S.C. 151. Further, a record may be disclosed, subject to the limitations of 37 CFR 1.14, as a routine use, to the public if the record was filed in an application which became abandoned or in which the proceedings were terminated and which application is referenced by either a published application, an application open to public inspection or an issued patent.
9. A record from this system of records may be disclosed, as a routine use, to a Federal, State, or local law enforcement agency, if the USPTO becomes aware of a violation or potential violation of law or regulation.

UNITED STATES PATENT AND TRADEMARK OFFICE

CERTIFICATE OF CORRECTION

PATENT NO. : 11,244,675 B2
APPLICATION NO. : 16/295034
DATED : February 8, 2022
INVENTOR(S) : Naganuma

It is certified that error appears in the above-identified patent and that said Letters Patent is hereby corrected as shown below:

In the Claims

In Column 21, Line 17, in Claim 1; in Column 22, Line 25, in Claim 6; in Column 22, Line 47, in Claim 7:
It should read ..."when the voice is determined to be the second voice,"

Signed and Sealed this
Twenty-first Day of May, 2024

Katherine Kelly Vidal

Katherine Kelly Vidal
Director of the United States Patent and Trademark Office

UNITED STATES PATENT AND TRADEMARK OFFICE

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

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
16/295,034	03/07/2019	Tatsumi Naganuma	SAJVP172US	1688

23623 7590 05/21/2024

AMIN, TUROCY & WATSON, LLP
200 Park Avenue
Suite 300
Beachwood, OH 44122

EXAMINER	
LERNER, MARTIN	

ART UNIT	PAPER NUMBER
2657	

NOTIFICATION DATE	DELIVERY MODE
05/21/2024	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):

docket@thepatentattorneys.com
hmckee@thepatentattorneys.com
rveri@thepatentattorneys.com

APPLICATION NO.	ISSUE DATE	PATENT NO.
16/295,034	21-May-2024	11244675

AMIN, TUROCY & WATSON, LLP
200 Park Avenue
Beachwood, OH 44122

ELECTRONIC CERTIFICATE OF CORRECTION NOTIFICATION

Your electronic certificate of correction is now available, and can be accessed via Patent Center at https://patentcenter.uspto.gov.

The electronic certificate of correction is the official certificate of correction under 35 U.S.C. 254 or 255. For more information, please visit https://www.uspto.gov/electronicgrants.

UNITED STATES PATENT AND TRADEMARK OFFICE

CERTIFICATE OF CORRECTION

PATENT NO. : 11,244,675 B2
APPLICATION NO. : 16/295034
DATED : February 8, 2022
INVENTOR(S) : Naganuma

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In Column 21, Line 17, in Claim 1; in Column 22, Line 25, in Claim 6; in Column 22, Line 47, in Claim 7:
It should read ..."when the voice is determined to be the second voice,"

Signed and Sealed this
Twenty-first Day of May, 2024

Katherine Kelly Vidal

Katherine Kelly Vidal
Director of the United States Patent and Trademark Office

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
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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
16/295,034	03/07/2019	Tatsumi Naganuma	SAJVP172US	1688

23623 7590 04/29/2024
AMIN, TUROCY & WATSON, LLP
200 Park Avenue
Suite 300
Beachwood, OH 44122

EXAMINER	
LERNER, MARTIN	

ART UNIT	PAPER NUMBER
2657	

NOTIFICATION DATE	DELIVERY MODE
04/29/2024	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):

docket@thepatentattorneys.com
hmckee@thepatentattorneys.com
rveri@thepatentattorneys.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

Patent No.: 11244675
Issue Date: 02/08/2022
Appl. No.: 16/295,034
Filed: 03/07/2019

PART (A) RESPONSE FOR CERTIFICATES OF CORRECTION

This is a decision on the Certificate of Correction request filed 15 April 2024.

The request for issuance of Certificate of Correction for the above-identified correction(s) under the provisions of 37 CFR 1.322 and/or 1.323 is hereby:

(Check one)
☑ Approved ☐ Approved in Part ☐ Denied

Comments: ____

PART (B) PETITION UNDER 37 CFR 1.324 OR 37 CFR 1.48

☐ This is a decision on the petition filed ____ to correct inventorship under 37 CFR 1.324.

☐ This is a decision on the request under 37 CFR 1.48, petition filed ____. In view of the fact that the patent has already issued, the request under 37 CFR 1.48 has been treated as a petition to correct inventorship under 37 CFR 1.324.

The petition is hereby: ☐ Granted ☐ Dismissed

Comment: ____

The patented filed is being forwarded to Certificate of Corrections Branch for issuance of a certificate naming only the actual inventor or inventors.

/RICHEMOND DORVIL/
Supervisory Patent Examiner, Art Unit 2658
Technology Center 2600
Phone: (571)272-7602

Certificates of Correction Branch email: CustomerServiceCoC@uspto.gov CoC Central Phone Number: (703) 756-1814

CERTIFICATE OF TRANSMISSION

I hereby certify that this correspondence (along with any paper referred to as being attached or enclosed) is being submitted *via* the USPTO EFS Filing System on the date shown below to Certificate of Corrections Branch, Commissioner for Patents, P.O. Box 1450, Alexandria, Virginia 22313-1450.

Date: April 15, 2024 /Michelle Folger/
Michelle Folger

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re patent application of:			
Inventor(s):	Naganuma	Examiner:	Martin Lerner
Serial No:	16/295,034	Art Unit:	2657
Issue Date:	February 8, 2022	Patent No:	11,244,675

Title: WORD REPLACEMENT IN OUTPUT GENERATION FOR DETECTED INTENT BY VOICE CLASSIFICATION

Certificate of Corrections Branch
Commissioner for Patents
P.O. Box 1450
Alexandria, Virginia 22313-1450

REQUEST FOR CERTIFICATE OF CORRECTION OF PATENT

Dear Sir:

It is noted that an error appears in this patent of a clerical nature or character as more fully described below and it is believed such error occurred in good faith and correction thereof does not involve such changes in the patent as would constitute new matter or would require reexamination. Accordingly, a Certificate of Correction is respectfully requested.

Attached hereto, is form PTO/SB/44 with at least one copy copy being suitable for printing.

The error occurs on page 19 of the patent, in columns 21 and 22 – this error and the correction thereof is detailed in the attached form PTO/SB/44.

The error is believed to have been made by the Applicant.

The required fee of $160 is being submitted herewith. If there are any additional fees they can be charged to Deposit Account No. 50-1063. Any overpayment can be credited to Deposit Account No. 50-1063.

Please send the Certificate to:

Name: Gregory Turocy

Address: AMIN, TUROCY & WATSON, LLP
200 Park Avenue, Suite 300
Beachwood, Ohio 44122

Respectfully submitted,

AMIN, TUROCY & WATSON, LLP

/Greg Turocy/
Gregory Turocy
Reg. No. 36,952

AMIN, TUROCY & WATSON, LLP
200 Park Avenue, Suite 300
Beachwood, OH 44122
Telephone (216) 696-8730
Facsimile (216) 696-8731

PTO/SB/44 (09-07)
Approved for use through 08/31/2013. OMB 0651-0033
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.
(Also Form PTO-1050)

UNITED STATES PATENT AND TRADEMARK OFFICE
CERTIFICATE OF CORRECTION

PATENT NO. : 11,244,675

APPLICATION NO.: 16/295,034

ISSUE DATE : February 8, 2022

INVENTOR(S) : Naganuma

It is certified that an error appears or errors appear in the above-identified patent and that said Letters Patent is hereby corrected as shown below:

The errors occur on page 19 of the patent - in column 21, line 17, in claim 1; in column 22, line 25, in claim 6; in column 22, line 47, in claim 7:

It should read ..."when the voice is determined to be the second voice,"

MAILING ADDRESS OF SENDER (Please do not use customer number below):

200 Park Avenue, Suite 300
Beachwood, Ohio 44122

This collection of information is required by 37 CFR 1.322, 1.323, and 1.324. 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 1.0 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: Attention Certificate of Corrections Branch, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

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

Privacy Act Statement

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

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

1. The information on this form will be treated confidentially to the extent allowed under the Freedom of Information Act (5 U.S.C. 552) and the Privacy Act (5 U.S.C 552a). Records from this system of records may be disclosed to the Department of Justice to determine whether disclosure of these records is required by the Freedom of Information Act.
2. A record from this system of records may be disclosed, as a routine use, in the course of presenting evidence to a court, magistrate, or administrative tribunal, including disclosures to opposing counsel in the course of settlement negotiations.
3. A record in this system of records may be disclosed, as a routine use, to a Member of Congress submitting a request involving an individual, to whom the record pertains, when the individual has requested assistance from the Member with respect to the subject matter of the record.
4. A record in this system of records may be disclosed, as a routine use, to a contractor of the Agency having need for the information in order to perform a contract. Recipients of information shall be required to comply with the requirements of the Privacy Act of 1974, as amended, pursuant to 5 U.S.C. 552a(m).
5. A record related to an International Application filed under the Patent Cooperation Treaty in this system of records may be disclosed, as a routine use, to the International Bureau of the World Intellectual Property Organization, pursuant to the Patent Cooperation Treaty.
6. A record in this system of records may be disclosed, as a routine use, to another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c)).
7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (*i.e.*, GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.
8. A record from this system of records may be disclosed, as a routine use, to the public after either publication of the application pursuant to 35 U.S.C. 122(b) or issuance of a patent pursuant to 35 U.S.C. 151. Further, a record may be disclosed, subject to the limitations of 37 CFR 1.14, as a routine use, to the public if the record was filed in an application which became abandoned or in which the proceedings were terminated and which application is referenced by either a published application, an application open to public inspection or an issued patent.
9. A record from this system of records may be disclosed, as a routine use, to a Federal, State, or local law enforcement agency, if the USPTO becomes aware of a violation or potential violation of law or regulation.

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PATENT AND TRADEMARK OFFICE

P.O. Box 1450
Alexandria, VA 22313 - 1450
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ELECTRONIC PAYMENT RECEIPT

APPLICATION #	RECEIPT DATE / TIME	ATTORNEY DOCKET #
16/295,034	04/15/2024 11:13:33 AM Z ET	SAJVP172US

Title of Invention

WORD REPLACEMENT IN OUTPUT GENERATION FOR DETECTED INTENT BY VOICE CLASSIFICATION

Application Information

APPLICATION TYPE	Utility - Nonprovisional Application under 35 USC 111(a)	PATENT #	11244675
CONFIRMATION #	1688	FILED BY	Michelle Folger
PATENT CENTER #	65091055	AUTHORIZED BY	Gregory Turocy
CUSTOMER #	23623	FILING DATE	03/07/2019
CORRESPONDENCE ADDRESS	-	FIRST NAMED INVENTOR	Tatsumi Naganuma

Payment Information

PAYMENT METHOD	PAYMENT TRANSACTION ID	PAYMENT AUTHORIZED BY
CARD / 1007	E20244EB14106854	Michelle Folger

FEE CODE	DESCRIPTION	ITEM PRICE($)	QUANTITY	ITEM TOTAL($)
1811	CERTIFICATE OF CORRECTION	160.00	1	160.00
			TOTAL AMOUNT:	$160.00

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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 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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ELECTRONIC ACKNOWLEDGEMENT RECEIPT

APPLICATION #	RECEIPT DATE / TIME	ATTORNEY DOCKET #
16/295,034	**04/15/2024 11:13:33 AM Z ET**	**SAJVP172US**

Title of Invention

WORD REPLACEMENT IN OUTPUT GENERATION FOR DETECTED INTENT BY VOICE CLASSIFICATION

Application Information

APPLICATION TYPE	Utility - Nonprovisional Application under 35 USC 111(a)	PATENT #	11244675
CONFIRMATION #	1688	FILED BY	Michelle Folger
PATENT CENTER #	65091055	FILING DATE	03/07/2019
CUSTOMER #	23623	FIRST NAMED INVENTOR	Tatsumi Naganuma
CORRESPONDENCE ADDRESS	-	AUTHORIZED BY	Gregory Turocy

Documents

TOTAL DOCUMENTS: 1

DOCUMENT	PAGES	DESCRIPTION	SIZE (KB)
REQ172.pdf	4	Request for Certificate of Correction	171 KB

Digest

DOCUMENT	MESSAGE DIGEST(SHA-512)
REQ172.pdf	12793ADB2A66C18EDA66015CD2BC2178A19CAC2CAD3B1719C1E5CCA42DE1818C86847D437CD93BD4789984CAA8FE6216AC2E7CECE1D9F30E1F293EA50981167A

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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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United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
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APPLICATION NO.	ISSUE DATE	PATENT NO.	ATTORNEY DOCKET NO.	CONFIRMATION NO.
16/295,034	02/08/2022	11244675	SAJVP172US	1688

23623 7590 01/19/2022

AMIN, TUROCY & WATSON, LLP
200 Park Avenue
Suite 300
Beachwood, OH 44122

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 152 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.

INVENTOR(s) (Please see PAIR WEB site http://pair.uspto.gov for additional inventors):

Tatsumi Naganuma, Yokohama-shi, JAPAN;

APPLICANT(s) (Please see PAIR WEB site http://pair.uspto.gov for additional applicants):

JVC KENWOOD Corporation, Yokohama-shi, JAPAN;

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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.
16/295,034	03/07/2019	Tatsumi Naganuma	SAJVP172US	1688

23623 7590 01/07/2022

AMIN, TUROCY & WATSON, LLP
200 Park Avenue
Suite 300
Beachwood, OH 44122

EXAMINER	
LERNER, MARTIN	

ART UNIT	PAPER NUMBER
2657	

NOTIFICATION DATE	DELIVERY MODE
01/07/2022	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):

docket@thepatentattorneys.com
hmckee@thepatentattorneys.com
rveri@thepatentattorneys.com

Response to Rule 312 Communication	Application No.	Applicant(s)	
	16/295,034	Naganuma, Tatsumi	
	Examiner	Art Unit	AIA (FITF) Status
	MARTIN LERNER	2657	Yes

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

1. ☑ The amendment filed on 02 December 2021 under 37 CFR 1.312 has been considered, and has been:
   a) ☐ entered.
   b) ☑ entered as directed to matters of form not affecting the scope of the invention.
   c) ☐ disapproved because the amendment was filed after the payment of the issue fee.
      Any amendment filed after the date the issue fee is paid must be accompanied by a petition under 37 CFR 1.313(c)(1) and the required fee to withdraw the application from issue.
   d) ☐ disapproved. See explanation below.
   e) ☐ entered in part. See explanation below.

/MARTIN LERNER/
Primary Examiner, Art Unit 2657

CERTIFICATE OF TRANSMISSION

I hereby certify that this correspondence (along with any paper referred to as being attached or enclosed) is being submitted *via* the USPTO EFS Filing System on the date shown below to Mail Stop Issue Fee, Commissioner for Patents, P.O. Box 1450, Alexandria, Virginia 22313-1450.

Date: Dec 2, 2021 /Rebecca A. Veri/
Rebecca A. Veri

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re patent application of:			
Inventor(s):	Tatsumi Naganuma	Examiner:	Martin Lerner
Serial No:	16/295,034	Art Unit:	2657
Filing Date:	March 7, 2019	Conf. No:	1688

OK TO ENTER: /M.L/
01/03/2022

Title: WORD REPLACEMENT IN OUTPUT GENERATION FOR DETECTED INTENT BY VOICE CLASSIFICATION

Mail Stop Issue Fee
Commissioner for Patents
P.O. Box 1450
Alexandria, Virginia 22313-1450

RULE 312 AMENDMENT

Dear Examiner Lerner:

This paper is filed in response to the Notice of Allowance dated September 9, 2021. Kindly enter the following amendments.

Document Description: Issue Fee Payment (PTO-85B)

Issue Fee Transmittal Form

Application Number	Filing Date	First Named Inventor	Atty. Docket No.	Confirmation No.
16295034	07-Mar-2019	Tatsumi Naganuma	SAJVP172US	1688

TITLE OF INVENTION :

WORD REPLACEMENT IN OUTPUT GENERATION FOR DETECTED INTENT BY VOICE CLASSIFICATION

Entity Status	Application Type	Art Unit	Class - Subclass	EXAMINER
Regular Undiscounted	Utility under 35 USC 111(a)	2657	257000	

Issue Fee Due	Publication Due	Total Fee(s) Due	Date Due	Prev. Paid Fee
$1200	$0	$1200	09-Dec-2021	$0

1.Change of Correspondence Address and/or Indication Of Fee Address (37 CFR 1.33 & 1.363)

Current Correspondence Address:	Current Indicated Fee Address :
23623 AMIN, TUROCY & WATSON, LLP 200 Park Avenue Suite 300 Beachwood OH 44122 UNITED STATES 216-696-8730 docket@thepatentattorneys.com	
☐ Change of correspondence address requested, system generated AIA/122-EFS form attached	☐ Fee Address indication requested, system generated SB/47-EFS form attached

2.Entity Status

Change in Entity Status

○ Applicant certifying micro entity status; system generated Micro Entity certification form attached. See 37 CFR 1.29.
Note: Absent a valid certification of micro entity status, issue fee payment in the micro entity amount will not be accepted at the risk of application abandonment. If this box is checked, you will be prompted to choose a micro entity status on the gross income basis (37 CFR 1.29(a)) or the institution of higher education basis (37 CFR 1.29(d)), and make the applicable certification online.

○ Applicant asserting small entity status. See 37 CFR 1.27.
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.

◉ Applicant changing to regular undiscounted fee status.
Note: Checking this box will be taken to be a notification of loss of entitlement to small or micro entity status, as applicable.

Doc Code: IFEE PTOL/85B-EFS

Document Description: Issue Fee Payment (PTO-85B)

3.The Following Fee(s) Are Submitted:

☒ Issue Fee	☐ I authorize USPTO to apply my previously paid issue fee to the current fees due
☐ Publication Fee	☐ The Director is hereby authorized to apply my previously paid issue fee to the current fee due and to charge deficient fees to Deposit Account Number _____
☐ Advance Order - # of copies _____	☒ If **in addition to** the payment of the issue fee amount submitted with this form, there are any discrepancies in any amount(s) due, the Director is authorized to charge any deficiency or credit any overpayment, to Deposit Account Number 50-1063 . The **issue fee must be submitted** with this form. **If payment of the issue fee does not accompany this form, checking this box and providing a deposit account number will NOT be effective to satisfy full payment of the fee(s) due.**

4.Firm and/or Attorney Names To Be Printed

NOTE: If no name is listed, no name will be printed
For printing on the patent front page, list to be displayed as entered

1. AMIN, TUROCY & WATSON, LLP
2.
3.

5.Assignee Name(s) and Residence Data To Be Printed

PLEASE NOTE: Unless an assignee is identified below, no assignee data will appear on the patent. If an assignee is identified below, the document has been filed for recordation as set forth in 37 CFR 3.11. Completion of this form is NOT a substitute for filing an assignment.

Name	City	State	Country	Category
JVCKENWOOD Corporation	Yokohama-Shi		JAPAN	corporation

6.Signature

I certify, in accordance with 37 CFR 1.4(d)(4) that I am an attorney or agent registered to practice before the Patent and Trademark Office who has filed and has been granted power of attorney in this application. I also certify that this Fee(s) Transmittal form is being transmitted to the USPTO via EFS-WEB on the date indicated below.

Signature	/Greg Turocy/	**Date**	12-03-2021
Name	Gregory Turocy	**Registration Number**	36952

Electronic Patent Application Fee Transmittal

Application Number:	16295034
Filing Date:	07-Mar-2019
Title of Invention:	WORD REPLACEMENT IN OUTPUT GENERATION FOR DETECTED INTENT BY VOICE CLASSIFICATION
First Named Inventor/Applicant Name:	Tatsumi Naganuma
Filer:	Gregory Turocy/Rebecca Veri
Attorney Docket Number:	SAJVP172US

Filed as Large Entity

Filing Fees for Utility under 35 USC 111(a)

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Basic Filing:				
UTILITY APPL ISSUE FEE	1501	1	1200	1200
PUBL. FEE- EARLY, VOLUNTARY, OR NORMAL	1504	1	0	0
Pages:				
Claims:				
Miscellaneous-Filing:				
Petition:				
Patent-Appeals-and-Interference:				

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Post-Allowance-and-Post-Issuance:				
Extension-of-Time:				
Miscellaneous:				
		Total in USD ($)		**1200**

Electronic Acknowledgement Receipt	
EFS ID:	44426090
Application Number:	16295034
International Application Number:	
Confirmation Number:	1688
Title of Invention:	WORD REPLACEMENT IN OUTPUT GENERATION FOR DETECTED INTENT BY VOICE CLASSIFICATION
First Named Inventor/Applicant Name:	Tatsumi Naganuma
Customer Number:	23623
Filer:	Gregory Turocy/Rebecca Veri
Filer Authorized By:	Gregory Turocy
Attorney Docket Number:	SAJVP172US
Receipt Date:	03-DEC-2021
Filing Date:	07-MAR-2019
Time Stamp:	09:17:14
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	CARD
Payment was successfully received in RAM	$1200
RAM confirmation Number	E2021B3017114198
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	Issue Fee Payment (PTO-85B)	Web85b.pdf	62852 0517117e6ff34cd7cc78399b2d41e79804590229	no	2
Warnings:					
Information:					
2	Fee Worksheet (SB06)	fee-info.pdf	40323 6d03ff31899c3d8524ad9551d4c5f0c63df2b3f7	no	2
Warnings:					
Information:					
		Total Files Size (in bytes):	103175		

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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
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Electronic Acknowledgement Receipt	
EFS ID:	44417910
Application Number:	16295034
International Application Number:	
Confirmation Number:	1688
Title of Invention:	WORD REPLACEMENT IN OUTPUT GENERATION FOR DETECTED INTENT BY VOICE CLASSIFICATION
First Named Inventor/Applicant Name:	Tatsumi Naganuma
Customer Number:	23623
Filer:	Gregory Turocy/Rebecca Veri
Filer Authorized By:	Gregory Turocy
Attorney Docket Number:	SAJVP172US
Receipt Date:	02-DEC-2021
Filing Date:	07-MAR-2019
Time Stamp:	12:44:02
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	Amendment after Notice of Allowance (Rule 312)	RULE312AMD_172.pdf	33273 7da60e95ff33df4d3bdee32c7efeb4338e56c629	no	6

Warnings:

Information:	
Total Files Size (in bytes):	33273

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New Applications Under 35 U.S.C. 111
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CERTIFICATE OF TRANSMISSION

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Date: Dec 2, 2021 /Rebecca A. Veri/
Rebecca A. Veri

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re patent application of:			
Inventor(s):	Tatsumi Naganuma	Examiner:	Martin Lerner
Serial No:	16/295,034	Art Unit:	2657
Filing Date:	March 7, 2019	Conf. No:	1688

Title: WORD REPLACEMENT IN OUTPUT GENERATION FOR DETECTED INTENT BY VOICE CLASSIFICATION

Mail Stop Issue Fee
Commissioner for Patents
P.O. Box 1450
Alexandria, Virginia 22313-1450

RULE 312 AMENDMENT

Dear Examiner Lerner:

This paper is filed in response to the Notice of Allowance dated September 9, 2021. Kindly enter the following amendments.

AMENDMENTS 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) An output-content control device comprising:

a voice acquiring unit configured to acquire a voice spoken by a user;

a voice classifying unit configured to calculate a distance between the user and the output-content control device by a proximity sensor to classify the voice into either a first voice or a second voice based on the calculated distance;

an intention analyzing unit configured to analyze the voice acquired by the voice acquiring unit to detect intention information indicating what kind of information is wished to be acquired by the user;

a notification-information acquiring unit configured to acquire notification information which includes content information as a content information to be notified to the user based on the intention information; and

an output-content generating unit configured to generate an output sentence as sentence data to be output to the user based on the notification information, wherein the output-content generating unit is further configured to generate, when the voice is determined to be the first voice, a first output sentence in which at least one word selected among words included in the content information of the notification information is replaced with another word, and to generate, when the voice is not determined to be the second voice, a second output sentence which includes all of the intention information and the content information.

2. (previously presented) The output-content control device according to claim 1, wherein

the notification information includes type information indicating a type of the content information, and

the output-content generating unit is further configured to select, on generating the first output sentence, at least one word to be placed with the other word based on a word included in the content information and the type information that is associated with the content information.

3. (previously presented) The output-content control device according to claim 2, wherein

the output-content generating unit is further configured to read, on generating the first output sentence, relationship information including information of a first word that is a predetermined word and a second word that is associated with the first word, and to replace a word included in the notification information with the second word when the word included in the notification information matches with the first word.

4. (previously presented) The output-content control device according to claim 3, wherein

the relationship information further includes information of type information indicating a type of the first word, and

the output-content generating unit is further configured to select, on generating the first output sentence, a word included in the notification information as word to be replaced with another word when the type information of the word included in the notification information matches with the type information of the first word and the word included in the notification information matches with the first word.

5. (Original) The output-content control device according to claim 1, wherein

the voice classifying unit is further configured to determine the voice to be the predetermined voice when the voice spoken by the user is a whisper.

6. (previously presented) An output-content control method comprising:

acquiring a voice spoken by a user;

calculating a distance between the user and an output-content control device by a proximity sensor to classify the voice into either a first voice or a second voice based on the calculated distance;

analyzing the acquired voice to detect intention information indicating what kind of information is wished to be acquired by the user;

acquiring notification information which includes content information as a content of information to be notified to the user based on the intention information; and

generating, when the voice is determined to be the first voice, a first output sentence in which at least one word selected among words included in the content information of the notification information is replaced with another word; and

generating, when the voice is not determined to be the second voice, a second output sentence which includes all of the intention information and the content information.

7. (currently amended) A non-transitory storage medium that stores an output-content control program that causes a computer to execute:

acquiring a voice spoken by a user;

calculating a distance between the user and [[a]] an output-content control device by a proximity sensor to classify the voice into either a first voice or a second voice based on the calculated distance;

analyzing the acquired voice to detect intention information indicating what kind of information is wished to be acquired by the user;

acquiring notification information which includes content information as a content of information to be notified to the user based on the intention information; and

generating, when the voice is determined to be the first voice, a first output sentence in which at least one word selected among words included in the content information of the notification information is replaced with another word; and

generating, when the voice is not determined to be the second voice, a second output sentence which includes all of the intention information and the content information.

REMARKS

Claims 1-7 are pending in the subject application upon entry of the amendments. A listing of the claims can be found on pages 2-6 of this Reply. Favorable reconsideration is respectfully requested in view of the amendments and following comments.

The Amendments

Claims 1 and 7 are amended to correct clerical errors. The amendment does NOT change the scope of claim 1 or claim 7. Support for the amendments can be located, for example, in the specification as filed. No new matter is added with such amendments.

In the event any fees are due in connection with this document, the Commissioner is authorized to charge those fees to Deposit Account No. 50-1063 [SAJVP172US].

Should the Examiner believe a telephone interview would be helpful to expedite favorable prosecution, the Examiner is invited to contact inventor's undersigned representative at the telephone number below.

Respectfully submitted,

AMIN, TUROCY & WATSON, LLP

/Greg Turocy/

Gregory Turocy
Reg. No. 36,952

200 Park Avenue, Suite 300
Beachwood, OH 44122
Telephone (216) 696-8730
Facsimile (216) 696-8731

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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
16/295,034	03/07/2019	Tatsumi Naganuma	SAJVP172US	1688

23623 7590 10/07/2021

AMIN, TUROCY & WATSON, LLP
200 Park Avenue
Suite 300
Beachwood, OH 44122

EXAMINER	
LERNER, MARTIN	

ART UNIT	PAPER NUMBER
2657	

NOTIFICATION DATE	DELIVERY MODE
10/07/2021	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):

docket@thepatentattorneys.com
hmckee@thepatentattorneys.com
rveri@thepatentattorneys.com

SUPPLEMENTAL ***Notice of Allowability***	**Application No.** 16/295,034	**Applicant(s)** Naganuma, Tatsumi	
	Examiner MARTIN LERNER	**Art Unit** 2657	**AIA (FITF) Status** Yes

-- 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 Information Disclosure Statement filed 20 September 2021.
   ☐ 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 1-7 . 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 a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.
THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

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 _____.

/MARTIN LERNER/
Primary Examiner, Art Unit 2657

PTO/SB/08a (01-10)
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INFORMATION DISCLOSURE STATEMENT BY APPLICANT
(Not for submission under 37 CFR 1.99)

Application Number	16295034
Filing Date	2019-03-07
First Named Inventor	Naganuma
Art Unit	2657
Examiner Name	Martin Lerner
Attorney Docket Number	SAJVP172US

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	Art Unit	2657
	Examiner Name	Martin Lerner
	Attorney Docket Number	SAJVP172US

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Examiner Signature	/MARTIN LERNER/	Date Considered	09/30/2021

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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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	Examiner Name	Martin Lerner
	Attorney Docket Number	SAJVP172US

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).

X See attached certification statement.

X Fee set forth in 37 CFR 1.17 (p) has been submitted herewith.

None

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	/Greg Turocy/	Date (YYYY-MM-DD)	2021-09-20
Name/Print	Gregory Turocy	Registration Number	36952

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.

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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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Doc description: Information Disclosure Statement (IDS) Filed

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	Art Unit	2657
	Examiner Name	Martin Lerner
	Attorney Docket Number	SAJVP172US

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Signature	/Greg Turocy/	Date (YYYY-MM-DD)	2021-09-20
Name/Print	Gregory Turocy	Registration Number	36952

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Bibliographic data: WO2016136062 (A1) — 2016-09-01

INFORMATION PROCESSING DEVICE, INFORMATION PROCESSING METHOD, AND PROGRAM

Inventor(s): AOYAMA KAZUMI [JP]; ITO YOKO [JP] ± (青山　一美, ; 伊藤　洋子)

Applicant(s): SONY CORP [JP] ± (ソニー株式会社)

Classification: - international: ***G06F3/16; G10L15/22***
- cooperative: **G06F3/165 (EP, US)**; **G06F3/167 (EP, US)**; **G06F40/30 (US)**; **G10L13/027 (US)**; **G10L15/22 (EP, US)**; **G10L15/26 (US)**; G10L2015/223 (EP, US); G10L2015/227 (EP, US); G10L25/63 (EP, US)

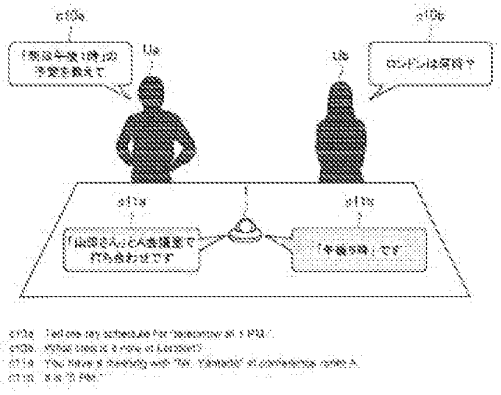
Application number: WO2015JP83232 20151126 Global Dossier

Priority number (s): JP20150039138 20150227

Also published as: EP3264258 (A1) EP3264258 (A4) JPWO2016136062 (A1) US2017337921 (A1)

Abstract of WO2016136062 (A1)

[Problem] To control the response to a speech input in a manner that is suitable for a user and that accommodates changes in conditions. [Solution] An information processing device provided with a control unit which controls the output of the response to speech received from a user, according to acquired information about the speaking state of the user.



(12) 特許協力条約に基づいて公開された国際出願

(19) 世界知的所有権機関
国際事務局

(43) 国際公開日
2016 年 9 月 1 日(01.09.2016)

WIPO | PCT

(10) 国際公開番号
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(51) 国際特許分類:
G06F 3/16 (2006.01) *G10L 15/22* (2006.01)

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(22) 国際出願日: 2015 年 11 月 26 日(26.11.2015)

(25) 国際出願の言語: 日本語

(26) 国際公開の言語: 日本語

(30) 優先権データ:
特願 2015-039138 2015 年 2 月 27 日(27.02.2015) JP

(71) 出願人: ソニー株式会社(SONY CORPORATION) [JP/JP]; 〒1080075 東京都港区港南 1 丁目 7 番 1 号 Tokyo (JP).

(72) 発明者: 青山 一美(AOYAMA, Kazumi); 〒1080075 東京都港区港南 1 丁目 7 番 1 号 ソニー株式会社内 Tokyo (JP). 伊藤 洋子(ITO, Yoko); 〒1080075 東京都港区港南 1 丁目 7 番 1 号 ソニー株式会社内 Tokyo (JP).

(74) 代理人: 亀谷 美明, 外(KAMEYA, Yoshiaki et al.); 〒1600004 東京都新宿区四谷 3 － 1 － 3 第一冨澤ビル はづき国際特許事務所 四谷オフィス Tokyo (JP).

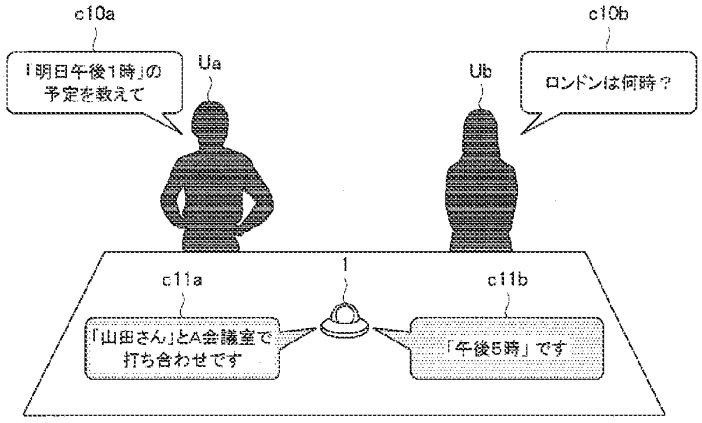
(81) 指定国 (表示のない限り、全ての種類の国内保護が可能): AE, AG, AL, AM, AO, AT, AU, AZ, BA, BB, BG, BH, BN, BR, BW, BY, BZ, CA, CH, CL, CN, CO, CR, CU, CZ, DE, DK, DM, DO, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GT, HN, HR, HU, ID, IL, IN, IR, IS, JP, KE, KG, KN, KP, KR, KZ, LA, LC, LK, LR, LS, LU, LY, MA, MD, ME, MG, MK, MN, MW, MX, MY, MZ, NA, NG, NI, NO, NZ, OM, PA, PE, PG, PH, PL, PT, QA, RO, RS, RU, RW, SA, SC, SD, SE, SG, SK, SL, SM, ST, SV, SY, TH, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, ZA, ZM, ZW.

(84) 指定国 (表示のない限り、全ての種類の広域保護が可能): ARIPO (BW, GH, GM, KE, LR, LS, MW, MZ, NA, RW, SD, SL, ST, SZ, TZ, UG, ZM, ZW), ユーラシア (AM, AZ, BY, KG, KZ, RU, TJ, TM), ヨーロッパ (AL, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HR, HU, IE, IS, IT, LT, LU, LV, MC, MK, MT, NL, NO, PL, PT, RO, RS, SE, SI, SK, SM, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, KM, ML, MR, NE, SN, TD, TG).

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(54) Title: INFORMATION PROCESSING DEVICE, INFORMATION PROCESSING METHOD, AND PROGRAM

(54) 発明の名称 : 情報処理装置、情報処理方法、及びプログラム



c10a Tell me my schedule for "tomorrow at 1 PM."
c10b What time is it now in London?
c11a You have a meeting with "Mr. Yamada" in conference room A.
c11b It is "5 PM."

(57) **Abstract**: [Problem] To control the response to a speech input in a manner that is suitable for a user and that accommodates changes in conditions. [Solution] An information processing device provided with a control unit which controls the output of the response to speech received from a user, according to acquired information about the speaking state of the user.

(57) 要約: 【課題】音声入力に対する応答を、ユーザや状況の変化に応じてより好適な態様で制御する。【解決手段】取得したユーザの発話状態に関する情報に応じて、前記ユーザの発話に対する応答の出力を制御する制御部、を備える、情報処理装置。

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明 細 書

発明の名称 ： 情報処理装置、情報処理方法、及びプログラム

技術分野

[0001] 本開示は、情報処理装置、情報処理方法、及びプログラムに関する。

背景技術

[0002] 近年では、文字情報を音声に変換する音声合成技術や、ユーザが発話した内容を文字情報として認識する音声認識技術、及び、文章が示す内容を認識する自然言語処理技術が発展してきている。そのため、これらの技術を応用することで、ユーザが、テレビ受像機等の各種家電機器や、パーソナルコンピュータ等の情報機器と、音声により対話を行うことで、当該機器を操作可能とした、音声入力に基づく対話型のユーザインタフェース（ＵＩ：User Interface）が普及してきている。例えば、特許文献１には、ユーザとの対話により、意図する動作を当該ユーザに対して指示することが可能な情報処理装置の一例が開示されている。

先行技術文献

特許文献

[0003] 特許文献1：特開２００５－３９２６号公報

発明の概要

発明が解決しようとする課題

[0004] 一方で、対話で使用される語句の中には、「午後３時」と「１５時」とのように、同じ意味を持つが表現の異なる語句（即ち、異なる表現を有する語句）が存在し、ユーザに応じて日常的に使用する語句が異なる場合がある。そのため、ユーザの音声入力に対して、当該ユーザが日常的に使用する語句とは異なる表現で応答が出力された場合に、当該ユーザが応答に対して違和感をもつ場合がある。

[0005] また、ユーザとの対話が行われる状況（例えば、ユーザの状態や周囲の環境）も常に一定とは限らず、ある状況においてユーザがより自然に感じる応

答に対して、他の状況下では、当該ユーザが違和感をもつ場合もある。

[0006] そのため、音声入力に基づく対話型のユーザインタフェースとして、ユーザや状況の変化に応じて、より自然な（即ち、より違和感の少ない）態様でユーザとの間の対話を実現可能なものが求められている。

[0007] そこで、本開示では、音声入力に対する応答を、ユーザや状況の変化に応じてより好適な態様で制御することが可能な、情報処理装置、情報処理方法、及びプログラムを提案する。

課題を解決するための手段

[0008] 本開示によれば、取得したユーザの発話状態に関する情報に応じて、前記ユーザの発話に対する応答の出力を制御する制御部、を備える、情報処理装置が提供される。

[0009] また、本開示によれば、プロセッサが、取得したユーザの発話状態に関する情報に応じて、前記ユーザの発話に対する応答の出力を制御すること、を含む、情報処理方法が提供される。

[0010] また、本開示によれば、コンピュータに、取得したユーザの発話状態に関する情報に応じて、前記ユーザの発話に対する応答の出力を制御すること、を実行させる、プログラムが提供される。

発明の効果

[0011] 以上説明したように本開示によれば、音声入力に対する応答を、ユーザや状況の変化に応じてより好適な態様で制御することが可能な、情報処理装置、情報処理方法、及びプログラムが提供される。

[0012] なお、上記の効果は必ずしも限定的なものではなく、上記の効果とともに、または上記の効果に代えて、本明細書に示されたいずれかの効果、または本明細書から把握され得る他の効果が奏されてもよい。

図面の簡単な説明

[0013] [図1]本開示の一実施形態に係る情報処理装置の概要について説明するための説明図である。

[図2]同実施形態に係る情報処理装置の機能構成の一例について示したブロッ

ク図である。

[図3]音声入力が示す意味内容の解析と、当該解析の結果に基づく処理の一例について説明するための説明図である。

[図4]ユーザの状態と落ち着き度との関係の一例について説明するための説明図である。

[図5]ユーザの状態と落ち着き度との関係の一例について説明するための説明図である。

[図6]ユーザの状態と落ち着き度との関係の一例について説明するための説明図である。

[図7]継続的な情報として記憶される応答パラメータの一例について説明するための説明図である。

[図8]同実施形態に係る情報処理装置の一連の動作の流れの一例を示したフローチャートである。

[図9]同実施形態に係る情報処理装置の動作の一例を示したフローチャートである。

[図10]同実施形態に係る情報処理装置の動作の一例を示したフローチャートである。

[図11]変形例1に係る情報処理装置1の概要について説明するための説明図である。

[図12]変形例1に係る情報処理装置1の概要について説明するための説明図である。

[図13]実施形態に係る情報処理装置の実施例について説明するための説明図である。

[図14]実施形態に係る情報処理装置の実施例について説明するための説明図である。

[図15]実施形態に係る情報処理装置の実施例について説明するための説明図である。

[図16]実施形態に係る情報処理装置の実施例について説明するための説明図

である。

[図17]同実施形態に係る情報処理装置のハードウェア構成の一例を示した図である。

発明を実施するための形態

[0014] 以下に添付図面を参照しながら、本開示の好適な実施の形態について詳細に説明する。なお、本明細書及び図面において、実質的に同一の機能構成を有する構成要素については、同一の符号を付することにより重複説明を省略する。

[0015] なお、説明は以下の順序で行うものとする。

1．概要

2．機能構成

3．処理

4．変形例

4．1．変形例１：認識した各種状態のフィードバック

4．2．変形例２：個人の認識結果と状況に応じた応答内容の制御例

5．実施例

6．ハードウェア構成

7．まとめ

[0016] ＜1．概要＞

まず、図１を参照して、本開示の一実施形態に係る情報処理装置の概要について説明したうえで、本実施形態に係る情報処理装置の課題について整理する。図１は、本実施形態に係る情報処理装置１の概要について説明するための説明図である。

[0017] 図１に示すように、本実施形態に係る情報処理装置１は、所謂対話型のユーザインタフェース（ＵＩ：User Interface）を適用することで、ユーザにより発話された音声を入力情報（以降では、「音声入力」と称する場合がある）とし、当該音声入力に基づき各種処理を実行可能に構成されている。具体的には、情報処理装置１は、ユーザからの音声入力を音響情報として取得

し、当該音響情報を、音声認識技術や自然言語処理技術に基づき解析することで、当該ユーザが発話した内容を認識する。そして、情報処理装置１は、音声入力を基に認識した内容に応じて、各種処理を実行し、当該実行結果を示す自然文を、音声（音響情報）や文字情報（表示情報）としてユーザに提示する。

[0018] 例えば、図１に示す例では、情報処理装置１は、ユーザＵｂの「ロンドンは何時？」という音声入力ｃ１０ｂを受けて、ロンドンの時間を確認し、当該確認の結果に基づき、「午後５時です」という応答情報ｃ１１ｂを音声として出力している。

[0019] この場合には、情報処理装置１は、例えば、音声入力ｃ１０ｂの解析結果に基づき、当該音声入力ｃ１０ｂが示す指示内容（即ち、ロンドンの現在時刻の確認）を認識する。そして、情報処理装置１は、音声入力ｃ１０ｂが示す指示内容の認識結果に基づき、例えば、国ごとの時刻を確認するためのアプリケーション（例えば、計時機能を提供するアプリケーション）を実行することで、ロンドンの時刻を確認する。そして、情報処理装置１は、時刻の確認結果に基づき、当該確認結果を自然文として提示するための応答情報ｃ１１ｂを生成し、当該応答情報ｃ１１ｂを音声として出力する。

[0020] また、情報処理装置１は、音声入力の解析結果や、当該音声入力以外に取得される情報（例えば、撮像された画像情報）を基に、所謂個人認識技術に基づきユーザ個人を認識し、当該認識結果に応じて各種処理を実行してもよい。

[0021] 例えば、図１に示す例では、情報処理装置１は、ユーザＵａの「明日午後１時の予定を教えて」という音声入力ｃ１０ａを受けて、当該ユーザＵａのスケジュールを確認し、当該確認の結果に基づき、「山田さんとＡ会議室で打ち合わせです」という応答情報ｃ１１ａを音声として出力している。

[0022] この場合には、情報処理装置１は、例えば、音声入力ｃ１０ａの解析結果に基づき、当該音声入力ｃ１０ａが示す指示内容（即ち、明日午後１時のスケジュールの確認）を認識する。また、情報処理装置１は、例えば、音声入

力ｃ１０ａの解析結果や、別途撮像部（図示しない）により撮像されたユーザＵａの画像に基づき、ユーザＵａを個人認識する。そして、情報処理装置１は、音声入力ｃ１０ａが示す指示内容の認識結果と、ユーザＵａの個人認識の結果とに基づき、例えば、スケジュールを管理するためのアプリケーションを実行することで、当該アプリケーションに登録されたユーザＵａのスケジュールを確認する。そして、情報処理装置１は、スケジュールの確認結果に基づき、当該確認結果を自然文として提示するための応答情報ｃ１１ａを生成し、当該応答情報ｃ１１ａを音声として出力する。

[0023] このような構成により、ユーザは、情報処理装置１との間で音声により対話を行うことで、情報処理装置１に各種機能を実行させることが可能となる。

[0024] 一方で、人と人との間（即ち、ユーザ間）の対話で使用される語句の中には、「午後３時」と「１５時」とのように、同じ意味を持つが表現の異なる語句が存在し、発話者に応じて日常的に使用する語句が異なる（即ち、発話スタイルが異なる）場合がある。そのため、例えば、日常的に「午後３時」と発話しているユーザに対して、情報処理装置１が、時刻を示す応答として「１５時」と出力した場合に、当該ユーザは、自身の発話スタイルと異なる応答に対して違和感をもつ場合がある。

[0025] このような発話スタイルの違いは、上記に示した時刻の呼称に限られず、具体的な他の一例として、人の呼称が挙げられる。例えば、あるユーザは、「山田太郎」という名前の人物のことを、「やまださん」というように、姓に対して敬称を付して呼称する場合がある。また、他のユーザについては、「山田太郎」という名前の人物のことを、「たろう」というように、名のみで呼称する場合もある。このような場合には、情報処理装置１が、「山田太郎」という名前の人物を、「やまだたろう」というように姓名で呼称した応答を出力した場合に、「やまださん」と呼称するユーザは、当該応答に対して違和感をもつ場合がある。

[0026] また、情報処理装置１とユーザとの間で対話が行われる状況（例えば、ユ

ーザの状態や周囲の環境）についても常に一定とは限らず、逐次動的に状況が変化する場合も少なくない。特に、近年では、スマートフォン、タブレット端末、及びウェアラブル端末のように、ユーザが携行可能に構成された情報処理装置も普及してきており、当該情報処理装置が、所謂対話型のＵＩを備えている場合もある。このように、情報処理装置の種別の多様化に伴い、当該情報処理装置の利用シーン（即ち、情報処理装置が利用される状態または状況）も多様化してきており、情報処理装置１とユーザとの間で対話が行われる状況も多岐にわたり、当該状況が動的に変化する場合もある。

[0027] このような条件下では、情報処理装置１が、所定の状況にあわせて、ユーザがより自然に感じるように、応答の出力態様（例えば、音量や話速）を制御したとしても、他の状況下では、当該応答に対してユーザが違和感をもつ場合がある。具体的には、情報処理装置１が所定の音量で応答を示す音声情報を出力した場合に、ユーザは、周囲の環境における環境音の音量に応じて、当該応答を聞き取りやすく感じる場合や、聞き取りにくく感じる場合が想定され得る。

[0028] また、ユーザが、情報処理装置１から出力される応答をより自然に感じるか否かは、ユーザの状態によっても変化する場合も想定され得る。具体的な一例として、ユーザは、急いでいる状態では、落ち着いている状態（例えば、急いでいない状態）に比べて、情報処理装置１以外にも多くのもの（例えば、ユーザの周囲の環境）に注意を向けている場合がある。そのため、このような状況下において、情報処理装置１から比較的長い自然文の応答が出力された場合に、ユーザは、当該応答の長さを煩わしく感じる場合もあり得る。

[0029] そこで、本実施形態に係る情報処理装置１は、ユーザや状況（例えば、ユーザの状態や周囲の環境）の変化に応じて、ユーザとの間の対話を、当該ユーザがより自然に感じる（より、違和感の少ない）態様で実現可能とすることを目的としている。なお、以降では、本実施形態に係る情報処理装置１の特徴について、より詳しく説明する。

[0030] ＜２．機能構成＞

まず、図２を参照して、本実施形態に係る情報処理装置１の機能構成の一例について説明する。図２は、本実施形態に係る情報処理装置１の機能構成の一例について示したブロック図である。

[0031] 図２に示すように、本実施形態に係る情報処理装置１は、制御部１０と、集音部２１と、記憶部３０と、出力部４０とを含む。また、情報処理装置１は、撮像部２３を含んでもよい。なお、図２に示す例では、情報処理装置１が、集音部２１、撮像部２３、記憶部３０、及び出力部４０を含む例について示しているが、必ずしも同構成に限定するものではない。即ち、集音部２１、撮像部２３、記憶部３０、及び出力部４０の少なくとも一部は、情報処理装置１の外部に設けられていてもよい。

[0032] 集音部２１は、ユーザからの音声入力や、周囲の騒音のような所謂環境音等の、音響情報を取得するための構成である。集音部２１は、例えば、マイクロフォンのように周囲の音響情報を集音するための集音デバイスにより構成され得る。また、集音部２１は、複数の集音デバイス（例えば、マイクアレイ）を備え、各集音デバイスの集音結果に応じて、集音された音響情報の到来方向を推定可能に構成されていてもよい。集音部２１は、取得した音響情報を、音声解析部１１と環境音解析部１３とに出力する。

[0033] 撮像部２３は、ＣＭＯＳ（Complementary Metal-Oxide Semiconductor）イメージセンサやＣＣＤ（Charge Coupled Device）イメージセンサ等の撮像素子と、レンズ等の光学系とを含み、被写体の画像を撮像するための構成である。撮像部２３は、撮像された画像を、画像解析部１４に出力する。

[0034] なお、図２中には明示的に図示してはいないが、集音部２１による音響情報の取得に係る動作と、撮像部２３による画像の撮像に係る動作とは、例えば、制御部１０により制御されてもよい。具体的な一例として、制御部１０は、図示しない入力デバイスを介したユーザからの指示に基づき、集音部２１に音響情報を取得させてもよい。同様に、制御部１０は、図示しない入力デバイスを介したユーザからの指示に基づき、撮像部２３に画像を撮像させ

てもよい。

[0035] 出力部４０は、情報処理装置１がユーザに対して情報を提示するための出力インタフェースである。出力部４０は、例えば、所謂スピーカのように音声や音響を出力するための音響デバイスを含み、ユーザに対して提示する情報を音声や音響として出力してもよい。また、出力部４０は、液晶ディスプレイ（ＬＣＤ：Liquid Crystal Display）装置、有機ＥＬ（ＯＬＥＤ：Organic Light Emitting Diode）ディスプレイなどの表示デバイスを含み、ユーザに対して提示する情報を表示情報として出力してもよい。

[0036] 制御部１０は、音声解析部１１と、応答要素生成部１２と、環境音解析部１３と、画像解析部１４と、ユーザ状態推定部１５と、応答パラメータ生成部１６と、応答生成部１７とを含む。

[0037] 音声解析部１１は、取得された音響情報を解析することで、当該音響情報に含まれるユーザからの音声入力が示す意味内容の認識や、当該音声入力の特徴（例えば、声の大きさ、発話の速度（話速））の抽出を行うための構成である。音声解析部１１は、音声区間検出部１１１と、音声認識部１１２と、音声特徴抽出部１１３と、意味解析部１１４と、発話スタイル検出部１１５とを含む。

[0038] 音声区間検出部１１１は、集音部２１から、集音された音響情報を取得する。音声区間検出部１１１は、取得した音響情報を解析することで、当該音響情報中における、音声入力が占める区間（以降では、「音声区間」と記載する場合がある）を検出する。なお、音声区間検出部１１１が、取得された音響情報から音声区間を検出することが可能であれば、当該音声区間を検出するための方法は特に限定されない。

[0039] 具体的な一例として、音声区間検出部１１１は、音響情報として取得された音響信号の振幅と零交差とに基づき、音声区間を検出してもよい。この場合には、例えば、音声区間検出部１１１は、音響情報として取得された音響信号のうち、所定のレベルを超える振幅について零交差の数が所定の閾値を超えたタイミングを、音声区間の始端として認識する。また、音声区間検出

部１１１は、音声区間の開始後に、音響信号の振幅が所定のレベル以下となったタイミングを、音声区間の終端として認識する。

[0040] また、他の一例として、音声区間検出部１１１は、音響情報として取得された音響信号から、あらかじめ定義された音声信号の特徴を示す特徴量を抽出し、抽出した特徴量に基づき音声区間の始端と終端とを認識してもよい。音響信号から音声信号の特徴量を抽出することで音声区間を検出する方法の一例としては、例えば、ガウス混合分布モデル（ＧＭＭ：Gaussian mixture model）に基づく音声区間の検出方法等が挙げられる。

[0041] また、音声区間検出部１１１は、例えば、音響情報として取得された音響信号から、音声信号に相当する周波数成分を抽出し、抽出された周波数成分を解析の対象としてもよい。

[0042] 以上のようにして、音声区間検出部１１１は、取得した音響情報から音声区間を検出し、当該音響情報から当該音声区間に相当する部分（即ち、音響信号）を音声入力として抽出する。そして、音声区間検出部１１１は、抽出した音声入力を音声認識部１１２と音声特徴抽出部１１３とに出力する。

[0043] 音声認識部１１２は、集音された音響情報に含まれる音声入力を音声区間検出部１１１から取得する。音声認識部１１２は、取得した音声入力を音声認識技術に基づき解析することで、文字情報に変換する。そして、音声認識部１１２は、音声入力が変換された文字情報を、音声特徴抽出部１１３と意味解析部１１４とに出力する。

[0044] 音声特徴抽出部１１３は、集音された音響情報に含まれる音声入力を音声区間検出部１１１から取得する。また、音声特徴抽出部１１３は、当該音声入力が音声認識技術に基づき変換された文字情報を、音声認識部１１２から取得する。

[0045] 音声特徴抽出部１１３は、音声入力として取得した音声信号を解析することで、例えば、当該音声信号の振幅に基づき、声の大きさ（即ち、音声入力の音量）を検出する。そして、音声特徴抽出部１１３は、検出した声の大きさを示す情報を、後述する環境音解析部１３の外部環境推定部１３２に出力

する。

[0046] また、音声特徴抽出部１１３は、取得した音声入力の長さ（即ち、発話区間の長さ）と、当該音声入力が変換された文字情報の長さ（例えば、文字数）とに基づき、話速を算出する。そして、音声特徴抽出部１１３は、算出した話速を示す情報を、後述するユーザ状態推定部１５に出力する。

[0047] 意味解析部１１４は、音声入力が音声認識技術に基づき変換された文字情報を、音声認識部１１２から取得する。意味解析部１１４は、取得した文字情報（即ち、音声入力が変換された文字情報）に対して、自然言語処理技術に基づく解析（例えば、字句解析（形態素解析）、構文解析、及び意味解析等）を施すことで、当該文字情報が示す意味内容（換言すると、音声入力が示す意味内容）を認識する。

[0048] なお、意味解析部１１４が、取得した文字情報が示す意味内容を認識できれば、自然言語処理技術に基づく解析の方法は特に限定されない。具体的な一例として、意味解析部１１４は、意味解析の手法として、機械学習の結果に基づき文字情報の意味内容を認識する手法を用いてもよいし、あらかじめ設定されたルールに基づき文字情報の意味内容を認識する手法を用いてもよい。また、取得された文字情報に対して自然言語処理技術に基づく解析を施すための各種情報（例えば、辞書情報等）については、図２では図示を省略しているが、意味解析部１１４が読み出し可能な位置にあらかじめ記憶させていれば、その記憶位置は特に限定されない。

[0049] また、意味解析部１１４は、取得した文字情報に対する自然言語処理技術に基づく解析の結果（以降では、単に「自然言語処理の結果」と記載する場合がある）に応じて、実行すべきタスクと、当該タスクを実行するための引数とを特定する。ここで、意味解析部１１４の当該処理の詳細について、図３を参照しながら、具体的な例を挙げて説明する。図３は、音声入力が示す意味内容の解析と、当該解析の結果に基づく処理の一例について説明するための説明図であり、意味解析部１１４と後述する応答要素生成部１２の動作の一例について示している。

[0050] 図３は、ユーザがスケジュールを確認するために、情報処理装置１に対して、「明日午後１時の予定を教えて」と発話した場合について示している。即ち、図３に示す例の場合には、意味解析部１１４は、音声入力が音声認識技術に基づき変換された文字情報として、「明日午後１時の予定を教えて」という文字情報を、音声認識部１１２から取得する。

[0051] 意味解析部１１４は、取得した「明日午後１時の予定を教えて」という文字情報に対して、自然言語処理技術に基づく解析を施すことで、当該文字情報に基づき実行すべきタスク（即ち、ユーザからの問合せに対する応答を生成するためのタスク）として、「予定確認」のタスクを特定する。

[0052] より具体的な一例として、意味解析部１１４は、取得した「明日午後１時の予定を教えて」という文字情報に対して形態素解析を施すことで、当該文字情報から形態素を抽出する。そして、意味解析部１１４は、抽出された形態素中の、「予定」、「教えて」というキーワードに基づき、ユーザから、「予定確認」のタスクの実行が指示されているものと認識する。

[0053] また、意味解析部１１４は、ユーザからの指示に基づき実行すべきタスクを特定すると、特定したタスクを実行するために必要な引数を、取得した「明日午後１時の予定を教えて」という文字情報から抽出する。

[0054] より具体的な一例として、意味解析部１１４は、取得した「明日午後１時の予定を教えて」という文字情報に対する形態素解析の結果から、「予定確認」のタスクを実行するために必要な日時を示す引数として、「明日午後１時」というキーワードを抽出する。

[0055] なお、ユーザと情報処理装置１との間の対話で使用される語句の中には、当該語句のみでは意味を一意に特定できないものが含まれる。例えば、「明日」という語句は、相対的に日付を特定するための表現であり、「今日」等のような基準となる日付が確定することで、「明日」として指定された日付が一意に特定される。

[0056] そのため、意味解析部１１４は、特定したタスクを実行するために必要な引数として、例えば、「明日」というキーワードを抽出した場合には、カレ

ンダー機能等に基づき「今日」の日付を確認し、「今日」の日付の確認結果に基づき、「明日」として指定された日付を特定する。例えば、「今日」の日付が、「２０１４／９／３０（即ち、２０１４年９月３０日）」の場合には、意味解析部１１４は、「明日」として指定された日付として、「２０１４／１０／１（即ち、２０１４年１０月１日）」を特定することとなる。そして、意味解析部１１４は、引数として抽出したキーワードのうち、「明日」というキーワードを、特定した当該「明日」に対応する日付に置き換える。

[0057] もちろん、対応する語句のみでは意味を一意に特定できないものは、「明日」、「今日」、「明後日」、及び「今」等のような、日付や日時を示す情報のみには限定されない。具体的な一例として、「ここ」及び「現在地」等のように、位置を示す情報等が挙げられる。例えば、意味解析部１１４は、引数として「現在地」というキーワードを抽出した場合には、ＧＰＳ（Global Positioning System）等に基づき「現在地」の位置情報を特定し、引数として抽出した「現在地」というキーワードを、特定した位置情報に置き換えればよい。

[0058] 以上のようにして、意味解析部１１４は、取得した文字情報に対する自然言語処理の結果に応じて、実行すべきタスクと、当該タスクを実行するための引数とを特定する。なお、上記に示す例は、あくまで一例であり、意味解析部１１４が、取得した文字情報（即ち、音声入力が変換された文字情報）の意味内容を認識し、認識した意味内容に基づき、実行すべきタスクと、当該タスクを実行するための引数とを特定できれば、その方法は特に限定されない。

[0059] そして、意味解析部１１４は、特定した実行すべきタスクを示す情報と、当該タスクを実行するために必要な引数とを、後述する応答要素生成部１２に出力する。また、意味解析部１１４は、音声入力が変換された文字情報に対する自然言語処理の結果（例えば、字句解析（形態素解析）、構文解析、及び意味解析等の結果）を、発話スタイル検出部１１５に出力する。

[0060] 発話スタイル検出部１１５は、意味解析部１１４から、音声入力が変換された文字情報に対する自然言語処理の結果を取得する。発話スタイル検出部１１５は、取得した自然言語処理の結果に基づき、音声入力が変換された文字情報から、ユーザや状況の変化に応じて、使用される表現が異なる場合がある語句（以降では、「固有表現」と記載する場合がある）を抽出する。

[0061] なお、固有表現としては、例えば、人名や地名等のような固有名詞や、日付、時間等のように異なる表現を有する語句が挙げられる。具体的な一例として、「明日」という語句は、「あす」、「あした」、及び「みょうにち」と表現することが可能であり、どの表現が使用されるかはユーザに応じて異なる場合がある。また、人名に着目した場合についても、前述したように、「山田太郎」という名前の人物のことを、「ヤマダさん」、「タロウ」、「ヤマダタロウ」等のように、ユーザに応じて異なる表現が使用される場合がある。

[0062] このように、発話スタイル検出部１１５は、音声入力が変換された文字情報に対する自然言語処理の結果に基づき、当該文字情報から固有表現を抽出する。

[0063] なお、発話スタイル検出部１１５が固有表現として抽出する語句は、ユーザや状況の変化に応じて、使用される表現が異なる場合がある語句であれば、必ずしも、人名や地名等のような固有名詞や、日付、時間等には限定されない。具体的な一例として、発話スタイル検出部１１５は、所謂方言に相当する語句を、固有表現として抽出してもよい。

[0064] そして、発話スタイル検出部１１５は、音声入力が変換された文字情報に対する自然言語処理の結果に基づき、当該文字情報から抽出した固有表現を、発話スタイルを示す情報として、後述する応答パラメータ生成部１６に出力する。

[0065] 環境音解析部１３は、取得された音響情報を解析することで、周囲の環境における環境音を抽出し、当該環境音の特徴の抽出を行うための構成である。なお、本説明では、環境音解析部１３は、環境音の特徴として、音声入力

の音量に対する、周囲の環境の騒音の音量の度合いを示す「騒音度」を抽出する場合を例に、当該環境音解析部１３の動作について説明する。環境音解析部１３は、環境音認識部１３１と、外部環境推定部１３２とを含む。

[0066] 環境音認識部１３１は、集音部２１から、集音された音響情報を取得する。環境音認識部１３１は、取得した音響情報を解析することで、当該音響情報から、環境音（即ち、音声入力以外の音響情報）を抽出する。なお、環境音認識部１３１が、取得された音響情報から環境音を抽出することが可能であれば、当該環境音を抽出するための方法は特に限定されない。

[0067] 具体的な一例として、環境音認識部１３１は、情報処理装置１に対してユーザ（即ち、発話者）が位置する方向（換言すると、目的音の到来方向）を検知し、当該方向に死角（null beam）を有するフィルタを形成する。そして、環境音認識部１３１は、集音部２１により集音された音響情報に対して、形成したフィルタを適用することで、当該音響情報から、当該ユーザからの音声入力以外の他の音響情報を環境音として抽出してもよい。

[0068] なお、環境音認識部１３１が、情報処理装置１に対してユーザが位置する方向を特定できれば、その方法は特に限定されない。具体的な一例として、撮像部２３により撮像された画像の解析結果として取得される、当該画像中におけるユーザの位置に基づき、情報処理装置１に対してユーザが位置する方向が検知されてもよい。また、他の一例として、集音部２１により集音された音響情報の到来方向に基づき、情報処理装置１に対してユーザが位置する方向が検知されてもよい。また、情報処理装置１が、所謂ウェアラブル端末等のように、ユーザへの装着状態に応じて、当該情報処理装置１が利用される状況が限定される場合には、当該装着状態に基づき、情報処理装置１に対してユーザが位置する方向が特定されてもよい。

[0069] また、他の一例として、環境音認識部１３１は、音響情報として取得された音響信号から、音声信号以外の周波数成分を抽出し、抽出された周波数成分を、環境音を抽出するための解析の対象としてもよい。

[0070] 次いで、環境音認識部１３１は、音響情報から抽出した環境音の音響信号

を解析することで、環境音の音量を検出する。具体的な一例として、環境音認識部１３１は、当該音響信号の振幅に基づき、環境音の音量を検出してもよい。そして、環境音認識部１３１は、検出した環境音の音量を示す情報を、騒音の音量を示す情報として外部環境推定部１３２に出力する。

[0071] 外部環境推定部１３２は、環境音認識部１３１から、騒音の音量を示す情報を取得する。また、外部環境推定部１３２は、音声解析部１１の音声特徴抽出部１１３から、声の大きさ（即ち、音声入力の音量）を示す情報を取得する。そして、外部環境推定部１３２は、ユーザからの音声入力を目的音として、当該目的音の音量（即ち、声の大きさ）に対する、騒音の音量の大きさを示す数値（例えば、ＳＮ比）を、騒音度として算出する。外部環境推定部１３２は、算出した騒音度を示す情報を、後述する応答パラメータ生成部１６に出力する。

[0072] 画像解析部１４は、撮像された画像に対して画像解析を施すことで、当該画像解析の結果に基づき、画像中に撮像されているユーザを認識し、当該ユーザに関する情報を取得するための構成である。

[0073] 具体的には、画像解析部１４は、撮像部２３により撮像された被写体の画像を取得する。画像解析部１４は、取得した画像に対して画像解析を施し、当該画像解析の結果に基づき、当該画像中から、撮像されたユーザを抽出する。なお、このとき画像中から撮像されたユーザを抽出することが可能であれば、その方法は特に限定されない。具体的な一例として、画像解析部１４は、処理対象の画像から、人の顔や、手や足等のような身体の部位のように、人に固有の特徴的な形状を抽出することで、当該画像中から、撮像されたユーザを抽出してもよい。

[0074] 画像解析部１４は、画像中から抽出されたユーザに対して、所謂個人認識技術に基づく解析処理を施すことで、当該ユーザを個人認識する。なお、画像に基づく個人認識技術としては、例えば、ユーザの顔の画像に基づき、当該ユーザ個人を認識する技術が挙げられる。もちろん、画像中から抽出されたユーザ個人を認識することが可能であれば、その方法は特限定されないこ

とは言うまでもない。また、取得された画像に対する画像解析の結果に基づきユーザ個人を認識するための各種情報（例えば、辞書情報等）については、図２では図示を省略しているが、画像解析部１４が読み出し可能な位置にあらかじめ記憶させていれば、その記憶位置は特に限定されない。

[0075] また、画像解析部１４は、取得した画像に対する画像解析の結果に基づき、ユーザの姿勢、年齢、性別等のような、当該ユーザの状態や当該ユーザに関する情報（例えば、属性情報）を推定してもよい。

[0076] そして、画像解析部１４は、取得した画像の解析結果、即ち、当該画像に撮像されたユーザ個人の認識結果や、姿勢、年齢、性別等のような、ユーザの状態や当該ユーザに関する情報の推定結果を、後述するユーザ状態推定部１５に出力する。

[0077] ユーザ状態推定部１５は、撮像された画像の解析結果や、取得された音声入力の解析結果等のような取得された各種情報に基づき、ユーザの各種状態を推定するための構成である。なお、本説明では、ユーザ状態推定部１５が、撮像された画像の解析結果と、取得された音声入力の解析結果とに基づき、ユーザの心理状態（具体的には、ユーザが落ち着いた状態か否か）を判別するためのパラメータである「落ち着き度」を算出する場合を例に、ユーザ状態推定部１５の動作について説明する。

[0078] 例えば、ユーザ状態推定部１５は、あらかじめ設定された落ち着き度の初期値を、撮像された画像の解析結果や、取得された音声入力の解析結果に基づき認識されるユーザの状態に応じて加減算する（換言すると、重み付けする）ことで、当該ユーザの落ち着き度を算出する。例えば、図４～図６は、ユーザの各種状態と落ち着き度との関係の一例について説明するための説明図である。

[0079] 具体的な一例として、図４は、撮像された画像の解析結果に基づき認識されたユーザの姿勢と、落ち着き度との間の関係の一例を示した図である。図４に示す例では、ユーザ状態推定部１５は、ユーザの姿勢が「座っている」状態、または「寝そべっている」状態の場合には、ユーザが落ち着いた状態

であるもの認識されやすいように、落ち着き度を加算する。また、ユーザ状態推定部１５は、ユーザの姿勢が「立っている」状態の場合には、ユーザが急いでいる状態にあるものと認識されやすいように、落ち着き度を減算している。また、図４に示す例では、ユーザの姿勢が「寝そべっている」状態の場合には、「座っている」状態の場合に比べて、ユーザがより落ち着いた状態であるものと認識されるように、「寝そべっている」状態の加算値として、「座っている」状態の加算値よりも大きい値が設定されている。

[0080] また、図５は、取得された音声入力の解析結果に基づき認識された当該音声入力の話速と、落ち着き度との間の関係の一例を示した図である。図５に示す例では、ユーザ状態推定部１５は、話速が「４－６文字／秒」の場合を話速の基準値として、当該基準値よりも話速が遅い場合（即ち、話速が「４文字未満／秒」の場合）には、ユーザが落ち着いた状態であるもの認識されやすいように、落ち着き度を加算する。また、ユーザ状態推定部１５は、基準値よりも話速が速い場合（即ち、話速が「７文字以上／秒」の場合）には、ユーザが急いでいる状態にあるものと認識されやすいように、落ち着き度を減算する。

[0081] また、図６は、ユーザの動作（換言すると、ユーザの行動）と落ち着き度との間の関係の一例を示した図である。図６に示す例では、ユーザが「止まっている」場合、「歩いている」場合、及び「走っている」場合のそれぞれについて、落ち着き度の加減算値の一例が示されている。具体的には、ユーザ状態推定部１５は、ユーザが「止まっている」場合には、当該ユーザが落ち着いた状態であるもの認識されやすいように、落ち着き度を加算する。また、ユーザ状態推定部１５は、ユーザが「歩いている」場合、または「走っている」場合には、ユーザが急いでいる状態にあるものと認識されやすいように、落ち着き度を減算している。また、図６に示す例では、ユーザが「走っている」場合には、「歩いている」場合に比べて、ユーザがより急いでいる状態であるものと認識されるように、「走っている」場合の減算値として、「歩いている」場合の減算値よりも大きい値が設定されている。

[0082] なお、図６に示す例を適用する場合において、ユーザ状態推定部１５が、ユーザの行動（ユーザの動作）を推定できれば、その方法は特に限定されない。具体的な一例として、ユーザ状態推定部１５は、ユーザが携行する筐体（例えば、ウェアラブル端末として構成された情報処理装置１）の位置や向きの変化を検出するための各種センサ（例えば、加速度センサや角速度センサ）の検出結果に基づき、ユーザの行動を推定してもよい。また、他の一例として、ユーザ状態推定部１５は、ＧＰＳ等により検出した、ユーザが携行する筐体の位置情報の変化に基づき、ユーザの行動（例えば、移動中か否か）を推定してもよい。

[0083] 以上のようにして、ユーザ状態推定部１５は、例えば、「ユーザの姿勢」、「音声入力の話速」、及び「ユーザの行動」のうち認識された少なくとも一部の情報に基づき、「落ち着き度」を算出する。

[0084] このように、図４～図６を参照して説明した例では、「落ち着き度」というユーザの状態（ユーザの心理状態）に対して、「ユーザの姿勢」、「音声入力の話速」、及び「ユーザの行動」というユーザの状態が関連付けられている。換言すると、ユーザ状態推定部１５は、「ユーザの姿勢」、「音声入力の話速」、及び「ユーザの行動」等のような、取得された情報に基づき直接的に検出される（推定される）ユーザの状態を、「落ち着き度」というより抽象化されたユーザの状態として管理することが可能となる。

[0085] このような構成により、ユーザ状態推定部１５は、例えば、「ユーザの姿勢」、「音声入力の話速」、及び「ユーザの行動」の少なくともいずれかが異なる複数の状態において、「落ち着き度」が同程度の場合には、当該複数の状態を、同一の状態として認識することも可能となる。

[0086] なお、ユーザ状態推定部１５は、ユーザ個人の認識結果に応じて、ユーザごとに、落ち着き度の初期値や、認識された状態に応じた落ち着き度の加減算値を動的に切り替えてもよい。具体的な一例として、「ユーザの姿勢」、「音声入力の話速」、及び「ユーザの行動」を示す情報をユーザごとに蓄積することで、当該ユーザの普段の状態（即ち、基準となる状態）が蓄積され

た情報に基づき導出されてもよい。これにより、例えば、ユーザ状態推定部１５は、ユーザごとに、普段の状態を基準とした、認識された当該ユーザの各種状態の相対値に基づき、落ち着き度の加減算値を算出してもよい。

[0087] また、上記では、ユーザ状態推定部１５が、ユーザの状態として「落ち着き度」を推定する場合を例に説明したが、当該ユーザ状態推定部１５により推定されるユーザの状態は、必ずしも「落ち着き度」のみには限定されないことは言うまでもない。即ち、撮像された画像の解析結果や、取得された音声入力の解析結果等のような取得された各種情報に基づき、推定可能なユーザの状態であれば、推定の対象となるユーザの状態は特に限定されない。

[0088] そして、ユーザ状態推定部１５は、推定したユーザの状態（例えば、落ち着き度）を示す情報を、応答パラメータ生成部１６に出力する。なお、このときユーザ状態推定部１５は、取得した「ユーザの年齢や性別」の推定結果や「ユーザ個人の認識結果」等のような、ユーザに関する情報を、応答パラメータ生成部１６に出力してもよい。

[0089] なお、上記では、ユーザ状態推定部１５が、主に、画像の解析結果と、音声入力の解析結果とに基づき、ユーザの状態を推定する例について説明したが、必ずしも同構成に限定するものではない。即ち、画像、音声入力、または各種センサによる検出結果等のように、情報処理装置１が取得可能な情報であり、かつ、当該情報に基づきユーザの状態が推定可能であれば、ユーザの状態の推定に利用される情報の種別は特に限定されない。

[0090] 応答パラメータ生成部１６は、ユーザの外部環境の検出結果、ユーザの状態を示す情報、及びユーザの発話スタイル等のように、検出されたユーザの状態、状況、または特性（例えば、言語特性）に関する情報を基に応答パラメータを生成し、当該応答パラメータを管理するための構成である。

[0091] 例えば、応答パラメータ生成部１６は、音声解析部１１の発話スタイル検出部１１５から、音声入力が変換された文字情報に対する自然言語処理の結果に基づき、当該文字情報から抽出された固有表現を、発話スタイルを示す情報として取得する。また、応答パラメータ生成部１６は、環境音解析部１

３の外部環境推定部１３２から、騒音度を示す情報（換言すると、ユーザの外部環境の検出結果）を取得する。また、応答パラメータ生成部１６は、ユーザ状態推定部１５から、「落ち着き度」、「ユーザの年齢や性別」及び「ユーザ個人の認識結果」等のような、ユーザの状態を示す情報や、ユーザに関する情報を取得する。

[0092] 以上のようにして、応答パラメータ生成部１６は、検出されたユーザの状態、状況、または特性（例えば、言語特性）に関する情報（以降では、「ユーザの発話状態に関する情報」と称する場合がある）を取得する。そして、応答パラメータ生成部１６は、取得したユーザの発話状態に関する情報を、応答パラメータとして後述する応答生成部１７に出力する。

[0093] なお、取得される「ユーザの発話状態に関する情報」には、「ユーザの外部環境の検出結果」や「ユーザの状態」のように、その時々の状況に応じて変化する一過性の情報と、「ユーザの発話スタイル」のような、ユーザの特性を示す継続的な情報とが含まれる。

[0094] そのため、応答パラメータ生成部１６は、取得した「ユーザの発話状態に関する情報」のうち、「ユーザの発話スタイル」のような、ユーザの特性を示す継続的な情報に基づく応答パラメータついては、記憶部３０に蓄積してもよい。記憶部３０は、「ユーザの発話状態に関する情報」に基づき生成された応答パラメータを記憶するための記憶部である。

[0095] 例えば、図７は、継続的な情報として記憶される応答パラメータの一例について説明するための説明図であり、「ユーザの発話スタイル」に基づく応答パラメータの一例について示している。

[0096] 図７に示す例では、「ユーザの発話スタイル」を示す応答パラメータｄ１０は、人名呼称データｄ１１と、日時表現パターンｄ１３とを含み、ユーザＩＤを識別子としてユーザごとに生成され管理されている。人名呼称データｄ１１は、人名の呼称に関する発話スタイルを管理するためのデータであり、人ごとに、「正式名」と、当該「正式名」に対応する「呼称」とが関連付けられて記憶される。また、日時表現パターンｄ１３は、暦や時間の表現を

管理するためのデータである。例えば、ユーザが、暦（例えば、「年」）を和暦で呼称する場合には、日時表現パターンｄ１３には、暦に関する表現を示す情報として、和暦で呼称することを示す情報が記憶される。同様に、ユーザが、時間を「午前」及び「午後」で区別して呼称する場合には、日時表現パターンｄ１３には、時間に関する表現を示す情報として、「午前」及び「午後」で区別して呼称することを示す情報が記憶される。

[0097] 応答パラメータ生成部１６は、取得した「ユーザの発話スタイル」を示す情報を基に応答パラメータｄ１０を生成し、取得したユーザ個人の認識結果に応じて、当該応答パラメータｄ１０を認識したユーザごとに記憶部３０に蓄積する。

[0098] このような構成に基づき、応答パラメータ生成部１６は、後述する応答生成部１７からの指示に基づき、音声入力の発話者の発話スタイルに応じた呼称を、当該応答生成部１７に通知してもよい。

[0099] 具体的な一例として、図７に示す例において、応答パラメータ生成部１６が、応答生成部１７から「山田　太郎」に対応する呼称の通知を指示されたものとする。この場合には、応答パラメータ生成部１６は、取得したユーザ個人の認識結果に基づき、当該ユーザ（即ち、発話者）に対応する応答パラメータｄ１０を記憶部３０から抽出する。そして、応答パラメータ生成部１６は、抽出した応答パラメータｄ１０の人名呼称データｄ１１を参照することで、「正式名」が「山田　太郎」である人物の「呼称」が「ヤマダさん」であることを認識し、認識した「ヤマダさん」という「呼称」を示す情報を、応答生成部１７に通知する。これにより、応答生成部１７は、「山田　太郎」という人物を、発話者の発話スタイルにあわせて、「ヤマダさん」と呼称した応答を生成することが可能となる。

[0100] なお、ユーザは、必ずしも日常的に使用している呼称を常に使用するとは限らない。具体的な一例として、普段は「山田　太郎」という人物を「ヤマダさん」と呼称しているユーザが、ある状況下では、「ヤマダタロウさん」と呼称する場合もある。

[0101] このような場合には、応答パラメータ生成部１６は、例えば、取得した発話スタイルを示す情報に基づき、音声入力に含まれる「ヤマダタロウさん」という呼称にあわせて、一時的に、「山田　太郎」という人物の「呼称」が「ヤマダタロウさん」であるものと認識してもよい。また、他の一例として、応答パラメータ生成部１６は、このような状況下においても、「山田　太郎」という人物の呼称を、ユーザが日常的に使用する発話スタイルにあわせて、「ヤマダさん」と呼称してもよい。なお、応答パラメータ生成部１６が、上記に示した動作のうち、いずれを選択するかについては、事前のユーザ設定に基づき切り替えられるように構成されていてもよい。

[0102] 応答要素生成部１２は、音声入力として取得されたユーザからの問合せに対する応答を生成するために必要な情報を取得するための構成である。応答要素生成部１２は、音声入力が変換された文字情報に対する自然言語処理の結果に基づき特定された、実行すべきタスクを示す情報と、当該タスクを実行するために必要な引数とを、意味解析部１１４から取得する。応答要素生成部１２は、意味解析部１１４から取得した情報が示すタスクを、あわせて取得した引数を入力情報として実行し、当該タスクの実行結果として、ユーザに対する応答を生成するために必要な情報を取得する。

[0103] 例えば、図３に示す例では、実行すべきタスクとして「予定確認」が指定されており、当該タスクを実行するために、日時の引数として「明日午後１時」に対応する「２０１４／１０／１　１３：００」が指定されている。そのため、応答要素生成部１２は、スケジュールを管理するためのアプリケーションに対して、引数として指定された「２０１４／１０／１　１３：００」を検索キーとして、当該検索キーに対応するスケジュールを検索させる。なお、このとき応答要素生成部１２は、音声入力を発話したユーザの個人認識の結果を取得し、取得した個人認識の結果を、スケジュールを検索するための検索キーに加えてもよい。

[0104] そして、応答要素生成部１２は、スケジュールを管理するためのアプリケーションから、検索キーに対応するスケジュールの検索結果を取得する。図

３に示す例の場合には、応答要素生成部１２は、スケジュールの検索結果として、「タイトル」として登録された「Ａ会議室で打ち合わせ」という情報と、「参加者」として登録された「山田　太郎」という情報とを取得している。

[0105] そして、応答要素生成部１２は、検索結果として取得した情報を、ユーザからの音声入力に対する応答を生成するための応答要素として、当該応答要素を示す情報と、実行したタスクを示す情報とを、後述する応答生成部１７に出力する。なお、このとき応答要素生成部１２は、検索結果として取得した情報に加えて、検索キーとして使用した情報（例えば、日時を示す「２０１４／１０／１　１３：００」）を、応答要素を示す情報として応答生成部１７に出力してもよい。

[0106] 応答生成部１７は、ユーザからの音声入力に対する応答を生成するための構成である。応答生成部１７は、ユーザからの音声入力に対する応答を生成するための応答要素を示す情報と、当該応答要素を取得するために実行されたタスクを示す情報とを、応答要素生成部１２から取得する。

[0107] 応答生成部１７は、取得した応答要素を示す情報を応答パラメータ生成部１６に送信し、ユーザの発話スタイルに応じた、当該応答要素の呼称を示す情報を応答パラメータ生成部１６から取得する。

[0108] 具体的な一例として、応答生成部１７は、応答要素を示す情報として、人名を示す「山田　太郎」という情報を取得したものとする。この場合には、例えば、応答生成部１７は、ユーザの発話スタイルに応じた「山田　太郎」という人物の呼称を示す情報として、「ヤマダさん」という呼称を示す情報を応答パラメータ生成部１６から取得する。

[0109] また、他の一例として、応答生成部１７は、応答要素を示す情報として、時刻を示す「１３：００」という情報を取得したものとする。この場合には、例えば、応答生成部１７は、ユーザの発話スタイルに応じた「１３：００」という時刻の呼称を示す情報として、「午後１時」という呼称を示す情報を応答パラメータ生成部１６から取得する。

[0110] 次いで、応答生成部１７は、取得したタスクを示す情報を基に、音声入力に基づくユーザからの問合せの内容を認識する。具体的な一例として、図３に示す例での場合には、応答生成部１７は、取得したタスクを示す情報を基に、ユーザからの「明日午後１時の予定を教えて」という音声入力に対して、「予定確認」のためのタスクが実行されたこと認識する。

[0111] そして、応答生成部１７は、実行されたタスクの認識結果と、応答要素に対応するユーザの発話スタイルに応じた呼称とに基づき、応答内容を示す情報（例えば、文字情報）を生成する。

[0112] 具体的には、応答生成部１７は、取得したタスクを示す情報に基づき、「予定確認」のためのタスクが実行されたこと認識した場合には、「予定確認」の結果をユーザに対して提示するための応答の雛形を生成する。そして、応答生成部１７は、生成した雛形に対して、応答要素に対応するユーザの発話スタイルに応じた呼称を、生成した雛形に対して埋め込むことで、応答内容を示す情報を生成する。

[0113] より具体的には、応答生成部１７は、「明日午後１時の予定を教えて」という音声有力に対する応答として、「山田太郎と、Ａ会議室で打ち合わせです」という応答の雛形を作成する。そして、応答生成部１７は、作成した雛形中の応答要素を、取得した当該応答要素に対応する呼称に置き換える。即ち、上記に示す例の場合には、応答生成部１７は、「山田太郎」という人名を示す応答要素を、ユーザの発話スタイルに応じた「ヤマダさん」という呼称に置き換え、「ヤマダさんと、Ａ会議室で打ち合わせです」という応答内容を示す情報を生成する。

[0114] また、応答生成部１７は、「２０１４／９／３０」、「２０１４／１０／１」という日付を示す情報を、「本日」、「明日」、「明後日」等のような、日付を相対的に表した表現に置き換えて、応答内容を示す情報を生成してもよい。

[0115] 具体的な一例として、応答生成部１７は、「明日午後１時の予定を教えて」という音声有力に対する応答として、「２０１４／１０／１　１３：００

からは、山田太郎と、Ａ会議室で打ち合わせです」という応答の雛形を作成したものとする。この場合には、応答生成部１７は、「１３：００」と時間を示す応答要素と、「山田太郎」という人名を示す応答要素とを、ユーザの発話スタイルに応じた、「午後１時」、「ヤマダさん」という呼称に置き換える。また、応答生成部１７は、「２０１４／１０／１」という日付を示す応答要素を、音声入力の表現（換言すると、発話スタイル）にあわせて、「明日」という呼称に置き換えてもよい。即ち、この場合には、応答生成部１７は、「明日午後１時からは、ヤマダさんと、Ａ会議室で打ち合わせです」という応答内容を示す情報を生成することとなる。

[0116] また、応答生成部１７は、取得した応答要素に基づき、応答内容として出力する情報のうち一部の表現を変更してもよい。具体的な一例として、応答生成部１７は、時間帯を示す応答要素に応じて、挨拶の表現を、「おはようございます」、「こんにちは」、「こんばんは」というように切り替えてもよい。

[0117] 応答内容を示す情報を生成すると、応答生成部１７は、当該応答内容を示す情報を出力部４０に出力させる。このとき、応答生成部１７は、応答内容を示す文字情報から、例えば、音声合成技術に基づき、当該応答内容を発声している音声信号を生成し、当該音声信号を出力部４０に出力させてもよい。また、応答生成部１７は、応答内容を示す文字情報を、表示情報として出力部４０に出力させてもよい。

[0118] また、このとき応答生成部１７は、ユーザの周囲の環境の「騒音度」や、当該ユーザの「落ち着き度」のように、ユーザと情報処理装置１と間の対話時における、ユーザの発話状態に関する情報（即ち、一過性の情報）を、応答要素生成部１２から取得してもよい。この場合には、応答生成部１７は、取得した情報に応じて、応答の出力態様を制御してもよい。

[0119] 具体的な一例として、応答生成部１７は、取得した「騒音度」を示す情報に応じて、応答として出力される音響情報の音量を制御してもよい。また、応答生成部１７は、取得した「騒音度」を示す情報に応じて、応答の出力態

様を制御してもよい。具体的には、応答生成部１７は、「騒音度」が所定の閾値以下の場合には、応答が音響情報として出力されるように制御し、「騒音度」が所定の閾値を超える場合には、応答が表示情報として出力されるように制御してもよい。

[0120] また、他の一例として、応答生成部１７は、取得した「落ち着き度」を示す情報に応じて、応答として出力される情報の量を制御してもよい。

[0121] 例えば、情報処理装置１は、ユーザからの音声入力に対して、応答内容を示す情報に加えて、当該応答内容に関連する付加的な情報が出力できるように構成されていてもよい。この場合には、応答生成部１７は、取得した「落ち着き度」を示す情報に応じて、付加的な情報を出力するか否かを制御してもよい。

[0122] 具体的な一例として、「東京駅への行き方を教えて」という音声入力に対して、応答内容を示す情報として、「東京駅へ行くための乗り換え情報」を提示するための応答が生成され、付加的な情報として、「東京駅の周辺の天気」を提示するための情報が生成されたものとする。このとき、応答生成部１７は、ユーザが急いでいる状態の場合には、応答内容を示す「東京駅へ行くための乗り換え情報」のみを出力部４０に出力させてもよい。また、応答生成部１７は、ユーザが落ち着いている状態の場合には、応答内容を示す「東京駅へ行くための乗り換え情報」に加えて、付加的な情報である「東京駅の周辺の天気」を出力部４０に出力させてもよい。

[0123] また、応答生成部１７は、ユーザに関連付けられた他のユーザに関する情報を、付加的な情報として取得してもよい。具体的な一例として、応答生成部１７は、ユーザから「天気」を問い合わせられた場合に、ユーザの周辺や、ユーザの目的地の天気に加えて、当該ユーザの親戚の所在地（例えば、居所等）の天気を、付加的な情報として出力部４０に出力させてもよい。また、応答生成部１７は、ユーザからの音声入力に基づき、ニュース等の情報を提示する場合には、当該情報を提供するサイトのＵＲＬ等のリンクを、付加的な情報として出力させてもよい。

[0124] なお、付加的な情報を生成するための情報（例えば、応答要素）については、例えば、前述した応答要素生成部１２が、実行したタスク、音声入力から取得した検索キー、及び取得した応答要素等に基づき、新たにタスクを実行することで生成することが可能である。具体的な一例として、応答要素生成部１２は、乗換情報を示す応答要素を取得するために検索キーとして使用した「東京駅」という情報に基づき、天気を確認するためのタスクを実行することで、「東京駅の周辺の天気」を示す応答要素を別途取得すればよい。

[0125] また、応答生成部１７は、ユーザからの問い合わせに対する応答内容の情報量自体を制御してもよい。具体的な一例として、応答生成部１７は、ユーザから「受信メールの確認」や「配信されたニュースの確認」が指示された場合に、「落ち着き度」の推定結果に応じて、情報の通知方法を、タイトルのみの通知、要約の通知、及び全文の通知の間で切り替えてもよい。換言すると、応答生成部１７は、「落ち着き度」の推定結果に応じて、ユーザに対して通知する情報の詳しさの度合いを制御してもよい。

[0126] また、応答生成部１７は、ユーザからの問い合わせの有無に関わらず、ユーザの発話状態に応じて、付加的な情報を提示してもよい。具体的な一例として、応答生成部１７は、ユーザからの問い合わせに対して目的地までの経路を提示した後に、ユーザが落ち着いている状態であるものと認識したものとする。この場合には、応答生成部１７は、当該目的地までの経路中に存在する、他のスポットの情報（所謂、寄り道情報）を追加情報として提示してもよい。

[0127] なお、応答生成部１７は、ユーザが急いでいる状態と認識している場合には、追加情報の提示を抑制してもよく、ユーザの落ち着き度の変化に応じて、追加情報の提示の有無を動的に切り替えてもよい。また、応答生成部１７は、追加情報を提示するか否かを、各種条件に応じて切り替えてもよいことは言うまでもない。具体的な一例として、応答生成部１７は、ユーザが外出中の場合に、当該ユーザの落ち着き度に応じて、追加情報を提示してもよい。

[0128] また、応答生成部１７は、取得した「落ち着き度」を示す情報に応じて、異なる表現で応答内容を示す情報が出力されるように制御してもよい。

[0129] 具体的な一例として、応答生成部１７は、ユーザが落ち着いている状態の場合には、「東京駅周辺の天気」を示す情報として、「東京駅の周辺の天気は晴れです」という自然文の応答内容を示す情報を生成するものとする。これに対して、応答生成部１７は、ユーザが急いでいる状態の場合には、「東京駅周辺の天気」を示す情報として、「晴れです」というように、応答内容をより端的に示した情報を生成してもよい。

[0130] また、応答生成部１７は、認識されたユーザの「年齢」の推定結果を示す情報を応答要素生成部１２から取得することで、当該ユーザの「年齢」の推定結果に応じて、応答の出力態様を制御してもよい。具体的には、応答生成部１７は、「年齢」の推定結果から、ユーザが老人であると認識した場合には、応答の出力速度（例えば、音声出力の話速や、表示情報の出力速度）がより遅くなるように制御してもよい。

[0131] また、音響情報として出力される音響信号の一部の周波数帯については、高齢化に伴い、ユーザが認識することが困難となるものがある。そのため、応答生成部１７は、ユーザの「年齢」の推定結果に応じて、音声入力に対する応答として出力される音声信号（音響信号）の周波数帯域を制御してもよい。

[0132] また、応答生成部１７は、ユーザの位置情報に基づき、当ユーザの発話が行われている環境を推定し、当該推定の結果に基づき応答の出力態様を制御してもよい。具体的な一例として、応答生成部１７は、ユーザが自宅にいる場合には、応答として出力される音響情報の音質を向上させ、当該ユーザが自宅から外出している場合には、バッテリーを節約するために、当該音響情報の音質を一時的に低下させてもよい。

[0133] また、他の一例として、応答生成部１７は、情報処理装置１を駆動させるための電力の供給元、もしくは当該電力の供給元の状態に応じて、応答の出力態様を制御してもよい。具体的な一例として、応答生成部１７は、情報処

理装置１がバッテリーからの電力に基づき駆動している場合には、バッテリーを節約するために、応答として出力される音響情報の音質を一時的に低下させてもよい。また、応答生成部１７は、当該バッテリーの残量が所定値未満となった場合に、応答として出力される音響情報の音質を一時的に低下させてもよい。

[0134] なお、上記に説明した、応答生成部１７による、ユーザの発話状態に関する情報（即ち、一過性の情報）に応じた出力態様の制御（例えば、応答の音量、応答の話速、及び出力される情報量等）のうち少なくとも一部は、ユーザによる事前の設定に基づき、有効及び無効が切り替えられてもよい。もちろん、上述した当該出力態様の各制御それぞれの有効及び無効は、ユーザによる事前の設定に基づき選択的に制御されてもよい。

[0135] また、上記に説明した機能構成はあくまで一例であり、必ずしも同構成に限定するものではない。具体的な一例として、制御部１０の各構成のうち、一部の構成が、情報処理装置１とは異なる外部装置に設けられていてもよい。また、上記に説明した各種機能が実現可能であれば、情報処理装置１の種別や形態は特に限定されず、当該種別や形態に応じて、機能や構成が追加されていてもよい。

[0136] また、上記に説明した機能構成が実現されれば、情報処理装置１の種別や利用形態についても特に限定されない。具体的な一例として、情報処理装置１は、所謂スマートフォン、タブレット端末、及びウェアラブル端末等のように、ユーザが携行可能に構成されていてもよい。また、情報処理装置１は、所謂パーソナルコンピュータ等の情報機器として構成されていてもよいし、テレビ受像機等のような各種家電機器として構成されていてもよい。

[0137] 以上、図２～図７を参照して、本実施形態に係る情報処理装置１の機能構成の一例について説明した。

[0138] ＜３．処理＞

次に、図８を参照して、本実施形態に係る情報処理装置１の一連の動作の流れの一例について説明する。図８は、本実施形態に係る情報処理装置１の

一連の動作の流れの一例を示したフローチャートである。

[0139] （ステップＳ１０１）

まず、ユーザからの音声入力や、周囲の騒音のような所謂環境音等の、音響情報を取得し、取得した音響情報を、音声解析部１１と環境音解析部１３とに出力する。

[0140] （ステップＳ１０３）

音声解析部１１の音声区間検出部１１１は、集音部２１から、集音された音響情報を取得する。音声区間検出部１１１は、取得した音響情報を解析することで、当該音響情報中における音声区間を検出する。音声区間検出部１１１は、取得した音響情報から音声区間に相当する部分（即ち、音響信号）を音声入力として抽出する。そして、音声区間検出部１１１は、抽出した音声入力を音声認識部１１２と音声特徴抽出部１１３とに出力する。

[0141] 音声認識部１１２は、集音された音響情報に含まれる音声入力を音声区間検出部１１１から取得し、取得した音声入力を音声認識技術に基づき解析することで、文字情報に変換する。そして、音声認識部１１２は、音声入力が変換された文字情報を、音声特徴抽出部１１３と意味解析部１１４とに出力する。

[0142] 音声特徴抽出部１１３は、集音された音響情報に含まれる音声入力を音声区間検出部１１１から取得する。また、音声特徴抽出部１１３は、当該音声入力が音声認識技術に基づき変換された文字情報を、音声認識部１１２から取得する。

[0143] 音声特徴抽出部１１３は、音声入力として取得した音声信号を解析することで、例えば、当該音声信号の振幅に基づき、声の大きさ（即ち、音声入力の音量）を検出する。そして、音声特徴抽出部１１３は、検出した声の大きさを示す情報を、環境音解析部１３の外部環境推定部１３２に出力する。

[0144] また、音声特徴抽出部１１３は、取得した音声入力の長さ（即ち、発話区間の長さ）と、当該音声入力が変換された文字情報の長さ（例えば、文字数）とに基づき、話速を算出する。そして、音声特徴抽出部１１３は、算出し

た話速を示す情報を、ユーザ状態推定部１５に出力する。

[0145] 意味解析部１１４は、音声入力が音声認識技術に基づき変換された文字情報を、音声認識部１１２から取得する。意味解析部１１４は、取得した文字情報（即ち、音声入力が変換された文字情報）に対して、自然言語処理を施すことで、当該文字情報が示す意味内容（換言すると、音声入力が示す意味内容）を認識する。

[0146] また、意味解析部１１４は、取得した文字情報に対する自然言語処理技術に基づく解析の結果（以降では、単に「自然言語処理の結果」と記載する場合がある）に応じて、実行すべきタスクと、当該タスクを実行するための引数とを特定する。

[0147] 例えば、意味解析部１１４は、「明日午後１時の予定を教えて」という文字情報を取得した場合には、当該文字情報に含まれる「予定」、「教えて」というキーワードに基づき、ユーザから、「予定確認」のタスクの実行が指示されているものと認識する。意味解析部１１４は、取得した文字情報から、「予定確認」のタスクを実行するために必要な日時を示す引数として、「明日午後１時」というキーワードを抽出する。なお、このとき、意味解析部１１４は、「明日」、「本日」、及び「明後日」のように、対応する語句のみでは意味を一意に特定できないものについては、「１０／１」のように、実際の日付を示す情報に変換してもよい。

[0148] そして、意味解析部１１４は、特定した実行すべきタスクを示す情報と、当該タスクを実行するために必要な引数とを、後述する応答要素生成部１２に出力する。また、意味解析部１１４は、音声入力が変換された文字情報に対する自然言語処理の結果（例えば、字句解析（形態素解析）、構文解析、及び意味解析等の結果）を、発話スタイル検出部１１５に出力する。

[0149] （ステップＳ１０５）

応答要素生成部１２は、音声入力が変換された文字情報に対する自然言語処理の結果に基づき特定された、実行すべきタスクを示す情報と、当該タスクを実行するために必要な引数とを、意味解析部１１４から取得する。応答

要素生成部１２は、意味解析部１１４から取得した情報が示すタスクを、あわせて取得した引数を入力情報として実行し、当該タスクの実行結果として、ユーザに対する応答を生成するために必要な情報を取得する。

[0150] 例えば、応答要素生成部１２は、「予定確認」のタスクを実行するために、スケジュールを管理するためのアプリケーションに、引数として指定された「２０１４／１０／１　１３：００」を検索キーとして、当該検索キーに対応するスケジュールを検索させる。そして、応答要素生成部１２は、当該アプリケーションから、検索キーに対応するスケジュールの検索結果を取得する。例えば、応答要素生成部１２は、スケジュールの検索結果として、「タイトル」として登録された「Ａ会議室で打ち合わせ」という情報と、「参加者」として登録された「山田　太郎」という情報とを取得する。

[0151] そして、応答要素生成部１２は、検索結果として取得した情報を、ユーザからの音声入力に対する応答を生成するための応答要素として、当該応答要素を示す情報と、実行したタスクを示す情報とを、後述する応答生成部１７に出力する。

[0152] （ステップＳ１０７）

発話スタイル検出部１１５は、意味解析部１１４から、音声入力が変換された文字情報に対する自然言語処理の結果を取得する。発話スタイル検出部１１５は、取得した自然言語処理の結果に基づき、音声入力が変換された文字情報から、ユーザや状況の変化に応じて、使用される表現が異なる場合がある語句（即ち、固有表現）を抽出する。

[0153] そして、発話スタイル検出部１１５は、音声入力が変換された文字情報に対する自然言語処理の結果に基づき、当該文字情報から抽出した固有表現を、発話スタイルを示す情報として、後述する応答パラメータ生成部１６に出力する。

[0154] （ステップＳ２００）

環境音解析部１３は、取得された音響情報を解析することで、周囲の環境における環境音を抽出し、当該環境音の特徴の抽出を行う。例えば、環境音

解析部１３は、音声入力と環境音とのそれぞれの音量に基づき、環境音の特徴として「騒音度」を抽出する。図９は、情報処理装置１の動作の一例を示したフローチャートであり、情報処理装置１が、環境音の特徴として「騒音度」を抽出する場合における処理の一例を示している。

[0155] （ステップＳ２０１）

環境音解析部１３の環境音認識部１３１は、集音部２１から、集音された音響情報を取得する。環境音認識部１３１は、例えば、情報処理装置１に対してユーザが位置する方向（換言すると、目的音の到来方向）を検知する。なお、情報処理装置１に対してユーザが位置する方向が検出できれば、その方法は特に限定されない。具体的な一例として、環境音認識部１３１は、撮像部２３により撮像された画像の解析結果として取得される、当該画像中におけるユーザの位置に基づき、情報処理装置１に対してユーザが位置する方向を検知してもよい。また、他の一例として、集音部２１として複数の集音デバイス（例えば、マイクアレイ）を設けることで、各集音デバイスの集音結果に応じて、集音された音響情報の到来方向が推定されるように、情報処理装置１が構成されていてもよい。

[0156] （ステップＳ２０３、Ｓ２０５）

次いで、環境音認識部１３１は、情報処理装置１に対してユーザが位置する方向に死角（null beam）を有するフィルタを形成する（ステップＳ２０３）。そして、環境音認識部１３１は、集音部２１により集音された音響情報に対して、形成したフィルタを適用することで、当該音響情報から、当該ユーザからの音声入力以外の他の音響情報を環境音として抽出する（ステップＳ２０５）。

[0157] （ステップＳ２０７）

次いで、環境音認識部１３１は、音響情報から抽出した環境音の音響信号を解析することで、例えば、当該音響信号の振幅に基づき、環境音の音量を検出する。そして、環境音認識部１３１は、検出した環境音の音量を示す情報、騒音の音量を示す情報として外部環境推定部１３２に出力する。

[0158] 外部環境推定部１３２は、環境音認識部１３１から、騒音の音量を示す情報を取得する。また、外部環境推定部１３２は、音声解析部１１の音声特徴抽出部１１３から、声の大きさ（即ち、音声入力の音量）を示す情報を取得する。そして、外部環境推定部１３２は、ユーザからの音声入力を目的音として、当該目的音の音量（即ち、声の大きさ）に対する、騒音の音量の大きさを示す数値（例えば、ＳＮ比）を、騒音度として算出する。外部環境推定部１３２は、算出した騒音度を示す情報を、応答パラメータ生成部１６に出力する。

[0159] 以上、図９を参照して、環境音解析部１３が、環境音の特徴として「騒音度」を抽出する場合における、一連の処理の流れの一例について説明した。

[0160] （ステップＳ３００）

また、図８に示すように、情報処理装置１は、ユーザからの音声入力や、撮像されたユーザの画像等のように取得された各種情報に基づき、ユーザの各種状態を推定する。そこで、以下に図１０を参照して、情報処理装置１が、取得された各種情報に基づきユーザの「落ち着き度」を推定する場合の動作の一例について説明する。図１０は、情報処理装置１の動作の一例を示したフローチャートであり、情報処理装置１が、ユーザの状態として「落ち着き度」を推定する場合における処理の一例を示している。

[0161] （ステップＳ３１１）

例えば、画像解析部１４は、撮像された画像に対して画像解析を施すことで、当該画像解析の結果に基づき、ユーザの姿勢、年齢、性別等のような、当該ユーザの状態や当該ユーザに関する情報（例えば、属性情報）を推定する。また、このとき、画像解析部１４は、撮像された画像に対して所謂個人認識技術に基づく解析処理を施すことで、当該画像中に撮像されたユーザを個人認識してもよい。そして、画像解析部１４は、取得した画像の解析結果、即ち、当該画像に撮像されたユーザ個人の認識結果や、姿勢、年齢、性別等のような、ユーザの状態や当該ユーザに関する情報の推定結果を、ユーザ状態推定部１５に出力する。

[0162] ユーザ状態推定部１５は、画像解析部１４から撮像された画像の解析結果に基づくユーザの状態や当該ユーザに関する情報の推定結果を取得し、取得した当該推定結果（例えば、ユーザの姿勢の推定結果）に基づき、ユーザの「落ち着き度」を算出するための重み（即ち、加減算値）を特定する。

[0163] 具体的な一例として、図４に示すように、ユーザ状態推定部１５は、ユーザの姿勢が「座っている」状態、または「寝そべっている」状態の場合には、ユーザが落ち着いた状態であるもの認識されやすいように、落ち着き度の加算値として重みを特定する。また、ユーザ状態推定部１５は、ユーザの姿勢が「立っている」状態の場合には、ユーザが急いでいる状態にあるものと認識されやすいように、落ち着き度の減算値を重みとして特定する。

[0164] （ステップＳ３２１）

また、ユーザ状態推定部１５は、音声特徴抽出部１１３から、音声入力の解析結果に基づき認識された当該音声入力の話速を示す情報取得し、取得した話速を示す情報に基づき、ユーザの「落ち着き度」を算出するための重み（即ち、加減算値）を特定してもよい。

[0165] 具体的な一例として、図５に示すように、ユーザ状態推定部１５は、話速が「４－６文字／秒」の場合を話速の基準値として、当該基準値よりも話速が遅い場合（即ち、話速が「４文字未満／秒」の場合）には、ユーザが落ち着いた状態であるもの認識されやすいように、落ち着き度の加算値として重みを特定する。また、ユーザ状態推定部１５は、基準値よりも話速が速い場合（即ち、話速が「７文字以上／秒」の場合）には、ユーザが急いでいる状態にあるものと認識されやすいように、落ち着き度の減算値を重みとして特定する。

[0166] （ステップＳ３３１）

また、ユーザ状態推定部１５は、各種センサの検出結果等に応じたユーザの行動の推定結果に基づき、ユーザの「落ち着き度」を算出するための重み（即ち、加減算値）を特定してもよい。

[0167] 具体的な一例として、図６に示すように、ユーザ状態推定部１５は、ユー

ザが「止まっている」場合には、当該ユーザが落ち着いた状態であるもの認識されやすいように、落ち着き度の加算値として重みを特定する。また、ユーザ状態推定部１５は、ユーザが「歩いている」場合、または「走っている」場合には、ユーザが急いでいる状態にあるものと認識されやすいように、落ち着き度の減算値を重みとして特定する。

[0168] （ステップＳ３４０）

以上のようにして、ユーザ状態推定部１５は、例えば、「ユーザの姿勢」、「音声入力の話速」、及び「ユーザの行動」のうち認識された少なくとも一部の情報に基づき、「落ち着き度」を算出するための重み（即ち、加減算値）を特定する。そして、ユーザ状態推定部１５は、あらかじめ設定された落ち着き度の初期値に対して、特定した重みを適用することで、ユーザの落ち着き度を算出する。

[0169] そして、ユーザ状態推定部１５は、推定したユーザの状態（例えば、落ち着き度）を示す情報を、応答パラメータ生成部１６に出力する。なお、このときユーザ状態推定部１５は、「ユーザの年齢や性別」の推定結果や「ユーザ個人の認識結果」等のような、ユーザに関する情報を、応答パラメータ生成部１６に出力してもよい。

[0170] 以上、図１０を参照して、情報処理装置１が、取得された各種情報に基づきユーザの「落ち着き度」を推定する場合の動作の一例について説明した。

[0171] （ステップＳ１０９）

次いで、図８に示すように、応答パラメータ生成部１６は、ユーザの外部環境の検出結果、ユーザの状態を示す情報、及びユーザの発話スタイル等のように、検出されたユーザの状態、状況、または特性（例えば、言語特性）に関する情報を基に応答パラメータを生成する。

[0172] なお、取得される「ユーザの発話状態に関する情報」には、「ユーザの外部環境の検出結果」や「ユーザの状態」のように、その時々の状況に応じて変化する一過性の情報と、「ユーザの発話スタイル」のような、ユーザの特性を示す継続的な情報とが含まれる。

[0173] そのため、応答パラメータ生成部１６は、取得した「ユーザの発話状態に関する情報」のうち、「ユーザの発話スタイル」のような、ユーザの特性を示す継続的な情報に基づく応答パラメータついては、記憶部３０に蓄積してもよい。

[0174] （ステップＳ１１１）

応答生成部１７は、ユーザからの音声入力に対する応答を生成するための応答要素を示す情報と、当該応答要素を取得すために実行されたタスクを示す情報とを、応答要素生成部１２から取得する。

[0175] 応答生成部１７は、取得した応答要素を示す情報を応答パラメータ生成部１６に送信し、ユーザの発話スタイルに応じた、当該応答要素の呼称を示す情報を応答パラメータ生成部１６から取得する。

[0176] 次いで、応答生成部１７は、取得したタスクを示す情報を基に、音声入力に基づくユーザからの問合せの内容を認識する。具体的な一例として、図３に示す例での場合には、応答生成部１７は、取得したタスクを示す情報を基に、ユーザからの「明日午後１時の予定を教えて」という音声入力に対して、「予定確認」のためのタスクが実行されたこと認識する。

[0177] そして、応答生成部１７は、実行されたタスクの認識結果と、応答要素に対応するユーザの発話スタイルに応じた呼称とに基づき、応答内容を示す情報（例えば、文字情報）を生成する。

[0178] 具体的には、応答生成部１７は、取得したタスクを示す情報に基づき、「予定確認」のためのタスクが実行されたこと認識した場合には、「予定確認」の結果をユーザに対して提示するための応答の雛形を生成する。そして、応答生成部１７は、生成した雛形に対して、応答要素に対応するユーザの発話スタイルに応じた呼称を、生成した雛形に対して埋め込むことで、応答内容を示す情報を生成する。

[0179] 応答内容を示す情報を生成すると、応答生成部１７は、当該応答内容を示す情報を出力部４０に出力させる。このとき、応答生成部１７は、応答内容を示す文字情報から、例えば、音声合成技術に基づき、当該応答内容を発声

している音声信号を生成し、当該音声信号を出力部４０に出力させてもよい。また、応答生成部１７は、応答内容を示す文字情報を、表示情報として出力部４０に出力させてもよい。

[0180] また、このとき応答生成部１７は、ユーザの周囲の環境の「騒音度」や、当該ユーザの「落ち着き度」のように、ユーザと情報処理装置１と間の対話時における、ユーザの発話状態に関する情報（即ち、一過性の情報）を、応答要素生成部１２から取得してもよい。この場合には、応答生成部１７は、取得した情報に応じて、応答の出力態様を制御してもよい。

[0181] 以上、図８～図１０を参照して、本実施形態に係る情報処理装置１の一連の動作の流れの一例について説明した。

[0182] ＜４．変形例＞

次に、本実施形態に係る情報処理装置１の変形例について説明する。

[0183] ［４．１．変形例１：認識した各種状態のフィードバック］

まず、変形例１に係る情報処理装置１について説明する。変形例１に係る情報処理装置１は、音声入力に対する応答を生成するために取得した、「騒音度」や「落ち着き度」等のような、各種状態の推定結果（換言すると、ユーザの発話状態に関する情報）に応じて、ユーザに情報をフィードバックする。

[0184] 例えば、図１１及び図１２は、変形例１に係る情報処理装置１の概要について説明するための説明図であり、情報処理装置１が、「騒音度」や「落ち着き度」の推定結果に応じた情報を、ユーザに表示情報としてフィードバックするための表示画面の一例を示している。

[0185] 例えば、図１１に示す例では、情報処理装置１は、参照符号ｖ１１に示すように、「騒音度」や「落ち着き度」の推定結果に応じて、音声入力の認識精度をより向上させるためのアドバイスを示す情報を提示してもよい。また、情報処理装置１は、参照符号ｖ１３に示すように、「騒音度」や「落ち着き度」の推定結果を可視化した表示情報をユーザに提示してもよい。

[0186] このように、「騒音度」や「落ち着き度」の推定結果に応じた情報をユー

ザに対してフィードバックすることで、当該ユーザは、音声入力が正確に認識されない場合において、その要因を当該フィードバックに基づき認識することが可能となる。

[0187] なお、情報処理装置１が、ユーザに対してフィードバックする情報の内容や、当該フィードバックの方法は特に限定されない。例えば、図１２は、スマートフォンやウェアラブル端末のように、情報を表示するための画面が比較的小さい情報処理装置１が、ユーザに対して情報をフィードバックする場合の表示画面の一例を示している。図１２に示す例では、図１１において参照符号ｖ１１及びｖ１３で示した各種情報のうち、音声入力の認識精度をより向上させるためのアドバイスを示す情報ｖ１１のみを提示している。また、情報処理装置１は、情報を表示するための画面が極めて小さい場合には、「騒音度」や「落ち着き度」の度合いを示すアイコンのみを、ユーザに対して提示してもよい。

[0188] また、情報処理装置１は、「騒音度」や「落ち着き度」の推定結果に応じて、ユーザに対してフィードバックする情報の内容や、当該フィードバックの態様を制御してもよい。具体的な一例として、情報処理装置１は、ユーザが落ち着いている状態の場合には、図１２に示すように情報ｖ１１及びｖ１３をフィードバックし、ユーザが急いでいる状態の場合には、図１２に示すように、情報ｖ１１のみをフィードバックしてもよい。また、情報処理装置１は、ユーザが極めて急いでいる状態と認識した場合には、「騒音度」や「落ち着き度」の度合いを示すアイコンのみを、ユーザに対してフィードバックしてもよい。

[0189] また、情報処理装置１は、「騒音度」や「落ち着き度」の推定結果に応じた情報を、表示情報とは異なる態様で、ユーザに対して提示してもよい。具体的な一例として、情報処理装置１は、ヘッドフォン型の端末のように、表示部が備えていない場合には、「騒音度」や「落ち着き度」の推定結果に応じた情報を、音響情報としてユーザにフィードバックしてもよい。

[0190] 以上、図１１及び図１２を参照して、変形例１に係る情報処理装置１につ

いて説明した。

[0191] ［４．２．変形例２：個人の認識結果と状況に応じた応答内容の制御例］

次に、変形例２として、情報処理装置１が、ユーザ個人の認識結果と、当該ユーザが置かれている状況の認識結果とに応じて、応答内容を制御する場合の一例について説明する。

[0192] 例えば、発話者であるユーザＵａが、他のユーザＵｂの呼称を、当該ユーザＵａが置かれている状況に応じて切り替えて使用する場合がある。具体的な一例として、ユーザＵａとユーザＵｂとが夫婦であり、二人の間には子供がおり、かつ、ユーザＵｂの名前が「ユリ」であるものとする。この場合には、ユーザＵａは、例えば、子供がいる状況下では、ユーザＵｂのことを「ママ」と呼称するのに対して、子供がいない状況下では、ユーザＵｂのことを「ユリ」と名前で呼称する場合が想定され得る。

[0193] このような、状況に応じた呼称（即ち、発話スタイル）の切り替えを、情報処理装置１が、応答を行う際の状況に応じて再現してもよい。

[0194] 具体的な一例として、ユーザＵａの名前が「ヒロフミ」、ユーザＵａの妻であるユーザＵｂの名前が「ユリ」、ユーザＵａ及びＵｂの子供であるユーザＵｃの名前が「ユウタ」であるものとする。

[0195] この場合には、情報処理装置１は、例えば、撮像部２３により撮像された画像を解析することで、自身の周囲に存在するユーザを検出し、検出したユーザそれぞれを個人認識する。そして、情報処理装置１は、個人認識の結果に基づき、ユーザＵａ、Ｕｂ、及びＵｃの呼称を切り替える。

[0196] 例えば、情報処理装置１は、自身の周囲にユーザＵａ及びＵｂのみが存在し、ユーザＵａ及びＵｂの子供であるユーザＵｃが存在しないことを認識した場合には、ユーザＵａ及びＵｂそれぞれが、「ヒロフミ」、「ユミ」と呼称されるように応答を生成してもよい。また、情報処理装置１は、自身の周囲にユーザＵｃが存在することを認識した場合には、ユーザＵａ、Ｕｂ、及びＵｃそれぞれが、「パパ」、「ママ」、「ユウタくん」と呼称されるように応答を生成してもよい。

[0197] なお、このような制御を行う場合には、情報処理装置１は、各ユーザの発話スタイルを示す応答パラメータを、想定される状況ごとに区別して蓄積すればよい。

[0198] もちろん、上記に示す例は、あくまで一例であり、情報処理装置１が、発話スタイルを切り替える状況や、切り替えの対象となる発話スタイルは、上記に示す例には限定されない。

[0199] 例えば、応答生成部１７は、ユーザからの音声入力を取得した時間帯に応じて、応答内容として出力される情報のうち、挨拶を示す情報の表現を、「おはようございます」、「こんにちは」、「こんばんは」というように切り替えてもよい。

[0200] また、他の一例として、応答生成部１７は、所定のユーザの関係者のみ（例えば、家族のみ）が存在する場合には、よりやわらかい表現となるように応答内容を制御し、第三者が存在する場合には、よりかたい表現となるように応答内容を制御してもよい。

[0201] 以上、変形例２として、情報処理装置１が、ユーザ個人の認識結果と、当該ユーザが置かれている状況の認識結果とに応じて、応答内容を制御する場合の一例について説明した。

[0202] ＜５．実施例＞

上述した実施形態では、情報処理装置１とユーザとの間の対話のための言語として、「日本語」が使用される場合を例に説明したが、使用される言語は必ずしも「日本語」には限定されないことは言うまでもない。そこで、以下に、実施例として、情報処理装置１とユーザとの間の対話のための言語として、「英語」が使用される場合の一例について、図１３～図１６を参照して説明する。図１３～図１６は、本実施形態に係る情報処理装置１の実施例について説明するための説明図であり、情報処理装置１とユーザとの間の対話のための言語として、「英語」が使用される場合の一例について示している。なお、本説明では、主に、使用される言語が「日本語」の場合と異なる部分に着目して説明し、その他の部分については、詳細な説明は省略する。

[0203] 例えば、図１３は、実施例に係る情報処理装置１が、英語の音声入力を取得した場合における、当該音声入力が示す意味内容の解析と、当該解析の結果に基づく処理の一例について説明するための説明図である。

[0204] 図１３は、ユーザがスケジュールを確認するために、情報処理装置１に対して、「Check my schedule tomorrow 1 o'clock afternoon.」と発話した場合について示している。即ち、図１３に示す例の場合には、情報処理装置１は、取得された音声入力対する音声認識の結果として、「Check my schedule tomorrow 1 o'clock afternoon.」という文字情報を取得する。

[0205] 情報処理装置１は、取得した「Check my schedule tomorrow 1 o'clock afternoon.」という文字情報に対して、自然言語処理技術に基づく解析を施すことで、当該文字情報に基づき実行すべきタスク（即ち、ユーザからの問合せに対する応答を生成するためのタスク）として、「予定確認」のタスクを特定する。

[0206] なお、英語の音声入力が取得された場合には、当該音声入力に対する音声認識や、当該音声認識の結果に対する自然言語処理として、英語の言語に対応した処理を適用すればよいことは言うまでもない。また、英語の音声入力に対する音声認識や、英語の自然文に対する自然言語処理としては、一般的に使用されている手法を適用すればよく、本説明では、同処理の内容について詳細な説明は省略する。

[0207] また、情報処理装置１は、ユーザからの指示に基づき実行すべきタスクを特定すると、特定したタスクを実行するために必要な引数を、取得した「Check my schedule tomorrow 1 o'clock afternoon.」という文字情報から抽出する。具体的には、情報処理装置１は、取得した「Check my schedule tomorrow 1 o'clock afternoon.」という文字情報に対する形態素解析の結果から、「予定確認」のタスクを実行するために必要な「Date-Time」を示す引数として、「tomorrow 1 o'clock afternoon」というキーワードを抽出する。また、このとき、情報処理装置１は、「tomorrow 1 o'clo

ck afternoon」というキーワードを、「２０１４／１０／１　１３：００」という表現に変換してもよい。

[0208] 次いで、情報処理装置１は、特定した引数に基づき、特定したタスクを実行することで、音声入力に対する応答を生成するための応答要素を取得する。例えば、図１３に示す例の場合には、情報処理装置１は、スケジュールを管理するためのアプリケーションに対して、引数として指定された「２０１４／１０／１　１３：００」を検索キーとして、当該検索キーに対応するスケジュールを検索させる。そして、情報処理装置１は、スケジュールの検索結果として、「タイトル」として登録された「Meeting at room A」という情報と、「参加者」として登録された「Michael」という情報とを取得する。

[0209] また、図１４は、継続的な情報として記憶される応答パラメータの一例について説明するための説明図であり、「英語」が使用されている場合における、「ユーザの発話スタイル」に基づく応答パラメータの一例について示している。なお、図１４では、「ユーザの発話スタイル」を示す応答パラメータｄ１０に含まれる、人名呼称データｄ１１の一例が示されている。

[0210] 例えば、図１４に示す例では、「Michael Smith」という正式名称に対して「Mickey」という呼称が関連付けられている。即ち、当該データは、対応するユーザが、「Michael Smith」という名前の人物を、「Mickey」と呼称していることを示している。同様に、「Elizabeth Green」という正式名称に対して「Betty」という呼称が関連付けられている。また、「Katharine McPhee」という正式名称には、「Kate」という呼称が関連付けられている。

[0211] もちろん、図１４に示す例は、あくまで一例であり、必ずしも図１４に示す内容には限定されない。具体的な一例として、対応するユーザが、ある人物に対して、「Mr.」や「Doctor」等の敬称を付して呼称している場合には、当該人物の正式名に対して、敬称が付された呼称が関連付けられていてもよい。

[0212] なお、以降の動作は、前述した実施形態に係る情報処理装置１と同様であ

る。即ち、情報処理装置１は、タスクの実行結果として取得した応答要素の呼称を応答パラメータとして取得し、取得した応答パラメータを、実行したタスクに応じた応答内容の雛形に埋め込むことで、応答内容を示す情報を生成する。そして、情報処理装置１は、応答内容を示す情報を出力部４０に出力させる。

[0213] なお、実施例に係る情報処理装置１は、前述した変形例１に係る情報処理装置１と同様に、「騒音度」や「落ち着き度」等のような、各種状態の推定結果（換言すると、ユーザの発話状態に関する情報）に応じて、ユーザに情報をフィードバックしてもよい。例えば、図１５及び図１６は、実施例に係る情報処理装置１の概要について説明するための説明図であり、情報処理装置１が、「騒音度」や「落ち着き度」の推定結果に応じた情報を、ユーザに表示情報としてフィードバックするための表示画面の一例を示している。

[0214] 以上、実施例として、情報処理装置１とユーザとの間の対話のための言語として、「英語」が使用される場合の一例について、図１３～図１６を参照して説明した。

[0215] ＜６．ハードウェア構成＞

次に、図１７を参照して、本開示の各実施形態に係る情報処理装置１のハードウェア構成の一例について説明する。図１７は、本開示の実施形態に係る情報処理装置１のハードウェア構成の一例を示した図である。

[0216] 図１７に示すように、本実施形態に係る情報処理装置１は、プロセッサ９０１と、メモリ９０３と、ストレージ９０５と、操作デバイス９０７と、報知デバイス９１１と、集音デバイス９１５と、撮像デバイス９１７と、バス９１９とを含む。また、情報処理装置１は、通信デバイス９１３を含んでもよい。

[0217] プロセッサ９０１は、例えばＣＰＵ（Central Processing Unit）、ＧＰＵ（Graphics Processing Unit）、ＤＳＰ（Digital Signal Processor）又はＳｏＣ（System on Chip）であってよく、情報処理装置１の様々な処理を実行する。プロセッサ９０１は、例えば、各種演算処理を実行するた

めの電子回路により構成することが可能である。なお、前述した制御部１０の各構成は、プロセッサ９０１により実現され得る。

[0218] メモリ９０３は、ＲＡＭ（Random Access Memory）及びＲＯＭ（Read Only Memory）を含み、プロセッサ９０１により実行されるプログラム及びデータを記憶する。ストレージ９０５は、半導体メモリ又はハードディスクなどの記憶媒体を含み得る。例えば、前述した記憶部３０は、メモリ９０３及びストレージ９０５の少なくともいずれか、もしくは、双方の組み合わせにより実現され得る。

[0219] 操作デバイス９０７は、ユーザが所望の操作を行うための入力信号を生成する機能を有する。操作デバイス９０７は、例えば、タッチパネルとして構成され得る。また、他の一例として、操作デバイス９０７は、例えばボタン及びスイッチなどユーザが情報を入力するための入力部と、ユーザによる入力に基づいて入力信号を生成し、プロセッサ９０１に供給する入力制御回路などから構成されてよい。

[0220] 報知デバイス９１１は、出力デバイスの一例であり、例えば、液晶ディスプレイ（ＬＣＤ：Liquid Crystal Display）装置、有機ＥＬ（ＯＬＥＤ：Organic Light Emitting Diode）ディスプレイなどのデバイスであってよい。この場合には、報知デバイス９１１は、画面を表示することにより、ユーザに対して所定の情報を報知することができる。また、報知デバイス９１１は、スピーカ等のように、所定の音響信号を出力することで、所定の情報をユーザに報知するデバイスであってもよい。なお、前述した出力部４０は、報知デバイス９１１により実現され得る。

[0221] また、上記に示した報知デバイス９１１の例はあくまで一例であり、ユーザに対して所定の情報を報知可能であれば、報知デバイス９１１の態様は特に限定されない。具体的な一例として、報知デバイス９１１は、ＬＥＤ（Light Emitting Diode）のように、点灯又は点滅のパターンにより、所定の情報をユーザに報知するデバイスであってもよい。また、報知デバイス９１１は、所謂バイブレータのように、振動することで、所定の情報をユーザに報

知するデバイスであってもよい。

[0222] 通信デバイス９１３は、情報処理装置１が備える通信手段であり、ネットワークを介して外部装置と通信する。通信デバイス９１３は、有線または無線用の通信インタフェースである。通信デバイス９１３を、無線通信インタフェースとして構成する場合には、当該通信デバイス９１３は、通信アンテナ、ＲＦ（Radio Frequency）回路、ベースバンドプロセッサなどを含んでもよい。

[0223] 通信デバイス９１３は、外部装置から受信した信号に各種の信号処理を行う機能を有し、受信したアナログ信号から生成したデジタル信号をプロセッサ９０１に供給することが可能である。

[0224] 集音デバイス９１５は、マイクロフォン等のような、ユーザから発せられた音声や周囲の環境の音響を集音し、音響情報（音響信号）として取得するためのデバイスである。また、集音デバイス９１５は、集音された音声や音響を示すアナログの音響信号を示すデータを音響情報として取得してもよいし、当該アナログの音響信号をデジタルの音響信号に変換し、変換後のデジタルの音響信号を示すデータを音響情報として取得してもよい。なお、前述した集音部２１は、集音デバイス９１５により実現され得る。

[0225] 撮像デバイス９１７は、ＣＭＯＳ（Complementary Metal-Oxide Semiconductor）イメージセンサやＣＣＤ（Charge Coupled Device）イメージセンサ等の、被写体を撮像し、撮像画像のデジタルデータを得る撮像素子を含む。即ち、撮像デバイス９１７は、プロセッサ９０１の制御に従い、レンズ等の光学系を介して静止画像又は動画像を撮影する機能を有する。撮像デバイス９１７は、撮像した画像をメモリ９０３やストレージ９０５に記憶させてもよい。なお、前述した撮像部２３は、撮像デバイス９１７により実現され得る。

[0226] バス９１９は、プロセッサ９０１、メモリ９０３、ストレージ９０５、操作デバイス９０７、表示デバイス９０９、通信デバイス９１３、集音デバイス９１５、及び撮像デバイス９１７を相互に接続する。バス９１９は、複数

の種類のバスを含んでもよい。

[0227] また、コンピュータに内蔵されるプロセッサ、メモリ、及びストレージなどのハードウェアを、上記した情報処理装置１が有する構成と同等の機能を発揮させるためのプログラムも作成可能である。また、当該プログラムを記録した、コンピュータに読み取り可能な記憶媒体も提供され得る。

[0228] ＜７．まとめ＞

以上、説明したように、本実施形態に係る情報処理装置１は、ユーザの外部環境の検出結果、ユーザの状態を示す情報、及びユーザの発話スタイル等のように、検出されたユーザの状態、状況、または特性（例えば、言語特性）に関する情報（即ち、ユーザの発話状態に関する情報）を基に応答パラメータを生成する。そして、情報処理装置１は、生成した応答パラメータに基づき、ユーザからの音声入力に対する応答の内容（例えば、固有表現の呼称、出力される情報量等）や、当該応答の出力態様（例えば、音量、出力速度（話速）、周波数帯域等）を制御する。

[0229] これにより、本実施形態に係る情報処理装置１は、音声入力に対する応答を、ユーザや状況の変化に応じてより好適な態様、換言すると、ユーザがより自然に感じる（即ち、より違和感の少ない）態様となるように制御することが可能となる。即ち、本実施形態に係る情報処理装置１は、ユーザとの間の対話を、より自然な態様で実現可能な実現可能な、音声入力に基づく対話型のユーザインタフェースを提供することが可能となる。

[0230] 以上、添付図面を参照しながら本開示の好適な実施形態について詳細に説明したが、本開示の技術的範囲はかかる例に限定されない。本開示の技術分野における通常の知識を有する者であれば、特許請求の範囲に記載された技術的思想の範疇内において、各種の変更例または修正例に想到し得ることは明らかであり、これらについても、当然に本開示の技術的範囲に属するものと了解される。

[0231] また、本明細書に記載された効果は、あくまで説明的または例示的なものであって限定的ではない。つまり、本開示に係る技術は、上記の効果ととも

に、または上記の効果に代えて、本明細書の記載から当業者には明らかな他の効果を奏しうる。

[0232] なお、以下のような構成も本開示の技術的範囲に属する。

（１）

取得したユーザの発話状態に関する情報に応じて、前記ユーザの発話に対する応答の出力を制御する制御部、

を備える、情報処理装置。

（２）

前記制御部は、取得された前記ユーザの発話状態に関する情報に応じて、前記応答として出力される内容を制御する、前記（１）に記載の情報処理装置。

（３）

前記制御部は、前記内容として出力される情報の種別を、ユーザの発話状態に関する情報に応じて制御する、前記（２）に記載の情報処理装置。

（４）

前記制御部は、前記応答として出力される前記内容に含まれる所定の種別の情報が、取得した前記ユーザの発話状態に関する情報に応じた表現で出力されるように制御する、前記（２）または（３）に記載の情報処理装置。

（５）

前記制御部は、取得した前記ユーザの発話状態に関する情報に応じて、前記応答として出力される前記内容の情報量を制御する、前記（２）～（４）のいずれか一項に記載の情報処理装置。

（６）

前記制御部は、取得した前記ユーザの発話状態に関する情報に応じて、前記応答として出力される前記内容の詳しさの度合いを制御する、前記（５）に記載の情報処理装置。

（７）

前記制御部は、取得した前記ユーザの発話状態に関する情報に応じて、前

記ユーザから発話された問い合わせに対する応答に関連する付加情報の出力を制御する、前記（５）に記載の情報処理装置。

（８）

前記制御部は、取得した前記ユーザの発話状態に関する情報に応じて、前記応答の出力態様を制御する、前記（１）～（７）のいずれか一項に記載の情報処理装置。

（９）

前記制御部は、取得した前記ユーザの発話状態に関する情報に応じて、前記応答として出力される音声情報の音量を制御する、前記（８）に記載の情報処理装置。

（１０）

前記制御部は、取得した前記ユーザの発話状態に関する情報に応じて、前記応答の出力速度を制御する、前記（８）または（９）に記載の情報処理装置。

（１１）

前記制御部は、取得した前記ユーザの発話状態に関する情報に応じて、前記応答として出力される音声情報の周波数帯域を制御する、前記（８）～（１０）のいずれか一項に記載の情報処理装置。

（１２）

取得される前記ユーザの発話状態に関する情報の少なくとも一部には、１以上の検知部の検知結果に基づき認識される１以上の状態が関連付けられ、

前記制御部は、１以上の前記検知部の検出結果に基づき認識された状態を示す情報が取得された場合に、当該状態が関連付けられた、前記ユーザの発話状態に関する情報に応じて、前記応答が出力されるように制御する、前記（１）～（８）のいずれか一項に記載の情報処理装置。

（１３）

前記制御部は、取得した前記ユーザの発話状態に関する情報の少なくとも一部に応じて、当該ユーザを個人認識し、当該個人認識の結果に応じて、前

記応答が出力されるように制御する、前記（１）～（１２）のいずれか一項に記載の情報処理装置。

（１４）

前記制御部は、前記個人認識の結果と、取得した前記ユーザの発話状態に関する情報の少なくとも一部とに応じて前記応答が出力されるように制御する、前記（１３）に記載の情報処理装置。

（１５）

前記ユーザの発話状態に関する情報は、過去に取得した当該ユーザの前記発話に基づく情報を含む、前記（１）～（１４）のいずれか一項に記載の情報処理装置。

（１６）

前記ユーザの発話状態に関する情報は、認識された当該ユーザの行動を示す情報を含む、前記（１）～（１５）のいずれか一項に記載の情報処理装置。

（１７）

前記ユーザの発話状態に関する情報は、認識された当該ユーザの周囲の環境を示す情報を含む、前記（１）～（１６）のいずれか一項に記載の情報処理装置。

（１８）

前記ユーザの発話状態に関する情報の少なくとも一部は、当該ユーザの前記発話に基づき取得される、前記（１）～（１７）のいずれか一項に記載の情報処理装置。

（１９）

プロセッサが、取得したユーザの発話状態に関する情報に応じて、前記ユーザの発話に対する応答の出力を制御すること、

を含む、情報処理方法。

（２０）

コンピュータに、

取得したユーザの発話状態に関する情報に応じて、前記ユーザの発話に対する応答の出力を制御すること、

を実行させる、プログラム。

符号の説明

[0233] 1 情報処理装置

10 制御部

11 音声解析部

111 音声区間検出部

112 音声認識部

113 音声特徴抽出部

114 意味解析部

115 発話スタイル検出部

12 応答要素生成部

13 環境音解析部

14 画像解析部

131 環境音認識部

132 外部環境推定部

15 ユーザ状態推定部

16 応答パラメータ生成部

17 応答生成部

21 集音部

23 撮像部

30 記憶部

40 出力部

請求の範囲

[請求項1] 取得したユーザの発話状態に関する情報に応じて、前記ユーザの発話に対する応答の出力を制御する制御部、

を備える、情報処理装置。

[請求項2] 前記制御部は、取得された前記ユーザの発話状態に関する情報に応じて、前記応答として出力される内容を制御する、請求項１に記載の情報処理装置。

[請求項3] 前記制御部は、前記内容として出力される情報の種別を、ユーザの発話状態に関する情報に応じて制御する、請求項２に記載の情報処理装置。

[請求項4] 前記制御部は、前記応答として出力される前記内容に含まれる所定の種別の情報が、取得した前記ユーザの発話状態に関する情報に応じた表現で出力されるように制御する、請求項２に記載の情報処理装置。

[請求項5] 前記制御部は、取得した前記ユーザの発話状態に関する情報に応じて、前記応答として出力される前記内容の情報量を制御する、請求項２に記載の情報処理装置。

[請求項6] 前記制御部は、取得した前記ユーザの発話状態に関する情報に応じて、前記応答として出力される前記内容の詳しさの度合いを制御する、請求項５に記載の情報処理装置。

[請求項7] 前記制御部は、取得した前記ユーザの発話状態に関する情報に応じて、前記ユーザから発話された問い合わせに対する応答に関連する付加情報の出力を制御する、請求項５に記載の情報処理装置。

[請求項8] 前記制御部は、取得した前記ユーザの発話状態に関する情報に応じて、前記応答の出力態様を制御する、請求項１に記載の情報処理装置。

[請求項9] 前記制御部は、取得した前記ユーザの発話状態に関する情報に応じて、前記応答として出力される音声情報の音量を制御する、請求項８

に記載の情報処理装置。

[請求項10] 前記制御部は、取得した前記ユーザの発話状態に関する情報に応じて、前記応答の出力速度を制御する、請求項８に記載の情報処理装置。

[請求項11] 前記制御部は、取得した前記ユーザの発話状態に関する情報に応じて、前記応答として出力される音声情報の周波数帯域を制御する、請求項８に記載の情報処理装置。

[請求項12] 取得される前記ユーザの発話状態に関する情報の少なくとも一部には、１以上の検知部の検知結果に基づき認識される１以上の状態が関連付けられ、

前記制御部は、１以上の前記検知部の検出結果に基づき認識された状態を示す情報が取得された場合に、当該状態が関連付けられた、前記ユーザの発話状態に関する情報に応じて、前記応答が出力されるように制御する、請求項１に記載の情報処理装置。

[請求項13] 前記制御部は、取得した前記ユーザの発話状態に関する情報の少なくとも一部に応じて、当該ユーザを個人認識し、当該個人認識の結果に応じて、前記応答が出力されるように制御する、請求項１に記載の情報処理装置。

[請求項14] 前記制御部は、前記個人認識の結果と、取得した前記ユーザの発話状態に関する情報の少なくとも一部とに応じて前記応答が出力されるように制御する、請求項１３に記載の情報処理装置。

[請求項15] 前記ユーザの発話状態に関する情報は、過去に取得した当該ユーザの前記発話に基づく情報を含む、請求項１に記載の情報処理装置。

[請求項16] 前記ユーザの発話状態に関する情報は、認識された当該ユーザの行動を示す情報を含む、請求項１に記載の情報処理装置。

[請求項17] 前記ユーザの発話状態に関する情報は、認識された当該ユーザの周囲の環境を示す情報を含む、請求項１に記載の情報処理装置。

[請求項18] 前記ユーザの発話状態に関する情報の少なくとも一部は、当該ユー

ザの前記発話に基づき取得される、請求項１に記載の情報処理装置。

[請求項19] プロセッサが、取得したユーザの発話状態に関する情報に応じて、前記ユーザの発話に対する応答の出力を制御すること、

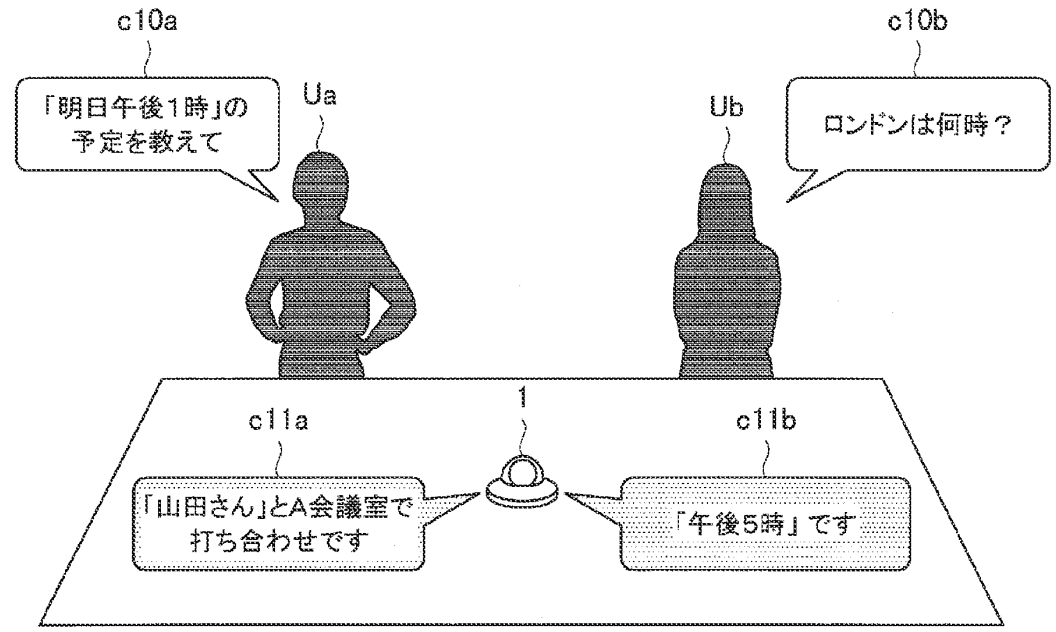
を含む、情報処理方法。

[請求項20] コンピュータに、

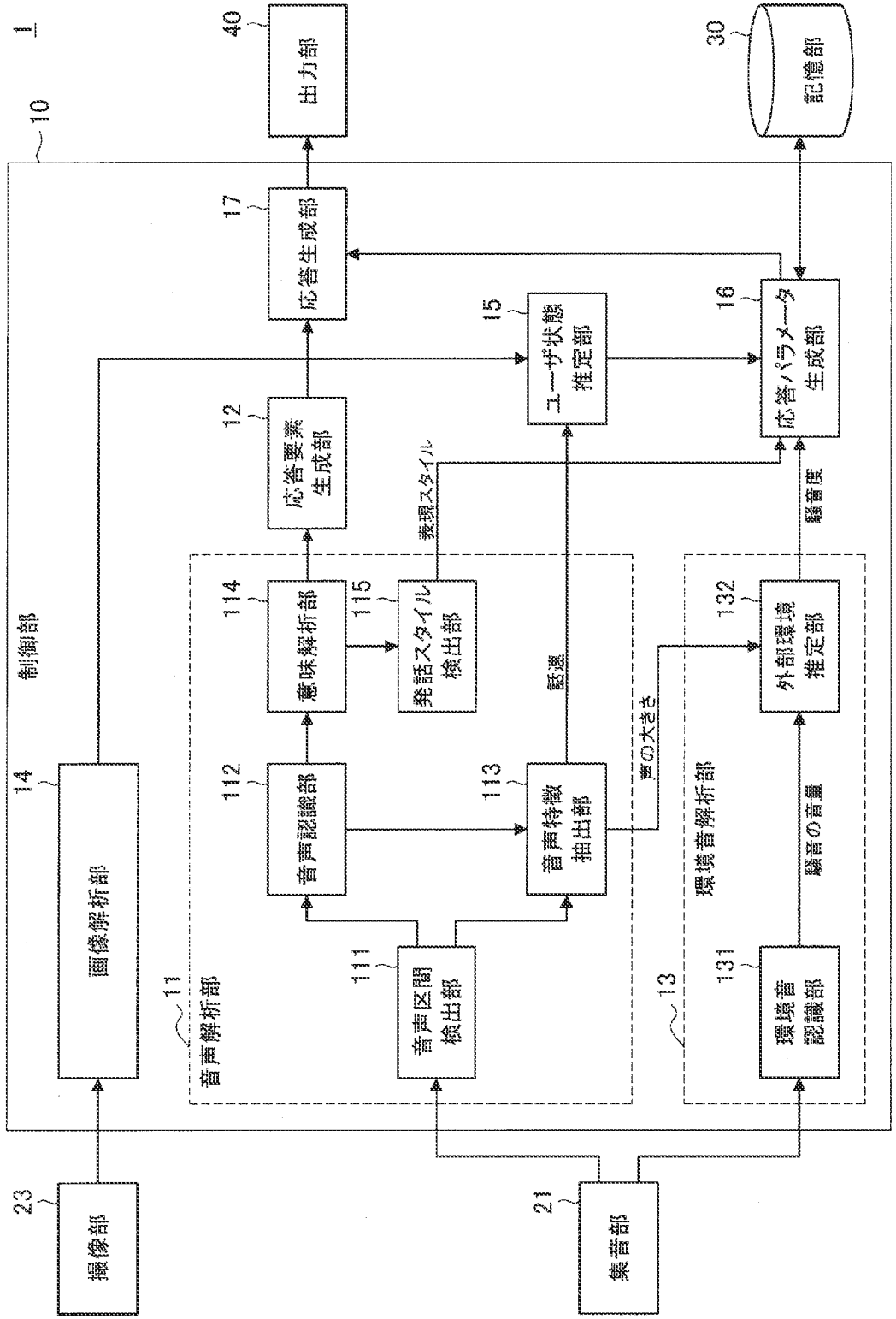
取得したユーザの発話状態に関する情報に応じて、前記ユーザの発話に対する応答の出力を制御すること、

を実行させる、プログラム。

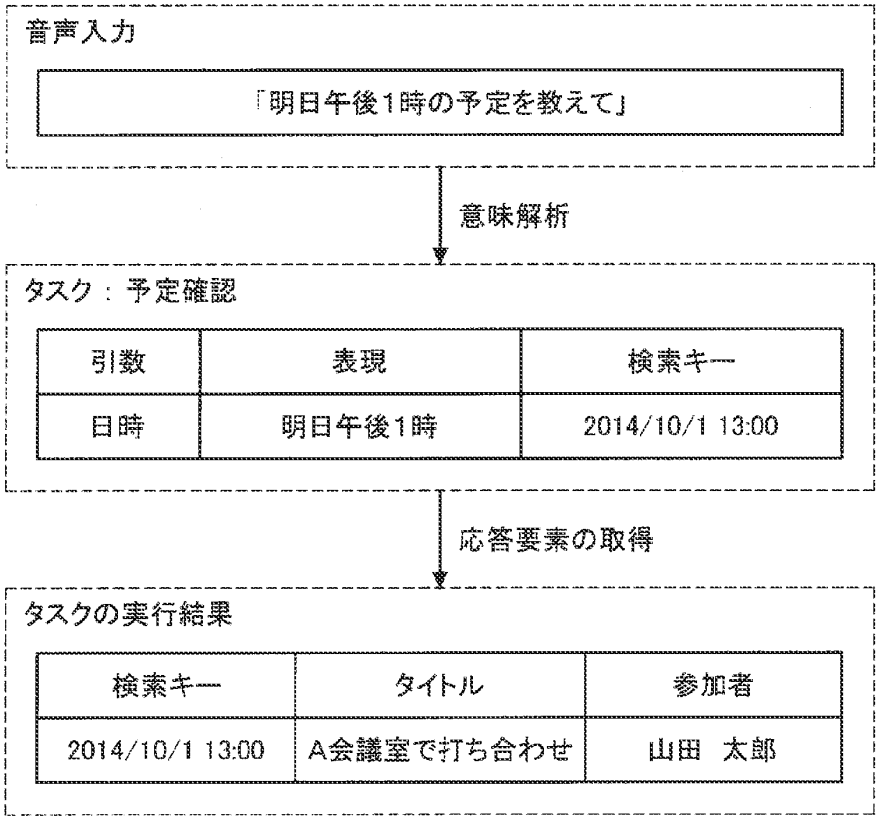
[図1]


c10a
「明日午後1時」の
予定を教えて
Ua
c10b
ロンドンは何時？
Ub
1
c11a
「山田さん」とA会議室で
打ち合わせです
c11b
「午後5時」です

[図2]


1
10
制御部
40
出力部
30
記憶部
17
応答生成部
15
ユーザ状態推定部
16
応答パラメータ生成部
12
応答要素生成部
表現スタイル
騒音度
114
意味解析部
115
発話スタイル検出部
132
外部環境推定部
話速
声の大きさ
112
音声認識部
113
音声特徴抽出部
14
画像解析部
111
音声区間検出部
131
環境音認識部
騒音の音量
11
音声解析部
13
環境音解析部
23
撮像部
21
集音部

[図3]



[図4]

姿勢	落ち着き度
座っている	+10
寝そべっている	+20
立っている	-10

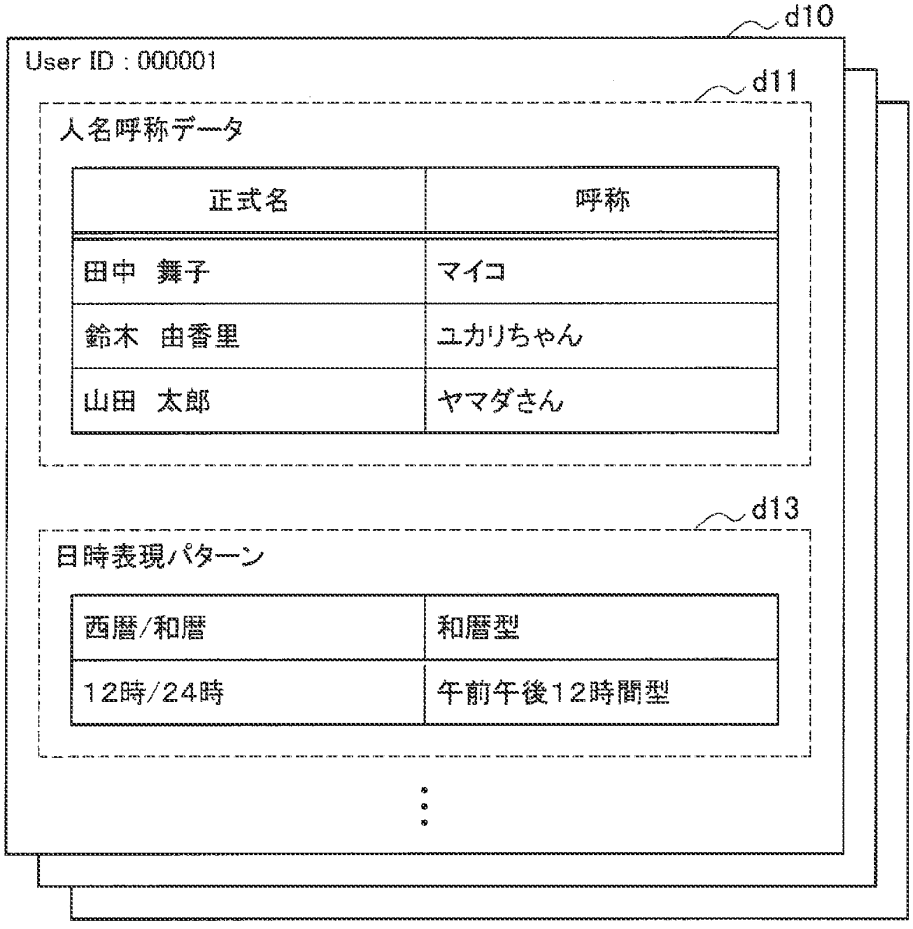
[図5]

話速	落ち着き度
4文字未満/秒	+20
4-6文字/秒	0
7文字以上/秒	-20

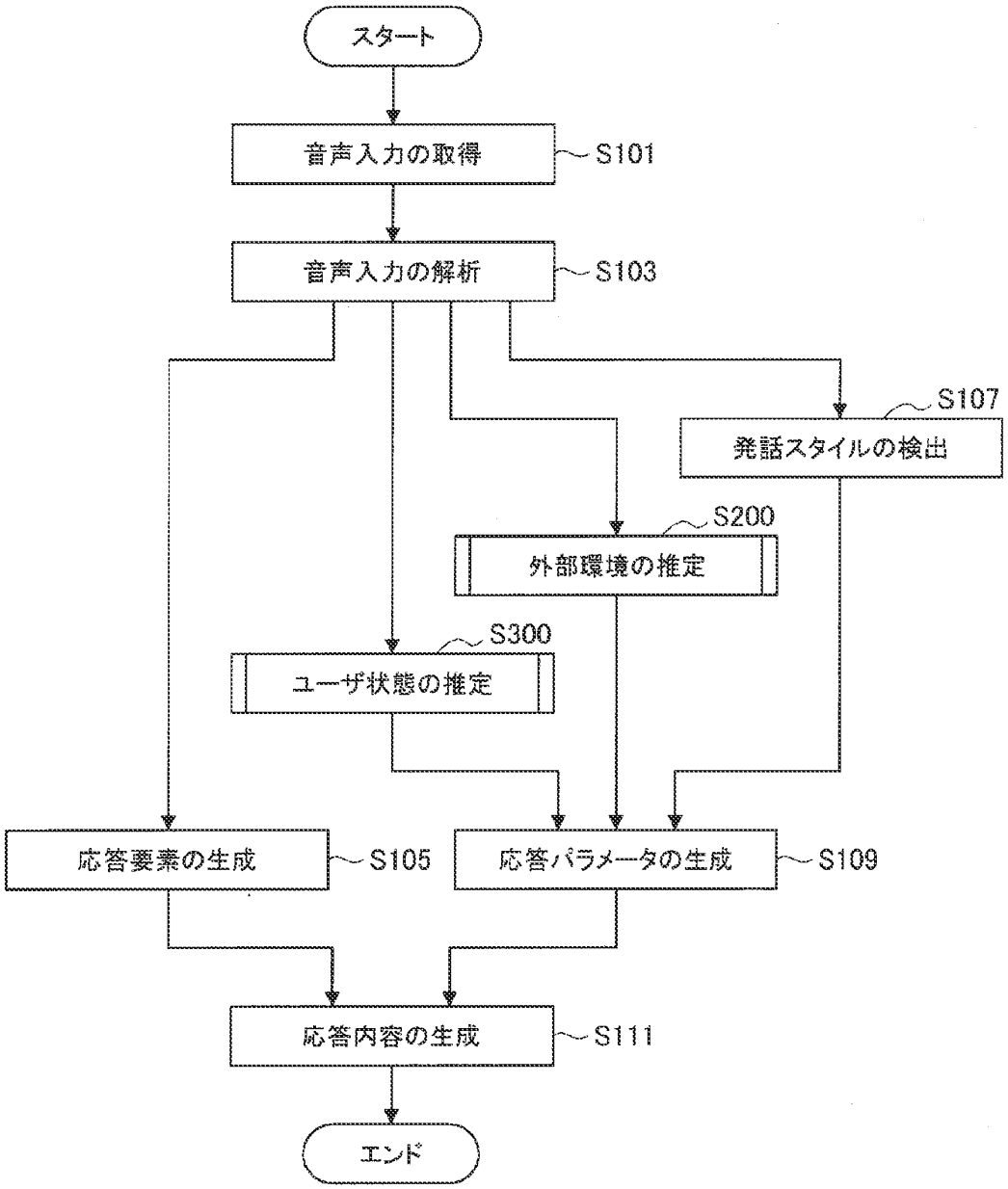
[図6]

動作	落ち着き度
止まっている	+10
歩いている	-20
走っている	-30

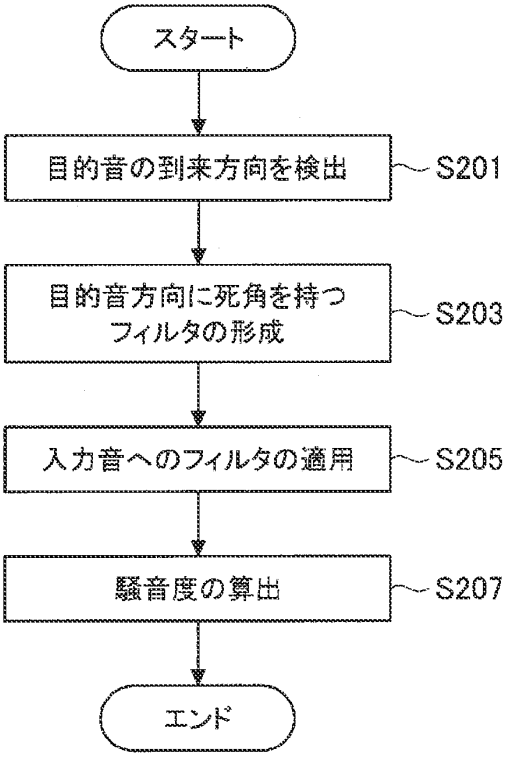
[図7]



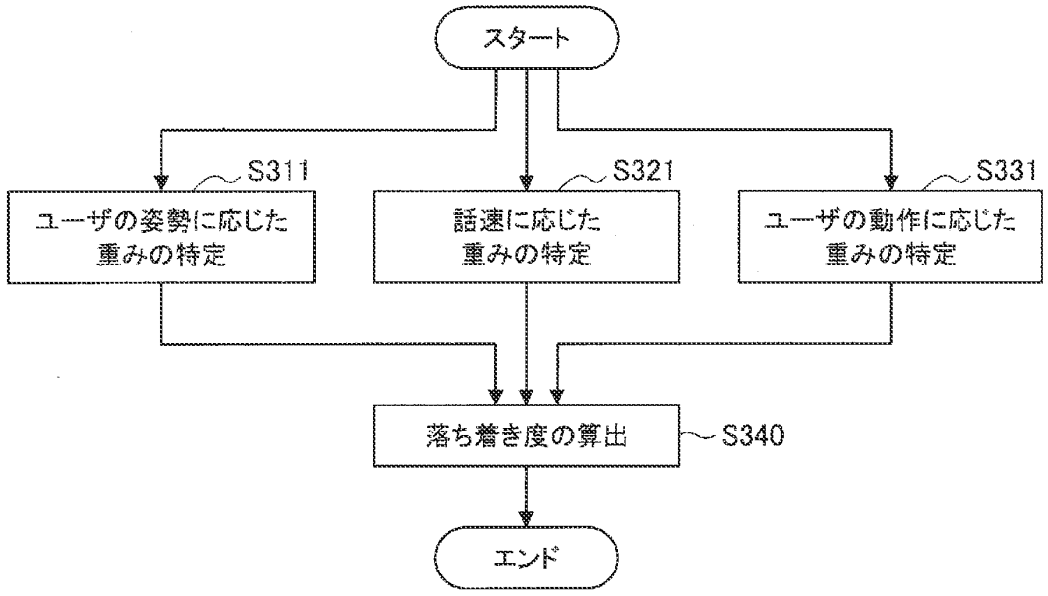
[図8]


スタート
音声入力の取得
S101
音声入力の解析
S103
S107
発話スタイルの検出
S200
外部環境の推定
S300
ユーザ状態の推定
応答要素の生成
S105
応答パラメータの生成
S109
応答内容の生成
S111
エンド

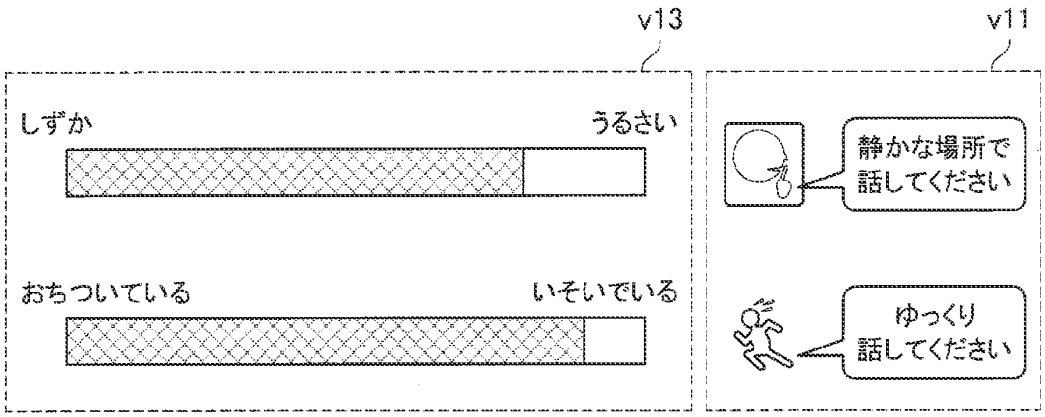
[図9]


スタート
目的音の到来方向を検出
S201
目的音方向に死角を持つ
フィルタの形成
S203
入力音へのフィルタの適用
S205
騒音度の算出
S207
エンド

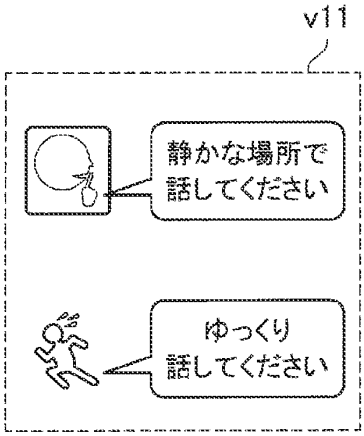
[図10]


スタート
S311
ユーザの姿勢に応じた
重みの特定
S321
話速に応じた
重みの特定
S331
ユーザの動作に応じた
重みの特定
落ち着き度の算出
S340
エンド

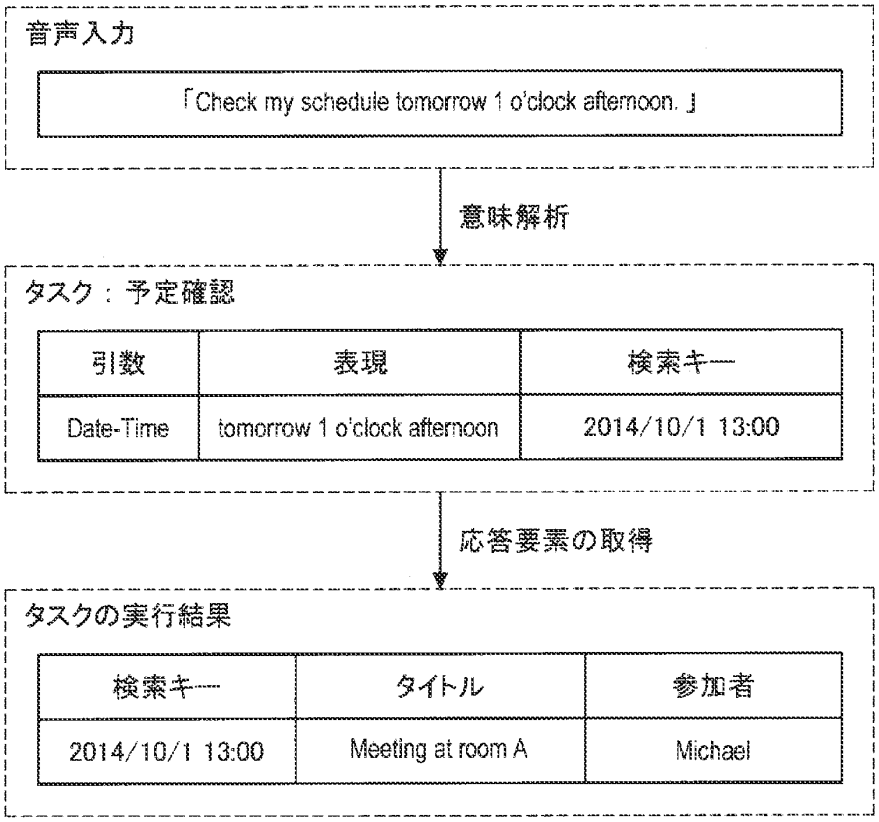
[図11]


v13
v11
しずか
うるさい
おちついている
いそいでいる
静かな場所で
話してください
ゆっくり
話してください

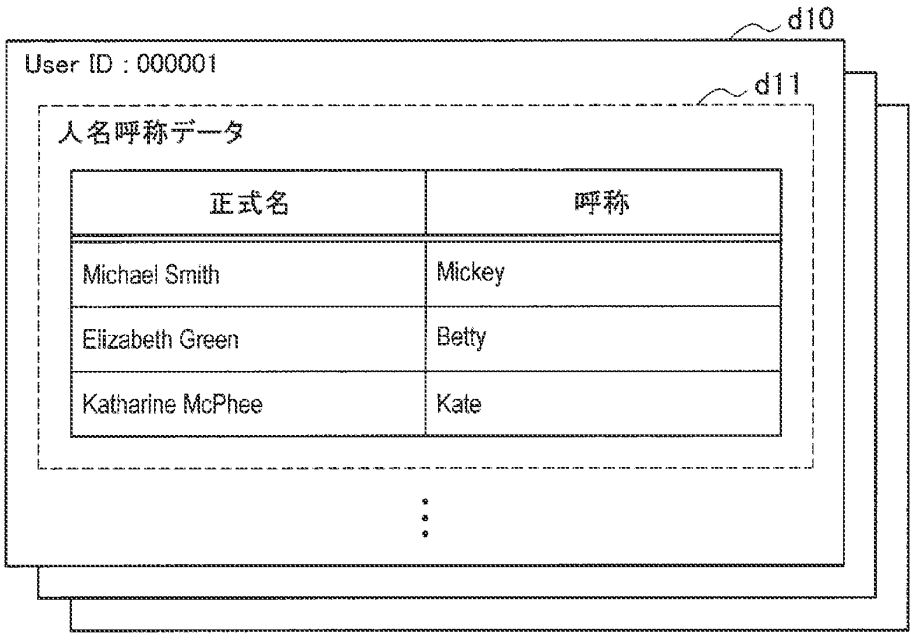
[図12]


v11
静かな場所で
話してください
ゆっくり
話してください

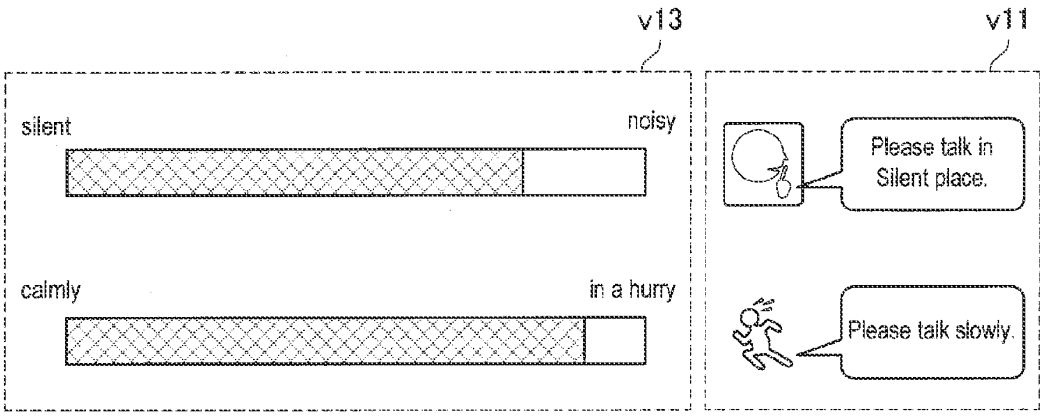
[図13]


音声入力
「Check my schedule tomorrow 1 o'clock afternoon.」
意味解析
タスク：予定確認
引数
表現
検索キー
Date-Time
tomorrow 1 o'clock afternoon
2014/10/1 13:00
応答要素の取得
タスクの実行結果
検索キー
タイトル
参加者
2014/10/1 13:00
Meeting at room A
Michael

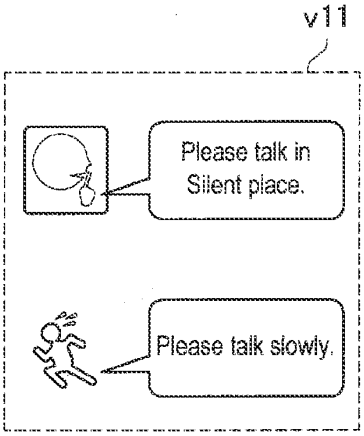
[図14]


d10
User ID : 000001
d11
人名呼称データ
正式名
呼称
Michael Smith
Mickey
Elizabeth Green
Betty
Katharine McPhee
Kate

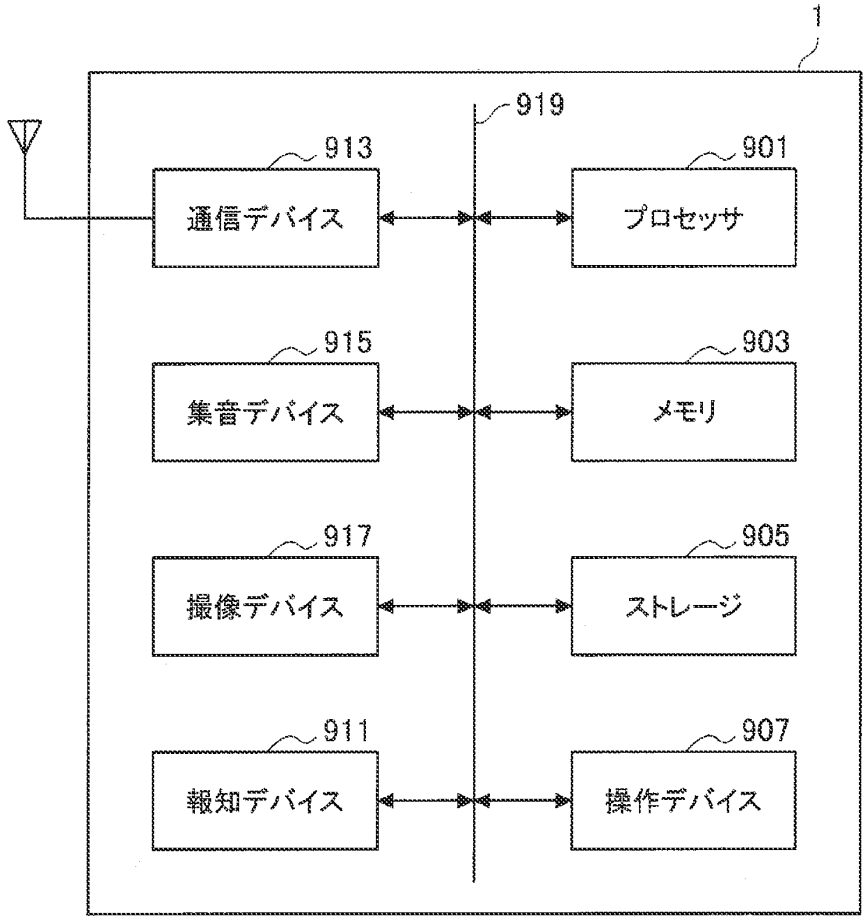
[図15]


v13
v11
silent
noisy
calmly
in a hurry
Please talk in Silent place.
Please talk slowly.

[図16]


v11
Please talk in Silent place.
Please talk slowly.

[図17]


1
919
913
通信デバイス
901
プロセッサ
915
集音デバイス
903
メモリ
917
撮像デバイス
905
ストレージ
911
報知デバイス
907
操作デバイス

INTERNATIONAL SEARCH REPORT

International application No.
PCT/JP2015/083232

A. CLASSIFICATION OF SUBJECT MATTER
G06F3/16(2006.01)i, *G10L15/22*(2006.01)i

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)
G06F3/16, G10L15/22

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched
Jitsuyo Shinan Koho 1922-1996 Jitsuyo Shinan Toroku Koho 1996-2015
Kokai Jitsuyo Shinan Koho 1971-2015 Toroku Jitsuyo Shinan Koho 1994-2015

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

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X Y	JP 2004-86001 A (Sony Corp.), 18 March 2004 (18.03.2004), paragraphs [0007], [0011], [0026], [0069]; fig. 11 (Family: none)	1-4,8-9, 11-12,16-20 5-7,13-15
X Y	JP 2006-113546 A (Honda Motor Co., Ltd.), 27 April 2006 (27.04.2006), abstract; paragraphs [0033], [0035] to [0036], [0047], [0049] & EP 1635327 A1 & DE 602005001142 D & AT 362632 T & US 2006/0069559 A1 abstract; paragraphs [0089], [0098], [0099] to [0102], [0118] to [0124], [0128] to [0131]	1-4,8-11, 17-20 5-6,13-15

☒ 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
25 December 2015 (25.12.15)	12 January 2016 (12.01.16)
Name and mailing address of the ISA/ Japan Patent Office 3-4-3,Kasumigaseki,Chiyoda-ku, Tokyo 100-8915,Japan	Authorized officer Telephone No.

Form PCT/ISA/210 (second sheet) (July 2009)

C (Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	JP 8-77105 A (NEC Corp.), 22 March 1996 (22.03.1996), paragraphs [0011] to [0012], [0018] (Family: none)	5-7
Y	JP 2003-210835 A (Aruze Corp.), 29 July 2003 (29.07.2003), paragraphs [0019] to [0034] (Family: none)	13-14
Y	JP 2004-226881 A (Casio Computer Co., Ltd.), 12 August 2004 (12.08.2004), claim 11 (Family: none)	15

国際調査報告

国際出願番号　PCT／JP2015／083232

A.　発明の属する分野の分類（国際特許分類（IPC））

Int.Cl.　G06F3/16(2006.01)i, G10L15/22(2006.01)i

B.　調査を行った分野

調査を行った最小限資料（国際特許分類（IPC））

Int.Cl.　G06F3/16, G10L15/22

最小限資料以外の資料で調査を行った分野に含まれるもの

日本国実用新案公報	1922－1996年
日本国公開実用新案公報	1971－2015年
日本国実用新案登録公報	1996－2015年
日本国登録実用新案公報	1994－2015年

国際調査で使用した電子データベース（データベースの名称、調査に使用した用語）

C.　関連すると認められる文献

引用文献のカテゴリー＊	引用文献名　及び一部の箇所が関連するときは、その関連する箇所の表示	関連する請求項の番号
X Y	JP 2004-86001 A（ソニー株式会社）2004.03.18, 段落[0007], [0011], [0026], [0069], [図 11] （ファミリーなし）	1-4, 8-9, 11-12, 16-20 5-7, 13-15
X Y	JP 2006-113546 A（本田技研工業株式会社）2006.04.27, [要約], 段落[0033], [0035]-[0036], [0047], [0049] & EP 1635327 A1 & DE 602005001142 D & AT 362632 T & US 2006/0069559 A1, [要約], 段落[0089], [0098], [0099]-[0102], [0118]-[0124], [0128]-[0131]	1-4, 8-11, 17-20 5-6, 13-15

☑　C欄の続きにも文献が列挙されている。　　☐　パテントファミリーに関する別紙を参照。

＊　引用文献のカテゴリー
「A」特に関連のある文献ではなく、一般的技術水準を示すもの
「E」国際出願日前の出願または特許であるが、国際出願日以後に公表されたもの
「L」優先権主張に疑義を提起する文献又は他の文献の発行日若しくは他の特別な理由を確立するために引用する文献（理由を付す）
「O」口頭による開示、使用、展示等に言及する文献
「P」国際出願日前で、かつ優先権の主張の基礎となる出願の日の後に公表された文献
「T」国際出願日又は優先日後に公表された文献であって出願と矛盾するものではなく、発明の原理又は理論の理解のために引用するもの
「X」特に関連のある文献であって、当該文献のみで発明の新規性又は進歩性がないと考えられるもの
「Y」特に関連のある文献であって、当該文献と他の1以上の文献との、当業者にとって自明である組合せによって進歩性がないと考えられるもの
「&」同一パテントファミリー文献

国際調査を完了した日 25．12．2015	国際調査報告の発送日 12．01．2016
国際調査機関の名称及びあて先 日本国特許庁（ISA／JP） 郵便番号100－8915 東京都千代田区霞が関三丁目4番3号	特許庁審査官（権限のある職員）　5E　4190 若林　治男 電話番号　03－3581－1101　内線　3521

様式PCT／ISA／210（第2ページ）（2009年7月）

Ｃ（続き）．　関連すると認められる文献

引用文献のカテゴリー＊	引用文献名　及び一部の箇所が関連するときは、その関連する箇所の表示	関連する請求項の番号
Y	JP 8-77105 A（日本電気株式会社）1996.03.22, 段落[0011]-[0012],[0018]（ファミリーなし）	5-7
Y	JP 2003-210835 A（アルゼ株式会社）2003.07.29, 段落[0019]-[0034]（ファミリーなし）	13-14
Y	JP 2004-226881 A（カシオ計算機株式会社）2004.08.12, [請求項11]（ファミリーなし）	15

Electronic Patent Application Fee Transmittal					
Application Number:	16295034				
Filing Date:	07-Mar-2019				
Title of Invention:	WORD REPLACEMENT IN OUTPUT GENERATION FOR DETECTED INTENT BY VOICE CLASSIFICATION				
First Named Inventor/Applicant Name:	Tatsumi Naganuma				
Filer:	Gregory Turocy/Michelle Folger				
Attorney Docket Number:	SAJVP172US				
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:					
Patent-Appeals-and-Interference:					
Post-Allowance-and-Post-Issuance:					
Extension-of-Time:					

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Miscellaneous:				
SUBMISSION- INFORMATION DISCLOSURE STMT	1806	1	260	260
		Total in USD ($)		**260**

Electronic Acknowledgement Receipt	
EFS ID:	43807077
Application Number:	16295034
International Application Number:	
Confirmation Number:	1688
Title of Invention:	WORD REPLACEMENT IN OUTPUT GENERATION FOR DETECTED INTENT BY VOICE CLASSIFICATION
First Named Inventor/Applicant Name:	Tatsumi Naganuma
Customer Number:	23623
Filer:	Gregory Turocy/Michelle Folger
Filer Authorized By:	Gregory Turocy
Attorney Docket Number:	SAJVP172US
Receipt Date:	20-SEP-2021
Filing Date:	07-MAR-2019
Time Stamp:	12:45:52
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	CARD
Payment was successfully received in RAM	$260
RAM confirmation Number	E20219JC46134015
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	Information Disclosure Statement (IDS) Form (SB08)	updated_IDS.pdf	612029 0e546db8e9a8b2e56872a41ff81f947ec85e74b6	no	4
Warnings:					
Information:					
A U.S. Patent Number Citation or a U.S. Publication Number Citation is required in the Information Disclosure Statement (IDS) form for autoloading of data into USPTO systems. You may remove the form to add the required data in order to correct the Informational Message if you are citing U.S. References. If you chose not to include U.S. References, the image of the form will be processed and be made available within the Image File Wrapper (IFW) system. However, no data will be extracted from this form. Any additional data such as Foreign Patent Documents or Non Patent Literature will be manually reviewed and keyed into USPTO systems.					
2	Foreign Reference	WO2016136062A1.pdf	8606626 2367f7db414f2d46001a42a4fba1c2bf67273cf8	no	71
Warnings:					
Information:					
3	Fee Worksheet (SB06)	fee-info.pdf	38284 931e5879406fa60b4e016b46f47c38c81d3a1f59	no	2
Warnings:					
Information:					
		Total Files Size (in bytes):	9256939		

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

New Applications Under 35 U.S.C. 111

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

National Stage of an International Application under 35 U.S.C. 371

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

New International Application Filed with the USPTO as a Receiving Office

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

UNITED STATES PATENT AND TRADEMARK OFFICE
COMMISSIONER FOR PATENTS
P.O.BOX 1450
ALEXANDRIA VA 22313-1451

PRESORTED
FIRST-CLASS MAIL
U.S. POSTAGE PAID
POSTEDIGITAL
NNNNN

AMIN, TUROCY & WATSON, LLP
200 Park Avenue
Suite 300
Beachwood, OH 44122

Courtesy Reminder for
Application Serial No: 16/295,034

Attorney Docket No: SAJVP172US
Customer Number: 23623
Date of Electronic Notification: 09/09/2021

This is a courtesy reminder that new correspondence is available for this application. If you have not done so already, please review the correspondence. The official date of notification of the outgoing correspondence will be indicated on the form PTOL-90 accompanying the correspondence.

An email notification regarding the correspondence was sent to the following email address(es) associated with your customer number:

hmckee@thepatentattorneys.com
rveri@thepatentattorneys.com
docket@thepatentattorneys.com

To view your correspondence online or update your email addresses, please visit us anytime at **https://ppair-my.uspto.gov/pair/PrivatePair.**
If you have any questions, please email the Electronic Business Center (EBC) at EBC@uspto.gov or call 1-866-217-9197.

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

23623 7590 09/09/2021

AMIN, TUROCY & WATSON, LLP
200 Park Avenue
Suite 300
Beachwood, OH 44122

EXAMINER
LERNER, MARTIN

ART UNIT	PAPER NUMBER
2657	

DATE MAILED: 09/09/2021

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
16/295,034	03/07/2019	Tatsumi Naganuma	SAJVP172US	1688

TITLE OF INVENTION: WORD REPLACEMENT IN OUTPUT GENERATION FOR DETECTED INTENT BY VOICE CLASSIFICATION

APPLN. TYPE	ENTITY STATUS	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	UNDISCOUNTED	$1200	$0.00	$0.00	$1200	12/09/2021

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.

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)

23623 7590 09/09/2021

AMIN, TUROCY & WATSON, LLP
200 Park Avenue
Suite 300
Beachwood, OH 44122

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.
16/295,034	03/07/2019	Tatsumi Naganuma	SAJVP172US	1688

TITLE OF INVENTION: WORD REPLACEMENT IN OUTPUT GENERATION FOR DETECTED INTENT BY VOICE CLASSIFICATION

APPLN. TYPE	ENTITY STATUS	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	UNDISCOUNTED	$1200	$0.00	$0.00	$1200	12/09/2021

EXAMINER	ART UNIT	CLASS-SUBCLASS
LERNER, MARTIN	2657	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_____
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. _____

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 _____ Date _____

Typed or printed name _____ Registration No. _____

UNITED STATES PATENT AND TRADEMARK OFFICE

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

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
16/295,034	03/07/2019	Tatsumi Naganuma	SAJVP172US	1688

23623 7590 09/09/2021

AMIN, TUROCY & WATSON, LLP
200 Park Avenue
Suite 300
Beachwood, OH 44122

EXAMINER	
LERNER, MARTIN	
ART UNIT	PAPER NUMBER
2657	

DATE MAILED: 09/09/2021

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.

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. 16/295,034	Applicant(s) Naganuma, Tatsumi	
	Examiner MARTIN LERNER	Art Unit 2657	AIA (FITF) Status Yes

-- 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 and Request for Continued Examination filed 22 June 2021.
   ☐ 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 1-7 . 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 a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.
THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

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 _____.

/MARTIN LERNER/
Primary Examiner, Art Unit 2657

EXAMINER'S STATEMENT OF REASONS FOR ALLOWANCE

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

Independent claims 1 and 6 to 7 are allowable because the prior art of record does not disclose or reasonably suggest a device, method, and computer program for output-content control comprising acquiring a voice spoken by a user, calculating a distance between the user and an output-content control device by a proximity sensor to classify the voice into either a first voice or a second voice based on the calculated distance, analyzing the acquired voice to detect intention information indicating what kind of information is wished to be acquired by the user, acquiring notification information which includes content information as a content of information which includes content information as a content of information to be notified to the user based on the intention information, generating, when the voice is determined to be the first voice, a first output sentence in which at least one word selected among words included in the content information of the notification information is replaced with another word, and generating, when the voice is not determined to be the second voice, a second output sentence which includes all of the intention information and the content information.

Generally, the prior art of record does not disclose or reasonably suggest a proximity sensor for calculating a distance between a user and a control device to classify a voice into either a first voice or a second voice based on the calculated distance. Proximity sensors are commonly known in speech recognition to determine if a user is within a predetermined distance to a control device, but not to classify a voice into a first voice or a second voice based on a distance. *Tseretopoulos et al.* (U.S.

Patent Publication 2019/0103127) discloses classifying a voice into a first voice or a second voice according to a personality type, and replacing words with synonyms according to a personality type. However, *Tseretopoulos et al.* does not disclose a proximity sensor.

The Specification, ¶[0035], describes an embodiment of a proximity sensor that can determine a distance between a user and a control device, where the distance can be used as a feature value to classify a voice as a first voice V1A or a second voice V1B.

The Specification, ¶[0004], states an objective of making a content of a notification in response to an inquiry from a user difficult to be understood by people other than a user when the response may be heard by other people but it is not wished to be known by people other than the user.

Naganuma (U.S. Patent Publication 2019/0279611) is a co-pending application, but corresponding pending claims are not sufficiently similar to require an obviousness double patenting rejection.

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."

Any inquiry concerning this communication or earlier communications from the examiner should be directed to MARTIN LERNER whose telephone number is (571) 272-7608. The examiner can normally be reached on Monday-Thursday 8:30 AM-6:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Daniel Washburn can be reached on (571) 272-5551. 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 https://ppair-my.uspto.gov/pair/PrivatePair. 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.

/MARTIN LERNER/
Primary Examiner
Art Unit 2657
August 31, 2021

Notice of References Cited	Application/Control No. 16/295,034	Applicant(s)/Patent Under Reexamination Naganuma, Tatsumi	
	Examiner MARTIN LERNER	Art Unit 2657	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-20190279611-A1	09-2019	Naganuma; Tatsumi	G10L15/22	---
*	B	US-20140330560-A1	11-2014	Venkatesha; Sharath	G10L15/22	704/275
*	C	US-20150332674-A1	11-2015	NISHINO; Yohei	G10L17/00	704/246
*	D	US-20170025121-A1	01-2017	Tang; Weidong	G10L17/06	---
*	E	US-20170351487-A1	12-2017	AVILES-CASCO VAQUERO; Carlos	G10L17/00	---
*	F	US-10733989-B2	08-2020	Yehuday; Uri	G10L15/22	---
	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.

Issue Classification	Application/Control No.	Applicant(s)/Patent Under Reexamination
	16/295,034	Naganuma, Tatsumi
	Examiner	**Art Unit**
	MARTIN LERNER	2657

CPC							
Symbol						**Type**	**Version**
G10L	/	15	/	22		F	2013-01-01
G10L	/	15	/	1815		I	2013-01-01
G06F	/	3	/	167		I	2013-01-01
G10L	/	2015	/	223		A	2013-01-01
G10L	/	25	/	51		A	2013-01-01

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

NONE		Total Claims Allowed:	
(Assistant Examiner)	(Date)	7	
/MARTIN LERNER/ Primary Examiner, Art Unit 2657	31 August 2021	O.G. Print Claim(s)	O.G. Print Figure
(Primary Examiner)	(Date)	6	7

U.S. Patent and Trademark Office — Part of Paper No.: 20210628

Issue Classification	Application/Control No.	Applicant(s)/Patent Under Reexamination
	16/295,034	Naganuma, Tatsumi
	Examiner	Art Unit
	MARTIN LERNER	2657

INTERNATIONAL CLASSIFICATION					
CLAIMED					
G10L	/	2015	/	226	
G10L	/	17	/	06	
G06F	/	40	/	247	

NON-CLAIMED					
	/		/		

US ORIGINAL CLASSIFICATION	
CLASS	SUBCLASS
704	246

CROSS REFERENCES(S)						
CLASS	SUBCLASS (ONE SUBCLASS PER BLOCK)					
704	238	275				

NONE (Assistant Examiner)	(Date)	Total Claims Allowed: 7	
/MARTIN LERNER/ Primary Examiner, Art Unit 2657 (Primary Examiner)	31 August 2021 (Date)	O.G. Print Claim(s) 6	O.G. Print Figure 7

U.S. Patent and Trademark Office — Part of Paper No.: 20210628

Issue Classification	Application/Control No.	Applicant(s)/Patent Under Reexamination
	16/295,034	Naganuma, Tatsumi
	Examiner	Art Unit
	MARTIN LERNER	2657

☑ 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														
2	2														
3	3														
4	4														
5	5														
6	6														
7	7														

NONE		Total Claims Allowed:	
(Assistant Examiner)	(Date)	7	
/MARTIN LERNER/ Primary Examiner, Art Unit 2657	31 August 2021	O.G. Print Claim(s)	O.G. Print Figure
(Primary Examiner)	(Date)	6	7

U.S. Patent and Trademark Office — Part of Paper No.: 20210628

Search Notes	Application/Control No.	Applicant(s)/Patent Under Reexamination
	16/295,034	Naganuma, Tatsumi
	Examiner	Art Unit
	MARTIN LERNER	2657

CPC - Searched*		
Symbol	**Date**	**Examiner**
G06F 40/237, 40/247, 40/279, 40/284	11/24/2020	ML
G10L 13/033, 15/1822, 15/22, 25/63, 2015/226, 2015/228	11/24/2020	ML
G10L 17/00, 17/06	08/31/2021	ML

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

US Classification - Searched*			
Class	**Subclass**	**Date**	**Examiner**
704	1, 9, 10, 231, 246, 239, 270, 275	11/24/2020	ML
704	238	08/31/2021	ML

* 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	11/24/2020	ML
EAST Search Attached	03/18/2021	ML
EAST Search Attached	08/31/2021	ML

	/MARTIN LERNER/ Primary Examiner, Art Unit 2657

Search Notes	Application/Control No.	Applicant(s)/Patent Under Reexamination
	16/295,034	Naganuma, Tatsumi
	Examiner	Art Unit
	MARTIN LERNER	2657

Interference Search			
US Class/CPC Symbol	**US Subclass/CPC Group**	**Date**	**Examiner**
704	238, 246, 275	08/31/2021	ML
G10L	2015/226, 17/06	08/31/2021	ML
G06F	40/247	08/31/2021	ML

	/MARTIN LERNER/ Primary Examiner, Art Unit 2657

Bibliographic Data

Application No: 16/295,034

Foreign Priority claimed: (•) Yes ( ) No

35 USC 119 (a-d) conditions met: [✓] Yes [ ] No [ ] Met After Allowance

Verified and Acknowledged: /MARTIN LERNER/ Examiner's Signature [ ] Initials

Title: WORD REPLACEMENT IN OUTPUT GENERATION FOR DETECTED INTENT BY VOICE CLASSIFICATION

FILING or 371(c) DATE	CLASS	GROUP ART UNIT	ATTORNEY DOCKET NO.
03/07/2019	704	2657	SAJVP172US
RULE			

APPLICANTS

JVC KENWOOD Corporation, Yokohama-shi, JAPAN

INVENTORS

Tatsumi Naganuma, Yokohama-shi, JAPAN

CONTINUING DATA

FOREIGN APPLICATIONS

JAPAN JP2018-044598 03/12/2018

IF REQUIRED, FOREIGN LICENSE GRANTED**

03/21/2019

STATE OR COUNTRY

JAPAN

ADDRESS

AMIN, TUROCY & WATSON, LLP
200 Park Avenue
Suite 300
Beachwood, OH 44122
UNITED STATES

FILING FEE RECEIVED

$1,720

EAST Search History

EAST Search History (Prior Art)

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
L1	0	G19L17$.cpc. and (distance or proximity) with voice	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2021/06/28 09:43
L2	1,112	G10L17$.cpc. and (distance or proximity) with voice	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2021/06/28 09:44
L3	450	G10L17$.cpc. and (distance or proximity) with voice with user	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2021/06/28 09:45
L4	241	G10L17$.cpc. and (distance or proximity) with voice with user with device	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2021/06/28 09:45
L5	182	G10L17$.cpc. and (distance or proximity) with voice with user with device and @ad<"20190307"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2021/06/28 09:45
L6	45	G10L17$.cpc. and (distance or proximity) with voice with user with first with second and @ad<"20190307"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2021/06/28 09:46
L7	1	G10L17$.cpc. and (distance or proximity) with voice with classif$ with first with second and @ad<"20190307"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2021/06/28 10:02
L8	1	G10L17$.cpc. and distance with voice with classif$ and proximity adj sensor and @ad<"20190307"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2021/06/28 10:06

L9	17,672,464	G10L17$.cpc. and distance ".and" proximity adj sensor and @ad<"20190307"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2021/06/28 10:06
L10	354	G10L17$.cpc. and distance and proximity adj sensor and @ad<"20190307"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2021/06/28 10:07
L11	7	G10L17$.cpc. and distance with voice with proximity adj sensor and @ad<"20190307"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2021/06/28 10:07

6/28/2021 10:11:49 AM

EAST Search History

EAST Search History (Prior Art)

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
L1	302	voice with classif$ with (distance or proximity)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2021/06/25 11:33
L2	205	voice with classif$ with (distance or proximity) and @ad<"20180312"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2021/06/25 11:34
L3	96	voice with classif$ with (distance or proximity) and @ad<"20180312" and G10L$.cpc.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2021/06/25 11:34
L4	0	voice with classif$ with distance with proximity adj sensor and @ad<"20180312" and G10L$.cpc.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2021/06/25 11:34
L5	15	voice with distance with proximity adj sensor and @ad<"20180312" and G10L$.cpc.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2021/06/25 11:34
L6	120	intent$ and distance with proximity adj sensor and @ad<"20180312" and G10L$.cpc.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2021/06/25 11:38
L7	99	intent$ and distance with proximity adj sensor and @ad<"20180312" and G10L$.cpc. and content	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2021/06/25 11:38
L8	13	distance with proximity adj sensor and @ad<"20180312" and G10L$.cpc. and whisper$	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2021/06/25 11:47

6/25/2021 11:53:50 AM

EAST Search History

EAST Search History (Prior Art)

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
L1	0	(2019/0103127).CCLS.	US-PGPUB; USPAT; USOCR	OR	OFF	2021/06/28 10:34
L2	0	(2019/00103127).CCLS.	US-PGPUB; USPAT; USOCR	OR	OFF	2021/06/28 10:35
L3	1	("20190103127").PN.	US-PGPUB; USPAT; USOCR	OR	OFF	2021/06/28 10:35
L4	0	3 and proximity	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2021/06/28 10:35
L5	129	proximity adj sensor with distance with voice	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2021/06/28 10:36
L6	19	proximity adj sensor with distance with voice and G10L$.cpc.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2021/06/28 10:36
L7	58	tatsumi.in. and naganuma.in.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2021/06/28 11:08
L8	9	tatsumi.in. and naganuma.in. and G10L$.cpc.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2021/06/28 11:09
L9	18	tatsumi.in. and naganuma.in. and jvc$.as.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2021/06/28 11:10
L10	1	("20190279631").PN.	US-PGPUB; USPAT; USOCR	OR	OFF	2021/06/28 11:11
L11	244	(distance and proximity adj sensor and voice).clm.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2021/06/28 11:12
L12	0	(distance and proximity adj sensor and voice and intention).clm.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2021/06/28 11:12

L13	7	(distance and proximity adj sensor and first adj voice and second adj voice).clm.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2021/06/28 11:12

6/28/2021 11:23:26 AM

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 16/295,034	Filing Date 03/07/2019	☐ 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 $100 =	
INDEPENDENT CLAIMS (37 CFR 1.16(h))	minus 3 =	*		x $460 =	
☐ 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	06/22/2021	CLAIMS REMAINING AFTER AMENDMENT		HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA		RATE ($)	ADDITIONAL FEE ($)
	Total (37 CFR 1.16(i))	* 7	Minus	** 20	= 0		x $100 =	0
	Independent (37 CFR 1.16(h))	* 3	Minus	*** 3	= 0		x $480 =	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.	LIE
** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 20, enter "20".	/TRINA RIDDICK/
*** 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.**

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PTO/SB/30EFS (07-14)
Approved for use through 07/31/2016. OMB 0651-0031
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REQUEST FOR CONTINUED EXAMINATION(RCE)TRANSMITTAL
(Submitted Only via EFS-Web)

Application Number	16/295,034	Filing Date	2019-03-07	Docket Number (if applicable)	SAJVP172US	Art Unit	2657
First Named Inventor	Tatsumi Naganuma			Examiner Name	Martin Lerner		

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 comply with the requirements of 35 U.S.C. 371, or to any design application. The Instruction Sheet for this form is located at WWW.USPTO.GOV.

SUBMISSION REQUIRED UNDER 37 CFR 1.114

Note: If the RCE is proper, any previously filed unentered amendments and amendments enclosed with the RCE will be entered in the order in which they were filed unless applicant instructs otherwise. If applicant does not wish to have any previously filed unentered amendment(s) entered, applicant must request non-entry of such amendment(s).

☒ Previously submitted. If a final Office action is outstanding, any amendments filed after the final Office action may be considered as a submission even if this box is not checked.

☐ Consider the arguments in the Appeal Brief or Reply Brief previously filed on _____

☐ Other _____

☒ Enclosed

☐ Amendment/Reply

☐ Information Disclosure Statement (IDS)

☐ Affidavit(s)/ Declaration(s)

☒ Other RCE Submission

MISCELLANEOUS

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

☐ Other _____

FEES

☒ **The RCE fee under 37 CFR 1.17(e) is required by 37 CFR 1.114 when the RCE is filed.**
The Director is hereby authorized to charge any underpayment of fees, or credit any overpayments, to Deposit Account No 501063

SIGNATURE OF APPLICANT, ATTORNEY, OR AGENT REQUIRED

X Patent Practitioner Signature

Applicant Signature

PTO/SB/30EFS (07-14)
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Signature of Registered U.S. Patent Practitioner			
Signature	/Greg Turocy/	Date (YYYY-MM-DD)	2021-06-22
Name	Gregory Turocy	Registration Number	36952

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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:

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

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

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

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

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

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:	16295034				
Filing Date:	07-Mar-2019				
Title of Invention:	WORD REPLACEMENT IN OUTPUT GENERATION FOR DETECTED INTENT BY VOICE CLASSIFICATION				
First Named Inventor/Applicant Name:	Tatsumi Naganuma				
Filer:	Gregory Turocy/Bailey Zugan Rayl				
Attorney Docket Number:	SAJVP172US				
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:					
Patent-Appeals-and-Interference:					
Post-Allowance-and-Post-Issuance:					
Extension-of-Time:					

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Miscellaneous:				
RCE- 1ST REQUEST	1801	1	1360	1360
		Total in USD ($)		**1360**

Electronic Acknowledgement Receipt	
EFS ID:	43053081
Application Number:	16295034
International Application Number:	
Confirmation Number:	1688
Title of Invention:	WORD REPLACEMENT IN OUTPUT GENERATION FOR DETECTED INTENT BY VOICE CLASSIFICATION
First Named Inventor/Applicant Name:	Tatsumi Naganuma
Customer Number:	23623
Filer:	Gregory Turocy/Bailey Zugan Rayl
Filer Authorized By:	Gregory Turocy
Attorney Docket Number:	SAJVP172US
Receipt Date:	22-JUN-2021
Filing Date:	07-MAR-2019
Time Stamp:	13:44:32
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	CARD
Payment was successfully received in RAM	$1360
RAM confirmation Number	E20216LD44464036
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 Continued Examination (RCE)	RCE.pdf	1349885 cb72aedb86a63f12e0ff966a3c9c8cde056941ba	no	3
Warnings:					
Information:					
2	Amendment Submitted/Entered with Filing of CPA/RCE	SUBMISSION172.pdf	51922 fa355ec080398205ef11940d629ceb33fa4c2c3b	no	9
Warnings:					
Information:					
3	Fee Worksheet (SB06)	fee-info.pdf	30746 c2558cba724e3d5e7bbb1591a85e4e413c88f6f0	no	2
Warnings:					
Information:					
		Total Files Size (in bytes):	1432553		

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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.

CERTIFICATE OF TRANSMISSION

I hereby certify that this correspondence (along with any paper referred to as being attached or enclosed) is being submitted *via* the USPTO EFS Filing System on the date shown below to Mail Stop RCE, Commissioner for Patents, P.O. Box 1450, Alexandria, Virginia 22313-1450.

Date: June 22, 2021 /Bailey Zugan Rayl/
Bailey Zugan Rayl

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re patent application of:			
Inventor(s):	Tatsumi Naganuma	Examiner:	Martin Lerner
Serial No:	16/295,034	Art Unit:	2657
Filing Date:	March 7, 2019	Conf. No:	1688

Title: WORD REPLACEMENT IN OUTPUT GENERATION FOR DETECTED INTENT BY VOICE CLASSIFICATION

Mail Stop RCE
Commissioner for Patents
P.O. Box 1450
Alexandria, Virginia 22313-1450

RCE SUBMISSION

Dear Examiner Lerner:

This paper is filed in response to the Final Office Action dated March 23, 2021. A RCE request accompanies this submission. Kindly enter the following amendments.

AMENDMENTS 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) An output-content control device comprising:

a voice acquiring unit configured to acquire a voice spoken by a user;

a voice classifying unit configured to calculate a distance between the user and the output-content control device by a proximity sensor to classify the voice into either a first voice or a second voice based on the calculated distance ~~analyze a voice spoken by a user and acquired by a voice acquiring unit to determine whether the voice is a predetermined voice~~;

an intention analyzing unit configured to analyze the voice acquired by the voice acquiring unit to detect intention information indicating what kind of information is wished to be acquired by the user;

a notification-information acquiring unit configured to acquire notification information which includes content information as a content information to be notified to the user based on the intention information;

an output-content generating unit configured to generate an output sentence as sentence data to be output to the user based on the notification information, wherein the output-content generating unit is further configured to generate, when the voice is determined to be the ~~predetermined~~ first voice, a first output sentence in which at least one word selected among words included in the content information of the notification information is replaced with another word, and to generate, when the voice is not determined to be the ~~predetermined~~ second voice, a second output sentence which includes all of the intention information and the content information ~~in which at least one word selected among words included in the notification information is not replaced with another word; and~~

~~an output controller configured to output the first output sentence as text data to a first output unit and to output the second output sentence as voice data to a second output unit~~.

2. (Currently Amended) The output-content control device according to claim 1, wherein

~~the notification-information acquiring unit is further configured to acquire, as~~ the notification information~~, content information to be notified to the user and~~ includes type information indicating a type of the content information, and

the output-content generating unit is further configured to select, on generating the first output sentence, [[the]] at least one word to be placed with the other word ~~among the words included in the notification information~~ based on a word included in the content information and the type information that is associated with the content information.

3. (Currently Amended) The output-content control device according to claim 2, wherein

the output-content generating unit is further configured to read, on generating the first output sentence, relationship information including information of a first word that is a predetermined word and a second word that is associated with the first word, and to replace a word included in the notification information with the second word ~~to generate the first output sentence~~ when the word included in the notification information matches with the first word.

4. (Currently Amended) The output-content control device according to claim 3, wherein

the relationship information further includes information of type information indicating a type of the first word, and

the output-content generating unit is further configured to select, on generating the first output sentence, a word included in the notification information as word to be replaced with another word ~~the at least one word among the words included in the notification information~~ when the type information of the word included in the notification information matches with the type information of the first word and the word included in the notification information matches with the first word.

5. (Original) The output-content control device according to claim 1, wherein the voice classifying unit is further configured to determine the voice to be the predetermined voice when the voice spoken by the user is a whisper.

6. (Currently Amended) An output-content control method comprising:

acquiring a voice spoken by a user;

calculating a distance between the user and an output-content control device by a proximity sensor to classify the voice into either a first voice or a second voice based on the calculated distance;

~~analyzing an acquired voice spoken by a user to determine whether the voice is a predetermined voice;~~

analyzing the acquired voice to detect intention information indicating what kind of information is wished to be acquired by the user;

acquiring notification information which includes content information as a content of information to be notified to the user based on the intention information; and

generating, when the voice is determined to be the ~~predetermined~~ first voice, a first output sentence in which at least one word selected among words included in the content information of the notification information is replaced with another word; and

generating, when the voice is not determined to be the ~~predetermined~~ second voice, a second output sentence which includes all of the intention information and the content information ~~in which at least one word selected among words included in the notification information is not replaced with another word; and~~

~~outputting the first output sentence as text data to a first output unit and outputting the second output sentence as voice data to a second output unit~~.

7. (Currently Amended) A non-transitory storage medium that stores an output-content control program that causes a computer to execute:

acquiring a voice spoken by a user;

calculating a distance between the user and a output-content control device by a proximity sensor to classify the voice into either a first voice or a second voice based on the calculated distance;

~~analyzing an acquired voice spoken by a user to determine whether the voice is a predetermined voice;~~

analyzing the acquired voice to detect intention information indicating what kind of information is wished to be acquired by the user;

acquiring notification information which includes content information as a content of information to be notified to the user based on the intention information; and

generating, when the voice is determined to be the ~~predetermined~~ first voice, a first output sentence in which at least one word selected among words included in the content information of the notification information is replaced with another word; and

generating, when the voice is not determined to be the ~~predetermined~~ second voice, a second output sentence which includes all of the intention information and the content information ~~in which at least one word selected among words included in the notification information is not replaced with another word; and~~

~~outputting the first output sentence as text data to a first output unit and outputting the second output sentence as voice data to a second output units~~.

REMARKS

Claims 1-7 are pending in the subject application upon entry of the amendments. A listing of the claims can be found on pages 2-6 of this Reply. Favorable reconsideration is respectfully requested in view of the amendments and following comments.

The Amendments

Claims 1-4 and 6-7 are amended to refine claim elements and to disclaim the cited documents. Support for the amendments can be located, for example, at paragraphs [0039], [0043], and [0047] of the specification as filed. No new matter is added with such amendments.

The Written Description Rejection

Claims 1-7 stand rejected under 35 U.S.C. § 112(a) or 35 U.S.C. § 112 (pre-AIA), first paragraph. This rejection should be withdrawn for at least the following reason. The subject claims are amended to better comport with the specification. In particular, claims 1-7 are variously amended to reasonably convey to those skilled in the art that applicant had possession of the claim subject matter at the time the application was filed. Accordingly, withdrawal of this rejection is requested.

The First Obviousness Rejection

Claims 1, 3, and 6-7 stand rejected under 35 U.S.C. § 103 in view of Tseretopoulous et al. (US 2019/0103127) and Subramanian et al. (US 2011/0184721). Withdrawal of this rejection is requested for at least the following reason. The combination of Tseretopoulous et al. and Subramanian et al. fails to teach or suggest each and every element recited in the subject claims.

Independent claims 1, 6, and 7 recite similar elements, namely: "voice classifying unit configured to calculate a distance between the user and the output-content control device by a proximity sensor to classify the voice into either a first voice or a second voice based on the calculated distance; an intention analyzing unit configured to analyze the voice acquired by the voice acquiring unit to detect intention information

indicating what kind of information is wished to be acquired by the user; a notification-information acquiring unit configured to acquire notification information which includes content information as a content information to be notified to the user based on the intention information; an output-content generating unit configured to generate an output sentence as sentence data to be output to the user based on the notification information, wherein the output-content generating unit is further configured to generate, when the voice is determined to be the first voice, a first output sentence in which at least one word selected among words included in the content information of the notification information is replaced with another word, and to generate, when the voice is not determined to be the second voice, a second output sentence which includes all of the intention information and the content information," as recited in independent claim 1, and similarly recited in independent claims 6 and 7. Tseretopoulous et al. and Subramanian et al. fail to teach or suggest at least these elements as recited in the subject claims.

Tseretopoulous et al. discloses systems, software, and computer implemented methods for personalizing interactions within a conversational interface based on an input context. One example system performs operations including receiving a conversational input received via a conversational interface. The conversational input is analyzed to determine an intent and lexical personality score based on the input's characteristics. A set of responsive content is determined and includes a set of initial tokens representing an initial response. A set of synonym tokens associated with at least some of the initial tokens are identified, and at least one synonym token associated with a similar lexical personality score to the input is determined. At least one of the initial tokens are replaced with the determined synonym token to generate a modified version of the set of response content. The modified version of the response is then transmitted to a device in response to the input. See e.g., Abstract.

Subramanian et al. discloses a computer program product for communicating across channels with emotion preservation includes a computer usable storage medium having computer useable program code embodied therewith, the computer usable program code including: computer usable program code to receive a first language communication comprising text marked up with emotion metadata; computer usable

program code to translate the emotion metadata into second language emotion metadata; computer usable program code to translate the text to second language text; computer usable program code to analyze the second language emotion metadata for second language emotion information; and computer usable program code to combine the second language emotion information in first language communication with the second language text. See e.g., Abstract.

Neither Tseretopoulous et al. nor Subramanian et al. disclose, teach, or suggest: voice classifying unit configured to calculate a distance between the user and the output-content control device by a proximity sensor to classify the voice into either a first voice or a second voice based on the calculated distance; an intention analyzing unit configured to analyze the voice acquired by the voice acquiring unit to detect intention information indicating what kind of information is wished to be acquired by the user; a notification-information acquiring unit configured to acquire notification information which includes content information as a content information to be notified to the user based on the intention information; an output-content generating unit configured to generate an output sentence as sentence data to be output to the user based on the notification information, wherein the output-content generating unit is further configured to generate, when the voice is determined to be the first voice, a first output sentence in which at least one word selected among words included in the content information of the notification information is replaced with another word, and to generate, when the voice is not determined to be the second voice, a second output sentence which includes all of the intention information and the content information, as recited in independent claim 1, and similarly recited in independent claims 6 and 7.

Accordingly, in view of at least the foregoing it is evident that independent claims 1, 6, and 7 patentably distinguish over the combination of Tseretopoulous et al. and Subramanian et al. as the purported combination of documents fails to disclose, teach, or suggest all elements recited in the independent claims (and claims that depend there from). Accordingly, withdrawal of this rejection is respectfully requested.

The Second Obviousness Rejection

Claims 2 and 4 stand rejected under 35 U.S.C. § 103 in view of Tseretopoulous et al., Subramanian et al., and Aoyama et al. (US 2017/0337921). This rejection should be withdrawn for at least the following reason. Claims 2 and 4 depend from independent claim 1 and the Aoyama et al. does not make up for the aforementioned deficiencies with regard to the combination of Tseretopoulous et al. and Subramanian et al. in the context of independent claim 1. Accordingly, withdrawal of this rejection is requested.

The Third Obviousness Rejection

Claim 5 stands rejected under 35 U.S.C. § 103 in view of Tseretopoulous et al., Subramanian et al., and Schuster et al. (US 2017/066662). This rejection should be withdrawn for at least the following reason. Claim 5 depends from independent claim 1 and Schuster et al. fails to make up for the aforementioned deficiencies with respect to the combination of Tseretopoulous et al. and Subramanian et al. in the context of independent claim 1. Accordingly, this rejection should be withdrawn.

In the event any fees are due in connection with this document, the Commissioner is authorized to charge those fees to Deposit Account No. 50-1063 [SAJVP172US].

Should the Examiner believe a telephone interview would be helpful to expedite favorable prosecution, the Examiner is invited to contact inventor's undersigned representative at the telephone number below.

Respectfully submitted,

AMIN, TUROCY & WATSON, LLP

/Greg Turocy/

Gregory Turocy
Reg. No. 36,952

200 Park Avenue, Suite 300
Beachwood, OH 44122
Telephone (216) 696-8730
Facsimile (216) 696-8731

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AMIN, TUROCY & WATSON, LLP
200 Park Avenue
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Courtesy Reminder for
Application Serial No: 16/295,034

Attorney Docket No: SAJVP172US
Customer Number: 23623
Date of Electronic Notification: 03/23/2021

This is a courtesy reminder that new correspondence is available for this application. If you have not done so already, please review the correspondence. The official date of notification of the outgoing correspondence will be indicated on the form PTOL-90 accompanying the correspondence.

An email notification regarding the correspondence was sent to the following email address(es) associated with your customer number:

hmckee@thepatentattorneys.com
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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
16/295,034	03/07/2019	Tatsumi Naganuma	SAJVP172US	1688

23623 7590 03/23/2021

AMIN, TUROCY & WATSON, LLP
200 Park Avenue
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EXAMINER	
LERNER, MARTIN	

ART UNIT	PAPER NUMBER
2657	

NOTIFICATION DATE	DELIVERY MODE
03/23/2021	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.

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Office Action Summary	**Application No.** 16/295,034	**Applicant(s)** Naganuma, Tatsumi	
	Examiner MARTIN LERNER	**Art Unit** 2657	**AIA (FITF) Status** Yes

-- 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 01 March 2021.

☐ 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 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 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

The present application, filed on or after March 16, 2013, is being examined under the first inventor to file provisions of the AIA.

Claim Rejections - 35 USC § 112

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.

Claims 1 to 7 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 claims contain 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 applications subject to pre-AIA 35 U.S.C. 112, the inventor, at the time the application was filed, had possession of the claimed invention.

Independent claims 1 and 6 to 7 set forth new limitations that include several instances of new matter. Mainly, Applicant's Specification, as originally filed, fails to support the new limitation of "an output controller configured to output the first output sentence as text data to a first output unit and to output the second output sentence as voice data to a second output unit." Generally, Applicant's Specification only describes

outputting sentences as voice data. The Specification, ¶[0069], does briefly describe an alternative embodiment where a first output sentence is output as text data. However, there is nothing that makes a distinction between a first output sentence as voice data and a second output sentence as text data. Applicant points to ¶[0049], ¶[0067], and ¶[0077], as providing support for any new limitations. However, these passages were reviewed, but do not support the claim language of outputting a first output sentence corresponding to a predetermined voice as text data and outputting a second output sentence not corresponding to a predetermined voice as voice data.

Additionally, these independent claims set forth a limitation of "to generate, when the voice is not determined to be the predetermined voice, a second output sentence in which at least one word selected among words included in the notification is not replaced with another word", which limitation is maintained to present issues of new matter. The Specification, ¶[0062], does describe an embodiment where a word in a second output sentence is not replaced when a voice is classified into a second voice V1B instead of a first voice V1A. However, this is not necessarily the same as generating "when the voice is not determined to be the predetermined voice". That is, a voice is still determined to be a predetermined voice V1B. Here, voice V1B is still a predetermined voice, *e.g.*, not a default voice, even if it is not voice V1A.

Claim Rejections - 35 USC § 103

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

> A patent for a claimed invention may not be obtained, notwithstanding that the claimed invention is not identically disclosed as set forth in section 102, if the differences between the claimed invention and the prior art are such that the claimed invention as a whole would have

> been obvious before the effective filing date of the claimed invention to a person having ordinary skill in the art to which the claimed invention pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1, 3, and 6 to 7 are rejected under 35 U.S.C. 103 as being unpatentable over *Tseretopoulous et al.* (U.S. Patent Publication 2019/0103127) in view of *Subramanian et al.* (U.S. Patent Publication 2011/0184721).

Concerning independent claims 1 and 6 to 7, *Tseretopoulous et al.* discloses a system, software, and computer implemented method for conversational interface personalization based on input context, comprising:

"a voice classifying unit configured to analyze a voice spoken by a user and acquired by a voice acquiring unit to determine whether the voice is a predetermined voice" – a received input can be analyzed to identify a particular input personality type ("a predetermined voice"); when the received input is associated with a voice input, auditory factors can be considered including a pitch of the voice, a length of the sounds, a loudness of the voice, and a timber of the voice ("to analyze a voice spoken by the user") (¶[0036]); received input is analyzed to identify an intent of the input and information on the personality of the input (¶[0038]: Figure 1); one or more operations can be performed to identify a particular personality of the received input; scores can related to a formality of the input, a politeness of the input, usage of particular regional phrases, an accent or particular phrasing associated with the input, a level of sarcasm within the input, and an emotional state associated with the input; personality input types can be associated with predetermined values or ranges of values for different input types that include 'scared', 'calm, inquisitive', 'calm, instructional', 'angry', and 'angry, unsure' ("determine whether a voice is a predetermined voice") (¶[0050] - ¶[0051]: Figure 1); digital assistant 103 may be any interactive or virtual intelligence

component or agent that can be interacted with by a user, which can be verbally through one or more input components including a microphone ("a voice acquiring unit") (¶[0063]: Figure 1); here, identifying a personality type of a received input to determine a particular personality input type is equivalent to "a voice classifying unit configured to analyze a voice spoken by a user . . . to determine whether the voice is a predetermined voice"; that is "a predetermined voice" can be identified from auditory factors of the voice input as representing an emotional state of the user as 'angry';

"an intention analyzing unit to detect intention information indicating what kind of information is wished to be acquired by the user" – a conversational input is analyzed to determine an intent (Abstract); a received input at conversational analysis system 102 is analyzed to identify an intent of the input (¶[0038]: Figure 1); conversational analysis system 102 can analyze the received input to determine an intent of the input, *e.g.*, a particular question, query, comment (¶[0040]: Figure 1); natural language processing (NLP) engine 208 includes an intent deciphering module 210 (¶[0067]: Figure 2A); NLP engine 208 determines an intent of the conversational input, where the intent can represent a question, query, or information associated with conversational input 205, and can be determined by natural language understanding (NLU) using intent deciphering module 210 (¶[0068]: Figure 2A);

"a notification-information acquiring unit configured to acquire notification information to be notified to the user based on the intention information" – a set of responsive content is determined and includes a set of initial tokens representing an initial response (Abstract); based on a determined intent ("based on the intention information"), conversational analysis system 102 can generate a corresponding

response or response content to be provided back to client device 180 ("notification information to be notified to the user") (¶[0040]: Figure 1); where the determined intent of the received input is a question, response analysis engine 120 may be used to derive a responsive answer to the question; the answer may be a particular value or query response (¶[0052]: Figure 1); NLP engine 208 provides its outputs of the determined intent to response analysis engine 225; response analysis engine 225 uses this information to determine a suitable response to conversational input 205 based on the intent; once the essence or general substance of the response is determined, response analysis engine 225 provides that information to NLG engine 228 (¶[0070] - ¶[0071]: Figure 2A); here, a response is equivalent to a "notification" and response information is "notification information"; that is, a user is being 'notified' of a response information;

"an output-content generating unit configured to generate, when the voice is determined to be the predetermined voice, a first output sentence in which at least one word selected among words included in the notification information is replaced with another word" – at least one token associated with a similar lexical personality score is replaced with a determined synonym token to generate a modified version of the response content that is then transmitted to a device in response to the input (Abstract); natural language generation engine (NLG) 124 generates a sentence ("a first output sentence") or detailed response to be provided via conversational interface 108 (¶[0052]: Figure 1); once an initial set of response content is available, lexical personality filter module 128 can be used to determine and apply the appropriate modification to the response content to be used to generate a personalized response; a personalized response can be generated by identifying one or more synonyms from

synonym repository 136 of the base words, phrases, and tokens, included in the initial response and replacing one or more of those base portions with synonyms having a matching or similar set of characteristics to those determined to be associated with received input using a personality-based response module 130 ("in which at least one word selected among words included in the notification information is replaced with another word"); one or more synonyms are identified for substitution based on their match associated with one or more predetermined lexical personality scores 142 ("when the voice is determined to be the predetermined voice") (¶[0055]: Figure 1); NLG engine 228 can replace at least one token from the initial token set with the at least one suitable synonym; only one of the initial tokens may be replaced or substituted with a synonym token in some instance, while in others multiple tokens or the entire set of tokens may be replaced (¶[0072]: Figure 2A); here, "the predetermined voice" corresponds to a predetermined lexical personality having a highest score, when a lexical personality score is determined by analyzing voice input including a pitch of the voice, a length of the sounds, a loudness of the voice, and a timber of the voice (¶[0036]);

"to generate, when the voice is not determined to be the predetermined voice, a second output sentence in which at least one word selected among words included in the notification information is not replaced with another word" – NLG engine 228 can replace at least one token from the initial token set with the at least one suitable synonym; one embodiment provides that only one of the initial tokens may be replaced or substituted with a synonym token while in others multiple tokens or the entire set of tokens may be replaced (¶[0073]: Figure 2); where the conversational input is a spoken

or verbal input, the voice of the speaker can also be analyzed to identify a particular accent, a mood detectable from the speech pattern, and other audible-related aspects (¶[0077]: Figure 3: Step 310); a determination is made to determine whether to adjust the identified persona response type (¶[0099]: Figure 5: Step 520); content may include persona-specific words or phrases including catch phrase or words commonly associated with the persona; those words or phrases may be synonyms of particular words, phrase, or tokens included in the response content, and can replace one or more tokens from the response content (¶[0100]: Figure 5: Step 525); here, if a different accent or mood is detected from a speech pattern, then this implies "when the voice is not determined to be the predetermined voice"; implicitly, a different set of words are replaced for a different persona and some of these words may not be replaced for a different persona, so that "at least one word selected among words included in the notification information is not replaced with another word";

"an output controller configured to output the first output sentence as text data to a first output unit and to output the second output sentence as voice data to a second output unit" – conversational interfaces may output responses in various formats including textual output and auditory outputs (¶[0003]); conversational interface 108 manages and conducts conversations and interactions via auditory or textual methods (¶[0048]: Figure 1); digital assistant 186 may work and interact via text or voice (¶[0063]: Figure 1).

Concerning independent claims 1 and 6 to 7, *Tseretopoulous et al.* generally discloses the concept of replacing words of a sentence according to a voice of a persona. Implicitly, if a persona is determined to be a first persona, then words in a

sentence are replaced to generate a first sentence, and if a persona is determined to a be a second persona, then words in a sentence are replaced to generate a second sentence. Generally, a first sentence would have a different word replacement as compared to a second sentence, so that there would be at least one word that is not replaced in a sentence for a second persona. *Tseretopoulous et al.* actually discloses an embodiment where only one of the initial tokens may be replaced or substituted with a synonym token while in others multiple tokens or the entire set of tokens may be replaced. (¶[0073]: Figure 2) Given that a number of words and specific words may not be replaced, or are replaced with different words, for a determined persona, it is logical that there would be at least one word that is not replaced for a sentence of a second persona. *Tseretopoulous et al.*, then, discloses the limitation of "to generate, when the voice is not determined to be the predetermined voice, a second output sentence in which at least one word selected among words included in the notification information is not replaced with another word." Literally, this limitation only requires that one word is not replaced for a second persona as compared to words replaced for a first persona. Additionally, *Tseretopoulous et al.* discloses that a conversational interface provides output of text or auditory voice. The only element not clearly disclosed by *Tseretopoulous et al.* is "an output controller configured to output the first output sentence as text data to a first output unit and to output the second output sentence as voice data to a second output unit." Still, *Tseretopoulous et al.* discloses both text and auditory output, so that one skilled in the art could understand that text output and auditory output could be applied to different sentences.

Concerning independent claims 1 and 6 to 7, *Subramanian et al.* teaches a similar idea of communicating across voice and text channels with emotion preservation. (Abstract) Emotion markup component 210 may specify particular words, phrases, sentences, and passages in a communication for emotion analysis. (¶[0037]: Figure 2) A speaker profile specifies a speaker's dialect and geographic region, and also personality attributes that define the uniqueness of the speaker's communications. These attributes are used for modifying the dictionary definitions for words and speech patterns that the speaker uses to convey emotion. (¶[0048]: Figure 2) Voice analyzer 232 attempts to identify a speaker by comparing voice patterns in a conversation with voice patterns from identified speakers. If voice analyzer 232 recognizes a speaker's voice from its voice patterns, context analyzer 230 is notified which then selects a context profile for the speaker from profile database 212. (¶[0050]: Figure 2) Text and emotion translation architecture 272 translates text into a different dialect than the original communication, and can convert emotion data expressed in one culture to another culture using a set of emotion definitions in emotion to emotion dictionary 255. The culture adjusted emotion metadata is then used to modify the translated text with emotion words and text patterns that is common to the culture of the language. The translated emotion metadata might be used directly in textual communication of emails and instant messages. If voice is desired, the translated emotion metadata is fed into speech and emotion synthesis architecture 270 which modulates the text into audible word sounds and adjusts the delivery with emotion using the translated emotion metadata. (¶[0077]: Figure 5) Text translator 252 can text mine emotion-text/phrase dictionary 220 for words and phrases that convey the emotion, but for the culture of the

listener. (¶[0079]: Figure 5) The process continues by checking if the text is marked for emotion adjustment, and the emotion metadata is translated to the user's culture using definitions in emotion to emotion dictionary. An emotion to word/phrase dictionary is mined for words that convey the emotion consistent with the culture of the user. A check is made to determine whether to synthesize the text into audio. If not, the text with translated emotion is output. Otherwise, the text is modified, and the modulated voice is adjusted and synthesized voice with emotion is output. (¶[0102]: Figure 8B: Steps 832 to 838) *Subramanian et al.*, then, is similar to *Tseretopoulous et al.* as directed to analyzing a voice to classify it into an emotion, and then modifying words in sentences according to definitions in an emotion to emotion dictionary that reflect a culture of an identified voice. Additionally, *Subramanian et al.* teaches that a decision can be made to output a communication with modified words as text or as synthesized voice in Step 826 of Figure 8B. *Subramanian et al.*, then, teaches "an output controller configured to output the first output sentence as text data to a first output unit and the second output sentence as voice data to a second output unit" because any given sentence can be output as text or synthesized voice. An objective is to communicate across channels while preserving emotional content of a communication. (¶[0005]) It would have been obvious to one having ordinary skill in the art to output a first sentence as text data and to output a second sentence as voice data as taught by *Subramanian et al.* to perform synonym replacement of words based on a detected accent or mood of *Tseretopoulous et al.*

Concerning claim 3, *Tseretopoulous et al.* discloses "the output-content generation unit is further configured to read relationship information including information of a first word that is a predetermined word and a second word that is associated with the first word, and to replace a word included in the notification information with the second word when the word included in the notification information matches with the first word" because one or more synonyms of tokens included in the initial response are replaced with synonyms having a matching or similar set of characteristics as those determined to be associated with received input using personality-based response module 130. Each of the base words 138 may be associated with a plurality of synonyms 140, where each synonym 140 is associated with a set of one or more predefined lexical personality scores 142. These scores 142 are compared to the scores associated with the received input, and one or more of synonyms 140 is identified as appropriate for substitution based on their match. (¶[0055]: Figure 1) That is, "relationship information" is an association between words that are synonyms, so that a base word 138 and a synonym 140 for a base word are "information of a first word that is a predetermined word and a second word that is associated with the first word". Then synonym replacement based on score to determine a match is "to replace a word included in the notification information with the second word to generate the first output sentence when the word included in the notification information matches with the first word."

Claims 2 and 4 are rejected under 35 U.S.C. 103 as being unpatentable over *Tseretopoulous et al.* (U.S. Patent Publication 2019/0103127) in view of *Subramanian*

et al. (U.S. Patent Publication 2011/0184721) as applied to claim 1 above, and further in view of *Aoyama et al.* (U.S. Patent Publication 2017/0337921).

Concerning claim 2, *Tseretopoulous et al.* discloses "the notification-information acquiring unit is further configured to acquire, as the notification information, content information to be notified to the user" and "the output-content generating unit is further configured to select the at least one word among the words included into the notification information based on a word included in the content information". That is, *Tseretopoulous et al.* broadly discloses content information that may include a response to a query and replacing at least one word in this response to the query that includes content information. However, *Tseretopoulous et al.* does not disclose "type information indicating a type of the content information" and at least one word to be replaced with the other word based "the type information that is associated with the content information". Here, *Tseretopoulous et al.* does not provide "type information".

Concerning claim 2, *Aoyama et al.* teaches controlling output of a response to speech of a user in accordance with acquired information regarding a speech state of the user. (Abstract) User state estimation unit 15 is configured to estimate various states of the user on the basis of various types of acquired information including the acquired sound input. User state estimation unit 15 calculates a 'degree of composure' which is a parameter for determining a psychological state of the user, *e.g.*, whether the user is calm on the basis of the analysis result of the acquired sound input. (¶[0102]: Figure 2) Response parameter generation unit 16 is configured to generate a response parameter on the basis of the information regarding the detected user state and speech style of the user. (¶[0115]: Figure 2) Then response generation unit 17 replaces the

response component in the generated form with the acquired name corresponding to the response component. Response generation unit 17 replaces a response component indicating the personal name "Taro Yamada" with the name "Mr. Yamada" in accordance with the speech style of the user and generates the response content, "You have a meeting with Mr. Yamada in room A." Additionally, response generation unit 17 may replace the information indicating a time "13:00" with an expression indicating a time of "1 pm". (¶[0138] - ¶[0140]: Figure 7) Here, *Aoyama et al.* teaches "type information" at least for a name of a person or a time expression, where a name of a person "Taro Yamada" can be replaced with "Mr. Yamada" or "Taro" and time "13:00" can be replaced with "1 pm" based on a 'speech style of the user'. (¶[0138] - ¶[0140]: Figure 7) Figure 7 illustrates a data structure of 'personal name data' and 'date-time expression pattern', which are "type information indicating a type of the content information" for "content information" of "You have a meeting with Mr. Yamada tomorrow at 1 pm in room A" or "You have a meeting with Taro at 13:00 10/1/2014." (Compare Specification, ¶[0023] and ¶[0030]: Figures 4 to 5, which almost identically describes requesting schedule information for a meeting at a certain date and time with Mr. Yamada.) An objective is to control a response to sound input in a preferred mode corresponding to a change in a situation of a user to make a user feel more comfortable. (¶[0004] - ¶[0007]) It would have been obvious to one having ordinary skill in the art to replace words in an output sentence based on type information as taught by *Aoyama et al.* in a conversational interface that is personalized based on input context of *Tseretopoulous et al.* for a purpose of making a user feel more comfortable with a response.

Concerning claim 4, *Tseretopoulous et al.* discloses "the output-content generating unit is further configured to select the at least one word among the words included in the notification information" when words are replaced by their synonyms. However, *Tseretopoulous et al.* omits "the relationship further includes information of type information indicating a type of the first word" and selecting a word as a word to be replaced "when the type information of the word included in the notification information matches with the type information of the first word and the word included in the notification information matches with the first word". Still, *Aoyama et al.* teaches "type information" at least for a name of a person or a time expression, where a name of a person "Taro Yamada" can be replaced with "Mr. Yamada" or "Taro" and time "13:00" can be replaced with "1 pm" based on a 'speech style of the user'. (¶[0138] - ¶[0140]: Figure 7) Figure 7 illustrates a data structure of 'personal name data' and 'date-time expression pattern', which are "type information" for information content of "You have a meeting with Mr. Yamada tomorrow at 1 pm in room A" or "You have a meeting with Taro at 13:00 10/1/2014." Here, *Aoyama et al.* teaches "relationship information" that is not necessarily an association between synonyms, but is a data structure for replacing names and times based on "type information" of 'personal name data' and 'date-time expression pattern'. (¶[0121] - ¶[0126]: Figure 7) That is, *Aoyama et al.* teaches that notification information of a person "Taro Yamada" matches with a notification of a name by response generation unit 17, and replaces "Taro Yamada" with "Mr. Yamada" or "Taro" based on "type information" of 'personal name data'.

Claim 5 is rejected under 35 U.S.C. 103 as being unpatentable over *Tseretopoulous et al.* (U.S. Patent Publication 2019/0103127) in view of *Subramanian et al.* (U.S. Patent Publication 2011/0184721) as applied to claim 1 above, and further in view of *Schuster et al.* (U.S. Patent Publication 2017/0366662).

Tseretopoulous et al. does not expressly disclose "the voice classifying unit is further configured to determine the voice to be the predetermined voice when the voice spoken by the user is a whisper", but discloses something close to it. Specifically, *Tseretopoulous et al.* discloses received input can be a voice input, and auditory factors can be considered including a loudness of the voice. (¶[0036]) Even if this limitation of "to determine the voice to be the predetermined voice when the voice spoken by the user is a whisper" is omitted by *Tseretopoulous et al.*, it is taught by *Schuster et al.* Generally, *Schuster et al.* teaches privacy mode detection and response over a voice activated interface to determine based on user input whether the user desires the device to enter a private mode. While in the private mode, the device may alter the manner in which it communicates to the user. (Abstract) An utterance is received from a user, and it is determined whether the utterance is a whispered utterance. Communications from the device are altered to the user if the user has whispered the utterance. Normally audible communications from the device are instead played at reduced volume or are displayed and not audibly played at all in the altered condition. (¶[0008]) A signal received at a microphone is analyzed to detect a whispered microphone input, where 'whisper' or 'whispered' refer to unvoiced or substantially unvoiced speech and hushed speech. Cepstral analysis may be used to detect

whispered input. (¶[0018]) This mode change alters the way the device interacts with the user. The device may present the information visually rather than audibly, or the device can synthesize whispered speech feedback. (¶[0021] - ¶[0022]) An objective is to provide a private communication mode enabling the user to interact with the device in a private manner, to avoid disturbing other people, to keep their interaction confidential, or simply to avoid social awkwardness associated with communicating with an electronic device. (¶[0017]) It would have been obvious to one having ordinary skill in the art to classify a voice to be a predetermined voice when the voice spoken by the user is a whisper as taught by *Schuster et al.* to provide conversational personalization of *Tseretopoulous et al.* for a purpose of avoiding disturbing other people or to keep an interaction confidential.

Response to Arguments

Applicant's arguments filed 01 March 2021 have been considered but are moot in view of new grounds of rejection as necessitated by amendment.

Applicant's amendments overcome the objections to the title and to the Specification.

Applicant amends the claims and presents arguments directed against the prior rejection of the independent claims as being obvious under 35 U.S.C. §103 over *Tseretopoulous et al.* (U.S. Patent Publication 2019/0103127) in view of *Aoyama et al.* (U.S. Patent Publication 2017/0337921). Generally, Applicant amends the independent claims to set forth new limitations directed to "when the voice is determined to be the predetermined voice . . . to generate, when the voice is not determined to be the

predetermined voice, a second output sentence in which at least one word is selected among words included in the notification information is not replaced with another word" and "an output controller configured to output the first output sentence as text data to a first output unit and to output the second output sentence as voice data to a second output unit." Mainly, Applicant's argument is that *Tseretopoulous et al.* and *Aoyama et al.* do not disclose or teach these new limitations.

Applicant's amendments necessitate new grounds of rejection. Firstly, these amendments raise issues of new matter under 35 U.S.C. §112(a). Applicant alleges that support for these amendments is provided at ¶[0049], ¶[0067], and ¶[0077] of the Specification. Here, these passages do not actually correspond to the paragraphs of the Specification, which actually concludes with ¶[0075]. So, Applicant could be referring to the corresponding paragraphs of the published application, U.S. Patent Publication 2019/0279631 (*Naganuma*). Still, even this published application does not appear to support the claimed subject matter.

Specifically, independent claims 1 and 6 to 7 are amended to set forth "an output controller configured to output the first output sentence as text data to a first output unit and to output the second output sentence as voice data to a second output unit." It is clear that this embodiment is not contemplated by the originally-filed Specification. At best, ¶[0069] of the Specification (or, ¶[0077] of the corresponding published application) describes an embodiment where a first output sentence can be output as text and not as voice. However, Applicant's Specification, as originally filed, does not contemplate that a first sentence is output as text data and a second sentence is output as voice data. Instead, Applicant's Specification, ¶[0069], only provides that a first

sentence is output as text data instead of voice, but saying nothing about a second sentence. Applicant's claim language implies that an output mode is personalized to a particular voice, so that if a voice is determined to be a predetermined voice, then a first sentence is output as text, but if a voice is not determined to be the predetermined voice, then a second sentence is output as voice. This is not reasonably described by the embodiments of ¶[0069] of the Specification, and is new matter under 35 U.S.C. §112(a).

Additionally, independent claims 1 and 6 to 7 are amended to set forth a new limitation of "to generate, when the voice is not determined to be the predetermined voice, a second output sentence in which at least one word selected among words included in the notification information is not replaced with another word", which may similarly raise issues of new matter due to the limitation of "when the voice is not determined to be the predetermined voice". The Specification, ¶[0062] (or, ¶[0070] of the corresponding published application), does describe an embodiment where a word is not replaced in a second output sentence. Still, it is not actually disclosed that outputting a second sentence without replacing a word is because "the voice is not determined to be the predetermined voice". Instead, this embodiment is actually classifying voice V1 into a second voice V1B, which is still a "predetermined voice". Even if voice V1 is classified into a second voice V1B instead of a first voice V1A, second voice V1B is a predetermined voice, *i.e.*, the predetermined voice is second voice V1B. This may appear to be a minor semantic difference, but the claim language implies some default scenario when a voice is not classified into any voice, so that no

words are replaced, and this is not supported by the originally-filed Specification. This limitation, then, can be construed as new matter.

New grounds of rejection as set forth as directed to independent claims 1 and 6 to 7 as being obvious under 35 U.S.C. §103 over *Tseretopoulous et al.* (U.S. Patent Publication 2019/0103127) in view of *Subramanian et al.* (U.S. Patent Publication 2011/0184721). Here, *Subramanian et al.* is being substituted in the rejection of the independent claims for *Aoyama et al.* The rejection of some of the dependent claims continues to rely upon *Aoyama et al.* and *Schuster et al.* Generally, the new limitations necessitate the new grounds of rejection.

Tseretopoulous et al. can be construed to disclose the new limitations of "an output-content generating unit configured to generate, when the voice is determined to be the predetermined voice, a first output sentence in which at least one word selected among words included in the notification information is replaced with another word, to generate, when the voice is not determined to be the predetermined voice, a second output sentence in which at least one word selected among words included in the notification information is not replaced with another word". Generally, *Tseretopoulous et al.* is directed to replacing words to generate sentences based on analysis of voice input. If a certain personality input type is detected based on analysis of voice input, then words are replaced in an output sentence to reflect that personality type. *Tseretopoulous et al.* discloses that there are a plurality of personality input types, *e.g.*, scared, calm, angry, and words of a sentence are replaced accordingly. Implicitly, a voice of a first personality input type can be construed to correspond to "the predetermined voice" and a voice of a second personality input type can be construed

to correspond to "not determined to be the predetermined voice". This is equivalent to the embodiment described in the Specification. Moreover, replacement of words will be different for the first personality input type and the second personality input type of *Tseretopoulous et al*. Specifically, *Tseretopoulous et al*., ¶[0055], ¶[0057], ¶[0073], and ¶[0081], discloses 'replacing one or more of those base portions with synonyms', 'replacing one or more based words or tokens', 'replace at least one token from the initial token set', and 'at least one token from a set of initial token can be replaced'. Broadly, "at least one word selected among words" in a sentence is not replaced by *Tseretopoulous et al*. That is, it is generally the case that different word replacements apply to different personality input types, and not every word is replaced the same way for a given personality input type. *Tseretopoulous et al*., then, reasonably discloses these limitations of the independent claims in accordance with the embodiments of the Specification.

Moreover, *Tseretopoulous et al*. and *Subramanian et al*. render obvious the limitation of "an output controller configured to output the first output sentence as text data to a first output unit and to output the second output sentence as voice data to a second output unit." *Tseretopoulous et al*., ¶[0003], ¶[0048], and ¶[0063], actually states that a conversational interface can output either text or auditory voice. So, *Tseretopoulous et al*. discloses "an output controller configured to output . . . text data to a first output unit and to output . . . as voice data to a second output unit." Moreover, *Subramanian et al*., ¶[0102]: Figure 8B: Step 826, teaches that a check is made whether to synthesize the text into audio. *Subramanian et al*., then, provides an output controller that can differentially output some sentences as text and some sentences as

synthesized speech. Generally, *Subramanian et al.* is directed to a similar problem as *Tseretopoulous et al.*, to analyze a voice of a user, and to modify words in text to reflect emotional characteristics determined from the analysis of the voice. *Subramanian et al.* does this with an emotion-text/phrase dictionary 220 that conveys emotion in words of the culture corresponding to the speaker's voice. *Tseretopoulous et al.* and *Subramanian et al.*, then, render obvious all of the limitations of the independent claims.

Applicant's amendments necessitate these new grounds of rejection. Accordingly, this rejection is properly FINAL.

Conclusion

The prior art made of record and not relied upon is considered pertinent to Applicant's disclosure.

Naganuma is a corresponding patent publication.

Dowlatkhah, Barton et al., Aoyagi et al., Teague et al., Ishii et al., Christian et al., and Endo et al. disclose related prior art.

Applicant's amendment necessitated the new grounds 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.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to MARTIN LERNER whose telephone number is (571) 272-7608. The examiner can normally be reached on Monday-Thursday 8:30 AM-6:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Daniel Washburn can be reached on (571) 272-5551. 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 https://ppair-my.uspto.gov/pair/PrivatePair. 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.

/MARTIN LERNER/
Primary Examiner
Art Unit 2657
March 18, 2021

Notice of References Cited	Application/Control No. 16/295,034	Applicant(s)/Patent Under Reexamination Naganuma, Tatsumi	
	Examiner MARTIN LERNER	Art Unit 2657	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-20110184721-A1	07-2011	Subramanian; Balan	G10L19/0018	704/4
*	B	US-20190279631-A1	09-2019	Naganuma; Tatsumi	G10L15/22	---
*	C	US-10341825-B2	07-2019	Dowlatkhah; Sangar	G10L13/08	---
*	D	US-10706846-B1	07-2020	Barton; William Folwell	G10L15/1815	---
*	E	US-20010041977-A1	11-2001	Aoyagi, Seiichi	G10L15/22	704/246
*	F	US-20090234639-A1	09-2009	Teague; Paul	G06F40/56	704/270.1
*	G	US-20150331665-A1	11-2015	ISHII; YASUNORI	G10L15/30	715/728
*	H	US-20170256252-A1	09-2017	Christian; Jessica M.	G10L13/027	---
*	I	US-20170364310-A1	12-2017	ENDO; MITSURU	G10L17/26	---
	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
	16/295,034	Naganuma, Tatsumi
	Examiner	Art Unit
	MARTIN LERNER	2657

CPC - Searched*		
Symbol	Date	Examiner
G06F 40/237, 40/247, 40/279, 40/284	11/24/2020	ML
G10L 13/033, 15/1822, 15/22, 25/63, 2015/226, 2015/228	11/24/2020	ML

CPC Combination Sets - Searched*		
Symbol	Date	Examiner

US Classification - Searched*			
Class	Subclass	Date	Examiner
704	1, 9, 10, 231, 246, 239, 270, 275	11/24/2020	ML

* 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	11/24/2020	ML
EAST Search Attached	03/18/2021	ML

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

	/MARTIN LERNER/ Primary Examiner, Art Unit 2657

Bibliographic Data

Application No: 16/295,034

Foreign Priority claimed: ◉ Yes ○ No

35 USC 119 (a-d) conditions met: ☑ Yes ☐ No ☐ Met After Allowance

Verified and Acknowledged: /MARTIN LERNER/ Examiner's Signature | Initials

Title: WORD REPLACEMENT IN OUTPUT GENERATION FOR DETECTED INTENT BY VOICE CLASSIFICATION

FILING or 371(c) DATE	CLASS	GROUP ART UNIT	ATTORNEY DOCKET NO.
03/07/2019	704	2657	SAJVP172US
RULE			

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CONTINUING DATA

FOREIGN APPLICATIONS

JAPAN JP2018-044598 03/12/2018

IF REQUIRED, FOREIGN LICENSE GRANTED**

03/21/2019

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FILING FEE RECEIVED

$1,720

EAST Search History

EAST Search History (Prior Art)

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
L1	148	output near2 sentence near2 text and G10L$.cpc.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2021/03/15 10:33
L2	124	output near2 sentence near2 text and G10L$.cpc. and @ad<"20180312"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2021/03/15 10:33
L3	4	output near2 sentence near2 text same preference and G10L$.cpc. and @ad<"20180312"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2021/03/15 10:35
L4	15	output near2 sentence near2 text and profile and G10L$.cpc. and @ad<"20180312"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2021/03/15 10:48

3/15/2021 11:47:01 AM
C:\Users\mlerner\Documents\EAST\Workspaces\Default EAST Workspace 1600x1200.wsp

EAST Search History

EAST Search History (Prior Art)

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
L1	9,782	output with text with (audio or voice or speech) and G10L$.cpc. and @ad<"20180312"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2021/03/09 17:38
L2	101	(outputting or output) with text with (audio or voice or speech) same2 personality and G10L$.cpc. and @ad<"20180312"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2021/03/09 17:38
L3	400	(outputting or output) with text with (audio or voice or speech) same (profile or personality) and G10L$.cpc. and @ad<"20180312"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2021/03/09 17:39
L4	603	(outputting or output) with text with (audio or voice or speech) same (profile or personality or preference) and G10L$.cpc. and @ad<"20180312"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2021/03/09 17:39
L5	0	(outputting or output) with text with (audio or voice or speech) same (profile and personality and preference) and G10L$.cpc. and @ad<"20180312"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2021/03/09 17:39
L6	10	(outputting or output) with text with (audio or voice or speech) same2 (profile and personality and preference) and G10L$.cpc. and @ad<"20180312"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2021/03/09 17:40
L7	17	(outputting or output) with text with (audio or voice or speech) same2 (personality and preference) and G10L$.cpc. and @ad<"20180312"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2021/03/09 17:40
L8	347	(outputting or output) with text with (audio or voice or speech) same2 (profile and preference) and G10L$.cpc. and @ad<"20180312"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2021/03/09 17:45
L9	164	(outputting or output) same text same (audio or voice or speech) same	US-PGPUB; USPAT; USOCR;	OR	ON	2021/03/09 17:45

		(profile and preference) and G10L$.cpc. and @ad<"20180312"	FPRS; EPO; JPO; DERWENT; IBM_TDB			
L10	105	((outputting or output) and text and (audio or voice or speech) and (profile or personality or preference)).ab. and G10L$.cpc. and @ad<"20180312"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2021/03/09 18:06
L11	14	((outputting or output) near4 text near4 (audio or voice or speech) and (profile or personality or preference)).ab. and G10L$.cpc. and @ad<"20180312"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2021/03/09 18:07
L12	1	("20110184721").PN.	US-PGPUB; USPAT; USOCR	OR	OFF	2021/03/09 18:10
L13	215	("2011/0184721").URPN.	USPAT	OR	ON	2021/03/09 18:11
L14	133	moore.in. and G10L$.cpc. and text	USPAT	OR	ON	2021/03/09 18:11
L15	197	(outputting or output) with text with (audio or voice or speech) same (profile or personality or preference) and G10L$.cpc. and @ad<"20180312" and intent	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2021/03/09 18:16

3/9/2021 6:33:54 PM

CERTIFICATE OF TRANSMISSION

I hereby certify that this correspondence (along with any paper referred to as being attached or enclosed) is being submitted *via* the USPTO EFS Filing System on the date shown below to Mail Stop Amendment, Commissioner for Patents, P.O. Box 1450, Alexandria, Virginia 22313-1450.

Date: March 1, 2021 /Bailey Zugan Rayl/
Bailey Zugan Rayl

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re patent application of:			
Inventor(s):	Tatsumi Naganuma	Examiner:	Martin Lerner
Serial No:	16/295,034	Art Unit:	2657
Filing Date:	March 7, 2019	Conf. No:	1688

Title: WORD REPLACEMENT IN OUTPUT GENERATION FOR DETECTED INTENT BY VOICE CLASSIFICATION (as amended)

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

REPLY TO OFFICE ACTION

Examiner Lerner:

This paper is filed in response to the Office Action dated November 30, 2020. Kindly enter the following amendments.

AMENDMENTS TO THE SPECIFICATION

In the Specification

Please replace the title that appears at page 1, lines 1-2 with the following amended title:

~~OUTPUT-CONTENT CONTROL DEVICE, OUTPUT-CONTENT CONTROL METHOD, AND NON-TRANSITORY STORAGE MEDIUM~~ WORD REPLACEMENT IN OUTPUT GENERATION FOR DETECTED INTENT BY VOICE CLASSIFICATION

Please replace paragraph [0025] with the following amended paragraph:

[0025] Having acquired the attribute type information E0, the attribute-information acquiring unit 50 sets the attribute content information E1 for each of the attribute type information E0. The attribute-information acquiring unit 50 extracts, for example, the attribute content information E1 from the text data generated by the voice analyzing unit 32. For example, when a keyword "today" is included in the text data generated from the voice V1, the attribute content information E1 corresponding to the attribute type information E0 of a date is set to today's date ("March 20, 2020" in the example of FIG. 4) ~~("March 20, 2020 in the example of FIG. 4)~~. Furthermore, the attribute-information acquiring unit 50 can set the attribute content information E1 corresponding to the attribute type information E0 in advance. In this case, when the intention information I is a schedule, for example, setting data indicating that the attribute content information E1 is a content determined in advance is stored in the storage 20. That is, for example, it is stored in advance that the attribute content information E1 corresponding to the attribute type information E0 of a person is "Mr. Yamada" in the storage 20. By this, the attribute-information acquiring unit 50 can set the attribute content information E1 of a person even when a keyword representing a person is not included in the text data. Moreover, the attribute-information acquiring unit 50 can set the attribute content information E1 by communicating with an external server by the communication unit 18.

For example, when one of the attribute type information E0 is a location, the intention analyzing unit 34 can acquire a current position using a global positioning system (GPS) by communication, and can set it as the attribute content information E1. Moreover, the output-content control device 1 can output a notification to prompt the user H to provide information of the attribute content information E1. In this case, for example, the attribute-information acquiring unit 50 selects the attribute type information E0 for which acquisition of the attribute content information E1 is required, and causes the output-content generating unit 40 to generate a sentence to request the user H to give the attribute content information E1 for the output-content generating unit 40. For example, in the case of the attribute type information E0 of a date, the output-content generating unit 40 generates a sentence "Please provide a date for which the schedule is wished to be notified", or the like. Subsequently, the output controller 44 causes the voice output unit 12 to output this sentence. Thus, the user H speaks, for example, a voice indicating that the date is today, and the voice is analyzed by the voice analyzing unit 32, and the attribute-information acquiring unit 50 acquires information indicating that one of the attribute content information E1 is “today”.

Please replace paragraph [0072] with the following amended paragraph:

[0072] The output-content control device 1A acquires the voice V1 that has been detected by the voice detecting unit 10 through information communication via the communication unit 15A and the communication unit 18A. The output-content control device 1A then generates the output sentence by performing similar processing as the first embodiment, and ~~output~~ outputs the output sentence to the response device 2A. The response device 2A converts the output sentence into the voice data by the voice output unit 12 to output as the voice V2. Note that the output-content control device 1A can generate the output sentence and transmit to the response device 2A. In this case, the voice output unit 12 outputs the acquired voice data as the voice V2. As described, the information output system 100 includes the output-content control device 1A, the voice detecting unit 10 that detects the voice V1 spoken by the user H, and the voice output unit 12 that outputs the output sentence generated by the output-content generating unit 40 as the voice V2. As described above, the output-content control device 1A produces effects similar to those of the first embodiment even when the response device 2A is a separate unit. That is, it can be said that the output-content control device 1 according to the first embodiment is integrated with the response device 2A and, in other words, can also be regarded as an information output system.

AMENDMENTS 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) An output-content control device comprising:

a voice classifying unit configured to analyze a voice spoken by a user and acquired by a voice acquiring unit to determine whether the voice is a predetermined voice;

an intention analyzing unit configured to analyze the voice acquired by the voice acquiring unit to detect intention information indicating what kind of information is wished to be acquired by the user;

a notification-information acquiring unit configured to acquire notification information to be notified to the user based on the intention information; [[and]]

an output-content generating unit configured to ~~generate an output sentence as sentence data to be output to the user based on the notification information, wherein~~

~~the output-content generating unit is further configured to~~ generate, when the voice is determined to be the predetermined voice, [[the]] a first output sentence in which at least one word selected among words included in the notification information is replaced with another word ~~when the voice is determined to be the predetermined voice~~, to generate, when the voice is not determined to be the predetermined voice, a second output sentence in which at least one word selected among words included in the notification information is not replaced with another word; and

an output controller configured to output the first output sentence as text data to a first output unit and to output the second output sentence as voice data to a second output unit.

2. (Currently Amended) The output-content control device according to claim 1, wherein

the notification-information acquiring unit is further configured to acquire, as the notification information, content information to be notified to the user and type information indicating a type of the content information, and

the output-content generating unit is further configured to select the at least one word among the words included in the notification information ~~to be replaced with the other word~~ based on a word included in the content information and the type information that is associated with the content information.

3. (Currently Amended) The output-content control device according to claim 2, wherein

the output-content generating unit is further configured to read relationship information including information of a first word that is a predetermined word and a second word that is associated with the first word, and to replace a word included in the notification information with the second word to generate the first output sentence when the word included in the notification information matches with the first word.

4. (Currently Amended) The output-content control device according to claim 3, wherein

the relationship information further includes information of type information indicating a type of the first word, and

the output-content generating unit is further configured to select the at least one word among the words included in the notification information ~~a word included in the notification information as a word to be replaced with another word~~ when the type information of the word included in the notification information matches with the type information of the first word and the word included in the notification information matches with the first word.

5. (Original) The output-content control device according to claim 1, wherein

the voice classifying unit is further configured to determine the voice to be the predetermined voice when the voice spoken by the user is a whisper.

6. (Currently Amended) An output-content control method comprising:

analyzing an acquired voice spoken by a user to determine whether the voice is a predetermined voice;

analyzing the acquired voice to detect intention information indicating what kind of information is wished to be acquired by the user;

acquiring notification information to be notified to the user based on the intention information; [[and]]

generating, when the voice is determined to be the predetermined voice, ~~an output sentence as sentence data to be output to the user based on the notification information, wherein~~

~~the generating further includes generating the output~~ a first sentence in which at least one word selected among words included in the notification information is replaced with another word ~~when the voice is determined to be the predetermined voice~~;

generating, when the voice is not determined to be the predetermined voice, a second output sentence in which at least one word selected among words included in the notification information is not replaced with another word; and

outputting the first output sentence as text data to a first output unit and outputting the second output sentence as voice data to a second output unit.

7. (Currently Amended) A non-transitory storage medium that stores an output-content control program that causes a computer to execute:

analyzing an acquired voice spoken by a user to determine whether the voice is a predetermined voice;

analyzing the acquired voice to detect intention information indicating what kind of information is wished to be acquired by the user;

acquiring notification information to be notified to the user based on the intention information; and

generating, when the voice is determined to be the predetermined voice, ~~an output sentence as sentence data to be output to the user based on the notification information, wherein~~

~~the generating further includes generating the output~~ a first sentence in which at least one word selected among words included in the notification information is replaced with another word ~~when the voice is determined to be the predetermined voice~~;

generating, when the voice is not determined to be the predetermined voice, a second output sentence in which at least one word selected among words included in the notification information is not replaced with another word; and

outputting the first output sentence as text data to a first output unit and outputting the second output sentence as voice data to a second output units.

REMARKS

Claims 1-7 are pending in the subject application upon entry of the amendments. A listing of the claims can be found on pages 5-8 of this Reply. An amendment to the specification is presented on pages 2-4 of this response. Favorable reconsideration is respectfully requested in view of the amendments and following comments.

The Amendments

Claims 1-4 and 6-9 are amended to refine claim elements and to disclaim the cited documents. Support for the amendments can be located, for example, in Fig. 7, and at paragraphs [0049], [0067], and [0077] of the specification as filed. No new matter is added with such amendments.

The First Obviousness Rejection

Claims 1-4 and 6-7 stand rejected under 35 U.S.C. § 103 in view of Tseretopoulous et al. (US 2019/0103127) and Aoyama et al. (US 2017/0337921). Withdrawal of this rejection is requested for at least the following reason. The combination of Tseretopoulous et al. and Aoyama et al. failed to teach or suggest each and every element recited in the subject claims.

Independent claims 1, 6, and 7 recite similar elements, namely: "generate, when the voice is determined to be the predetermined voice, a first output sentence in which at least one word selected among words included in the notification information is replaced with another word, to generate, when the voice is not determined to be the predetermined voice, a second output sentence in which at least one word selected among words included in the notification information is not replaced with another word; and an output controller configured to output the first output sentence as text data to a first output unit and to output the second output sentence as voice data to a second output unit," as recited in independent claim 1, and similarly recited in independent claims 6 and 7. Tseretopoulous et al. and Aoyama et al. fail to teach or suggest at least these elements as recited in the subject claims.

Tseretopoulous et al. discloses systems, software, and computer implemented methods for personalizing interactions within a conversational interface based on an

input context. One example system performs operations including receiving a conversational input received via a conversational interface. The conversational input is analyzed to determine an intent and lexical personality score based on the input's characteristics. A set of responsive content is determined and includes a set of initial tokens representing an initial response. A set of synonym tokens associated with at least some of the initial tokens are identified, and at least one synonym token associated with a similar lexical personality score to the input is determined. At least one of the initial tokens are replaced with the determined synonym token to generate a modified version of the set of response content. The modified version of the response is then transmitted to a device in response to the input. See e.g., Abstract.

Aoyama et al. discloses an information processing device to control response to a sound input in a preferred mode corresponding to a change in a situation or a user, the information processing device including: a control unit configured to control output of a response to speech of a user in accordance with acquired information regarding a speech state of the user. See e.g., Abstract.

Neither Tseretopoulous et al. nor Aoyama et al. disclose, teach, or suggest: generate, when the voice is determined to be the predetermined voice, a first output sentence in which at least one word selected among words included in the notification information is replaced with another word, to generate, when the voice is not determined to be the predetermined voice, a second output sentence in which at least one word selected among words included in the notification information is not replaced with another word; and an output controller configured to output the first output sentence as text data to a first output unit and to output the second output sentence as voice data to a second output unit, as recited in independent claim 1, and similarly recited in independent claims 6 and 7.

Accordingly, in view of at least the foregoing it is evident that independent claims 1, 6, and 7 patentably distinguish over the combination of Tseretopoulous et al. and Aoyama et al. as the purported combination of documents fails to disclose, teach, or suggest all elements recited in the independent claims (and claims that depend there from). Accordingly, withdrawal of this rejection is respectfully requested.

The Second Obviousness Rejection

Claim 5 stands rejected under 35 U.S.C. § 103 in view of Tseretopoulous et al., Aoyama et al., and Schuster et al. (US 2017/0366662). This rejection should be withdrawn for at least the following reason. Claim 5 depends from independent claim 1 and the Schuster et al. does not make up for the aforementioned deficiencies with regard to the combination of Tseretopoulous et al. and Aoyama et al. in the context of independent claim 1. Accordingly, withdrawal of this rejection is requested.

In the event any fees are due in connection with this document, the Commissioner is authorized to charge those fees to Deposit Account No. 50-1063 [SAJVP172US].

Should the Examiner believe a telephone interview would be helpful to expedite favorable prosecution, the Examiner is invited to contact inventor's undersigned representative at the telephone number below.

Respectfully submitted,

AMIN, TUROCY & WATSON, LLP

/Greg Turocy/

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Electronic Acknowledgement Receipt	
EFS ID:	42051447
Application Number:	16295034
International Application Number:	
Confirmation Number:	1688
Title of Invention:	OUTPUT-CONTENT CONTROL DEVICE, OUTPUT-CONTENT CONTROL METHOD, AND NON-TRANSITORY STORAGE MEDIUM
First Named Inventor/Applicant Name:	Tatsumi Naganuma
Customer Number:	23623
Filer:	Gregory Turocy/Bailey Zugan Rayl
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Application Type:	Utility under 35 USC 111(a)

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File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1		REPLY172.pdf	55112 151f2a9744801e2478b92d165d9ec3500ba e25f8	yes	11

	Multipart Description/PDF files in .zip description		
	Document Description	**Start**	**End**
	Amendment/Req. Reconsideration-After Non-Final Reject	1	1
	Specification	2	4
	Claims	5	8
	Applicant Arguments/Remarks Made in an Amendment	9	11
Warnings:			
Information:			
	Total Files Size (in bytes):	55112	

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

PTO/SB/06 (09-11)
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PATENT APPLICATION FEE DETERMINATION RECORD Substitute for Form PTO-875	Application or Docket Number 16/295,034	Filing Date 03/07/2019	☐ 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 $100 =	
INDEPENDENT CLAIMS (37 CFR 1.16(h))	minus 3 =	*		x $460 =	
☐ 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	03/01/2021	CLAIMS REMAINING AFTER AMENDMENT		HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA		RATE ($)	ADDITIONAL FEE ($)
	Total (37 CFR 1.16(i))	* 7	Minus	** 20	= 0		x $100 =	0
	Independent (37 CFR 1.16(h))	* 3	Minus	*** 3	= 0		x $480 =	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.	LIE
** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 20, enter "20".	/JASON B EADDY/
*** 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.**

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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
16/295,034	03/07/2019	Tatsumi Naganuma	SAJVP172US	1688

23623 7590 11/30/2020

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EXAMINER	
LERNER, MARTIN	

ART UNIT	PAPER NUMBER
2657	

NOTIFICATION DATE	DELIVERY MODE
11/30/2020	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):

docket@thepatentattorneys.com
hmckee@thepatentattorneys.com
rveri@thepatentattorneys.com

Office Action Summary	**Application No.** 16/295,034	**Applicant(s)** Naganuma, Tatsumi	
	Examiner MARTIN LERNER	**Art Unit** 2657	**AIA (FITF) Status** Yes

-- 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 _____.

☐ 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 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 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

The present application, filed on or after March 16, 2013, is being examined under the first inventor to file provisions of the AIA.

Specification

The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed.

The following title is suggested: Word Replacement in Output Generation for Detected Intent by Voice Classification.

The disclosure is objected to because of the following informalities:

In ¶[0025], "("March 20, 2020 in the example" is missing a closed quote as "("March 20, 2020" in the example".

In ¶[0072], "and output the output sentence" should be "and outputs the output sentence"

Appropriate correction is required.

Claim Rejections - 35 USC § 103

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

> A patent for a claimed invention may not be obtained, notwithstanding that the claimed invention is not identically disclosed as set forth in section 102, if the differences between the claimed invention and the prior art are such that the claimed invention as a whole would have been obvious before the effective filing date of the claimed invention to a person having ordinary skill in the art to which the claimed invention pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1 to 4 and 6 to 7 are rejected under 35 U.S.C. 103 as being unpatentable over *Tseretopoulous et al.* (U.S. Patent Publication 2019/0103127) in view of *Aoyama et al.* (U.S. Patent Publication 2017/0337921).

Concerning independent claims 1 and 6 to 7, *Tseretopoulous et al.* discloses a system, software, and computer implemented method for conversational interface personalization based on input context, comprising:

"a voice classifying unit configured to analyze a voice spoken by a user and acquired by a voice acquiring unit to determine whether the voice is a predetermined voice" – a received input can be analyzed to identify a particular input personality type ("a predetermined voice"); when the received input is associated with a voice input, auditory factors can be considered including a pitch of the voice, a length of the sounds, a loudness of the voice, and a timber of the voice ("to analyze a voice spoken by the user") (¶[0036]); received input is analyzed to identify an intent of the input and information on the personality of the input (¶[0038]: Figure 1); one or more operations can be performed to identify a particular personality of the received input; scores can related to a formality of the input, a politeness of the input, usage of particular regional phrases, an accent or particular phrasing associated with the input, a level of sarcasm within the input, and an emotional state associated with the input; personality input types can be associated with predetermined values or ranges of values for different input types that include 'scared', 'calm, inquisitive', 'calm, instructional', 'angry', and 'angry, unsure' ("determine whether a voice is a predetermined voice") (¶[0050] - ¶[0051]: Figure 1); digital assistant 103 may be any interactive or virtual intelligence component or agent that can be interacted with by a user, which can be verbally

through one or more input components including a microphone ("a voice acquiring unit") (¶[0063]: Figure 1); here, identifying a personality type of a received input to determine a particular personality input type is equivalent to "a voice classifying unit configured to analyze a voice spoken by a user . . . to determine whether the voice is a predetermined voice"; that is "a predetermined voice" can be identified from auditory factors of the voice input as representing an emotional state of the user as 'angry';

"an intention analyzing unit to detect intention information indicating what kind of information is wished to be acquired by the user" – a conversational input is analyzed to determine an intent (Abstract); a received input at conversational analysis system 102 is analyzed to identify an intent of the input (¶[0038]: Figure 1); conversational analysis system 102 can analyze the received input to determine an intent of the input, *e.g.*, a particular question, query, comment (¶[0040]: Figure 1); natural language processing (NLP) engine 208 includes an intent deciphering module 210 (¶[0067]: Figure 2A); NLP engine 208 determines an intent of the conversational input, where the intent can represent a question, query, or information associated with conversational input 205, and can be determined by natural language understanding (NLU) using intent deciphering module 210 (¶[0068]: Figure 2A);

"a notification-information acquiring unit configured to acquire notification information to be notified to the user based on the intention information" – a set of responsive content is determined and includes a set of initial tokens representing an initial response (Abstract); based on a determined intent ("based on the intention information"), conversational analysis system 102 can generate a corresponding response or response content to be provided back to client device 180 ("notification

information to be notified to the user") (¶[0040]: Figure 1); where the determined intent of the received input is a question, response analysis engine 120 may be used to derive a responsive answer to the question; the answer may be a particular value or query response (¶[0052]: Figure 1); NLP engine 208 provides its outputs of the determined intent to response analysis engine 225; response analysis engine 225 uses this information to determine a suitable response to conversational input 205 based on the intent; once the essence or general substance of the response is determined, response analysis engine 225 provides that information to NLG engine 228 (¶[0070] - ¶[0071]: Figure 2A); here, a response is equivalent to a "notification" and response information is "notification information"; that is, a user is being 'notified' of a response information;

"an output-content generating unit configured to generate an output sentence as sentence data to be output to the user based on the notification information" – natural language generation engine (NLG) 124 ("an output-generating unit") generates a sentence ("an output sentence as sentence data") or detailed response to be provided via conversational interface 108 ("to be output to the user") (¶[0052]: Figure 1); NLG engine 124 can receive an output of response analysis engine 120 and prepare a natural language response to the received input based on that output; NLG engine 124 can identify or determine at least a base set of words, phrases, or tokens to be used in representing response content received from response analysis engine 120, where the base set of words, phrases, or tokens are associated with an initial response determined by response analysis engine 120 (¶[0054]: Figure 1); NLG engine 228 is used to prepare the conversational response based on the response essence or content identified by the response analysis engine 225 (¶[0071]: Figure 2);

"wherein the output-content generating unit is further configured to generate the output sentence in which at least one word selected among words included in the notification information is replaced with another word when the voice is determined to be the predetermined voice" – at least one token associated with a similar lexical personality score is replaced with a determined synonym token to generate a modified version of the response content that is then transmitted to a device in response to the input (Abstract); natural language generation engine (NLG) 124 generates a sentence ("to generate the output sentence") or detailed response to be provided via conversational interface 108 (¶[0052]: Figure 1); once an initial set of response content is available, lexical personality filter module 128 can be used to determine and apply the appropriate modification to the response content to be used to generate a personalized response; a personalized response can be generated by identifying one or more synonyms from synonym repository 136 of the base words, phrases, and tokens, included in the initial response and replacing one or more of those base portions with synonyms having a matching or similar set of characteristics to those determined to be associated with received input using a personality-based response module 130 ("in which at least one word selected among words included in the notification information is replaced with another word"); one or more synonyms are identified for substitution based on their match associated with one or more predetermined lexical personality scores 142 ("when the voice is determined to be the predetermined voice") (¶[0055]: Figure 1); NLG engine 228 can replace at least one token from the initial token set with the at least one suitable synonym; only one of the initial tokens may be replaced or substituted with a synonym token in some instance, while in others multiple tokens or

the entire set of tokens may be replaced (¶[0072]: Figure 2A); here, "the predetermined voice" corresponds to a predetermined lexical personality having a highest score, when a lexical personality score is determined by analyzing voice input including a pitch of the voice, a length of the sounds, a loudness of the voice, and a timber of the voice (¶[0036]).

Concerning independent claims 1 and 6 to 7, *Tseretopoulous et al.* arguably anticipates these independent claims. Conceivably, *Tseretopoulous et al.* might be construed to omit a voice classifying unit configured to analyze a voice spoken by a user "to determine whether the voice is a predetermined voice". That is, *Tseretopoulous et al.* might be alleged to determine a predetermined personality instead of a "predetermined voice", but these are really the same thing because a personality can be determined from voice input including parameters of pitch, loudness, and timber. Moreover, "a predetermined voice" can reasonably be construed to include an emotional state of a voice, *e.g.*, scared, calm, angry of *Tseretopoulous et al.*

Concerning independent claims 1 and 6 to 7, *Aoyama et al.* teaches anything that might be omitted by *Tseretopoulous et al.* Generally, *Aoyama et al.* teaches controlling output of a response to speech of a user in accordance with acquired information regarding a speech state of the user. (Abstract) Information processing device 1 recognizes content spoken by a user by acquiring sound input from the user as acoustic information and analyzing the acoustic information on the basis of a sound recognition technology or natural language processing. Information processing device 1 generates response information c11*b* for presenting a confirmation result as a natural sentence ("to generate an output sentence") and outputs the response information c11*b*

as sound. One embodiment provides that information processing device receives sound input c10*a*, "Check my schedule for tomorrow at 1 pm" from user Ua, and outputs response information, c11*a*, "You have a meeting with Mr. Yamada in room A." (¶[0042] - ¶[0047]: Figure 1) In phrases used in dialogs between people, there are phrases with the same meaning but expressed differently, *e.g.*, "3 pm" and "15:00". When the information processing device 1 outputs "15:00" as a response indicating a time to a user who normally says "3 pm", the user may feel uncomfortable. A speaking style may include a certain user calling a person with a name "Taro Yamada" by adding an honorific title to the surname as "Mr. Yamada", and another person calling the person with the name "Taro Yamada" using only the first name of "Taro". Additionally, information processing device 1 controls an output mode, *e.g.*, volume or speech speed, of a response so that a user feels more natural in accordance with a predetermined situation. (¶[0049] - ¶[0052]) A speech style detection unit 115 extracts a unique expression from text information obtained by converting sound input on the basis of the result of natural language processing on the text information. (¶[0087]: Figure 2) User state estimation unit 15 is configured to estimate various states of the user on the basis of various types of acquired information including the acquired sound input. User state estimation unit 15 calculates a 'degree of composure' which is a parameter for determining a psychological state of the user, *e.g.*, whether the user is calm on the basis of the analysis result of the acquired sound input. (¶[0102]: Figure 2) Response parameter generation unit 16 is configured to generate a response parameter on the basis of the information regarding the detected user state and speech style of the user. (¶[0115]: Figure 2) Then response generation unit 17 replaces the response

component in the generated form with the acquired name corresponding to the response component. Response generation unit 17 replaces a response component indicating the personal name "Taro Yamada" with the name "Mr. Yamada" in accordance with the speech style of the user and generates the response content, "You have a meeting with Mr. Yamada in room A." Additionally, response generation unit 17 may replace the information indicating a time "13:00" with an expression indicating a time of "1 pm". (¶[0138] - ¶[0140]: Figure 7) (Compare Specification, ¶[0023] and ¶[0030]: Figures 4 to 5, which almost identically describes requesting schedule information for a meeting at a certain date and time with Mr. Yamada.) When a user is calm, response generation unit 17 may generate information indicating response content of natural language, "The weather near Tokyo Station is nice" as information indicating "weather near Tokyo Station", but when the user is in a hurried state, response generation unit 17 may generate information more plainly indicating "weather near Tokyo Station" is "clear". (¶[0154]: Figure 2) *Aoyama et al.*, then, teaches various embodiments directed to classifying a voice as a predetermined voice and generating an output sentence that replaces words when a voice is determined to be the predetermined voice. An objective is to control a response to sound input in a preferred mode corresponding to a change in a situation of a user to make a user feel more comfortable. (¶[0004] - ¶[0007]) It would have been obvious to one having ordinary skill in the art to replace words in an output sentence when a voice is determined to be a predetermined voice as taught by *Aoyama et al.* in a conversational interface that is personalized based on input context of *Tseretopoulous et al.* for a purpose of making a user feel more comfortable with a response.

Concerning claim 2, *Tseretopoulous et al.* discloses "the notification-information acquiring unit is further configured to acquire, as the notification information, content information to be notified to the user" and "the output-content generating unit is further configured to select the at least one word to be replaced with the other word based on a word included in the content information". That is, *Tseretopoulous et al.* broadly discloses content information that may include a response to a query and replacing at least one word in this response to the query that includes content information. However, *Tseretopoulous et al.* does not disclose "type information indicating a type of the content information" and at least one word to be replaced with the other word based "the type information that is associated with the content information". Here, *Tseretopoulous et al.* does not provide "type information". Still, *Aoyama et al.* teaches "type information" at least for a name of a person or a time expression, where a name of a person "Taro Yamada" can be replaced with "Mr. Yamada" or "Taro" and time "13:00" can be replaced with "1 pm" based on a 'speech style of the user'. (¶[0138] - ¶[0140]: Figure 7) Figure 7 illustrates a data structure of 'personal name data' and 'date-time expression pattern', which are "type information indicating a type of the content information" for "content information" of "You have a meeting with Mr. Yamada tomorrow at 1 pm in room A" or "You have a meeting with Taro at 13:00 10/1/2014."

Concerning claim 3, *Tseretopoulous et al.* discloses "the output-content generation unit is further configured to read relationship information including information of a first word that is a predetermined word and a second word that is associated with the first word, and to replace a word included in the notification

information with the second word when the word included in the notification information matches with the first word" because one or more synonyms of tokens included in the initial response are replaced with synonyms having a matching or similar set of characteristics as those determined to be associated with received input using personality-based response module 130. Each of the base words 138 may be associated with a plurality of synonyms 140, where each synonym 140 is associated with a set of one or more predefined lexical personality scores 142. These scores 142 are compared to the scores associated with the received input, and one or more of synonyms 140 is identified as appropriate for substitution based on their match. (¶[0055]: Figure 1) That is, "relationship information" is an association between words that are synonyms, so that a base word 138 and a synonym 140 for a base word are "information of a first word that is a predetermined word and a second word that is associated with the first word". Then synonym replacement based on score to determine a match is "to replace a word included in the notification information with the second word when the word included in the notification information matches with the first word."

Concerning claim 4, *Tseretopoulous et al.* discloses "the output-content generating unit is further configured to select a word included in the notification as a word to be replaced with another word" when words are replaced by their synonyms. However, *Tseretopoulous et al.* omits "the relationship further includes information of type information indicating a type of the first word" and selecting a word as a word to be replaced "when the type information of the word included in the notification information matches with the type information of the first word and the word included in the

notification information matches with the first word". Still, *Aoyama et al.* teaches "type information" at least for a name of a person or a time expression, where a name of a person "Taro Yamada" can be replaced with "Mr. Yamada" or "Taro" and time "13:00" can be replaced with "1 pm" based on a 'speech style of the user'. (¶[0138] - ¶[0140]: Figure 7) Figure 7 illustrates a data structure of 'personal name data' and 'date-time expression pattern', which are "type information" for information content of "You have a meeting with Mr. Yamada tomorrow at 1 pm in room A" or "You have a meeting with Taro at 13:00 10/1/2014." Here, *Aoyama et al.* teaches "relationship information" that is not necessarily an association between synonyms, but is a data structure for replacing names and times based on "type information" of 'personal name data' and 'date-time expression pattern'. (¶[0121] - ¶[0126]: Figure 7) That is, *Aoyama et al.* teaches that notification information of a person "Taro Yamada" matches with a notification of a name by response generation unit 17, and replaces "Taro Yamada" with "Mr. Yamada" or "Taro" based on "type information" of 'personal name data'.

Claim 5 is rejected under 35 U.S.C. 103 as being unpatentable over *Tseretopoulous et al.* (U.S. Patent Publication 2019/0103127) in view of *Aoyama et al.* (U.S. Patent Publication 2017/0337921) as applied to claim 1 above, and further in view of *Schuster et al.* (U.S. Patent Publication 2017/0366662).

Tseretopoulous et al. and *Aoyama et al.* do not expressly disclose or teach "the voice classifying unit is further configured to determine the voice to be the predetermined voice when the voice spoken by the user is a whisper", but both of this prior art disclose and teach something close to it. Specifically, *Tseretopoulous et al.*

discloses received input can be a voice input, and auditory factors can be considered including a loudness of the voice. (¶[0036]) Similarly, *Aoyama et al.* teaches that processing device 1 controls an output mode that can include a volume of speech of a response so that a user feels more natural. (¶[0052]) Given that a response is determined based on the speaking style of the user in *Aoyama et al.*, it would appear to be logically implied that if a user is speaking in a low volume, then an output mode may be a response at a low volume. "The predetermined voice" of *Aoyama et al.*, then, could be a low volume speaking style of a user that is detected to generate response content that is at a low volume, too, to make the user feel more comfortable. Implicitly, speaking at a low volume can be construed as equivalent to "a whisper".

Even if this limitation of "to determine the voice to be the predetermined voice when the voice spoken by the user is a whisper" is omitted by *Tseretopoulous et al.* and *Aoyama et al.*, it is taught by *Schuster et al.* Generally, *Schuster et al.* teaches privacy mode detection and response over a voice activated interface to determine based on user input whether the user desires the device to enter a private mode. While in the private mode, the device may alter the manner in which it communicates to the user. (Abstract) An utterance is received from a user, and it is determined whether the utterance is a whispered utterance. Communications from the device are altered to the user if the user has whispered the utterance. Normally audible communications from the device are instead played at reduced volume or are displayed and not audibly played at all in the altered condition. (¶[0008]) A signal received at a microphone is analyzed to detect a whispered microphone input, where 'whisper' or 'whispered' refer to unvoiced or substantially unvoiced speech and hushed speech. Cepstral analysis

may be used to detect whispered input. (¶[0018]) This mode change alters the way the device interacts with the user. The device may present the information visually rather than audibly, or the device can synthesize whispered speech feedback. (¶[0021] - ¶[0022]) An objective is to provide a private communication mode enabling the user to interact with the device in a private manner, to avoid disturbing other people, to keep their interaction confidential, or simply to avoid social awkwardness associated with communicating with an electronic device. (¶[0017]) It would have been obvious to one having ordinary skill in the art to classify a voice to be a predetermined voice when the voice spoken by the user is a whisper as taught by *Schuster et al*. to control output in response to speech of a user of *Aoyama et al*. for a purpose of avoiding disturbing other people or to keep an interaction confidential.

Conclusion

The prior art made of record and not relied upon is considered pertinent to Applicant's disclosure.

Basson et al., Filev et al., Dubey et al., Jiang et al., Catalano et al., and Saito et al. disclose related prior art.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to MARTIN LERNER whose telephone number is (571) 272-7608. The examiner can normally be reached on Monday-Thursday 8:30 AM-6:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Daniel Washburn can be reached on (571) 272-5551. 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 https://ppair-my.uspto.gov/pair/PrivatePair. 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.

/MARTIN LERNER/
Primary Examiner
Art Unit 2657
November 24, 2020

Notice of References Cited	Application/Control No. 16/295,034	Applicant(s)/Patent Under Reexamination Naganuma, Tatsumi	
	Examiner MARTIN LERNER	Art Unit 2657	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-20190103127-A1	04-2019	Tseretopoulos; Dean C. N.	G06F40/247	---
*	B	US-20170337921-A1	11-2017	AOYAMA; Kazumi	G10L15/26	---
*	C	US-20170366662-A1	12-2017	Schuster; Adrian M.	G10L25/24	---
*	D	US-20140309999-A1	10-2014	Basson; Sara H.	G10L25/00	704/270
*	E	US-20180047201-A1	02-2018	Filev; Dimitar Petrov	G06F3/011	---
*	F	US-20180114159-A1	04-2018	DUBEY; Alpana	G06F15/16	---
*	G	US-20190115008-A1	04-2019	Jiang; Jian Min	G10L15/22	---
*	H	US-20190121842-A1	04-2019	Catalano; Pasquale A.	G06F40/253	---
*	I	US-20200013401-A1	01-2020	SAITO; Mari	G10L15/22	---
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NON-PATENT DOCUMENTS

*		Include as applicable: Author, Title Date, Publisher, Edition or Volume, Pertinent Pages)
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Dates in MM-YYYY format are publication dates. Classifications may be US or foreign.

Search Notes	Application/Control No.	Applicant(s)/Patent Under Reexamination
	16/295,034	Naganuma, Tatsumi
	Examiner	Art Unit
	MARTIN LERNER	2657

CPC - Searched*		
Symbol	Date	Examiner
G06F 40/237, 40/247, 40/279, 40/284	11/24/2020	ML
G10L 13/033, 15/1822, 15/22, 25/63, 2015/226, 2015/228	11/24/2020	ML

CPC Combination Sets - Searched*		
Symbol	Date	Examiner

US Classification - Searched*			
Class	Subclass	Date	Examiner
704	1, 9, 10, 231, 246, 239, 270, 275	11/24/2020	ML

* 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	11/24/2020	ML

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

	/MARTIN LERNER/ Primary Examiner, Art Unit 2657

EAST Search History

EAST Search History (Prior Art)

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
L1	1	("5852804").PN.	US-PGPUB; USPAT	OR	ON	2020/09/03 15:58
L2	941	whisper$ and G10L$.cpc. and @ad<"20180312"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2020/09/03 15:59
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L14	6	12 and voice near3 (classif$)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2020/09/03 16:24
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9/3/2020 5:03:41 PM

EAST Search History

EAST Search History (Prior Art)

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L3	72	whisper$ and G10L$.cpc. and @ad<"20180312" and replac$ with word	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2020/09/03 15:59
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L14	6	12 and voice near3 (classif$)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2020/09/03 16:24
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L22	19,898	G06F$.cpc. and @ad<"20180312" and replac$ with word	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2020/09/03 17:15
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L25	1,564	24 and person and place and date	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2020/09/03 17:16
L26	391	24 and person and place and date and intent	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2020/09/03 17:16
L27	153	24 and person and place and date and intent and G10L$.cpc.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2020/09/03 17:18
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9/3/2020 6:01:15 PM

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

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INFORMATION DISCLOSURE STATEMENT BY APPLICANT (**Not for submission under 37 CFR 1.99)**		
	Application Number	
	Filing Date	2019-03-07
	First Named Inventor	Naganuma
	Art Unit	
	Examiner Name	
	Attorney Docket Number	SAJVP172US

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	1	5852804		1998-12-22	SAKO	

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INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	
	Filing Date	2019-03-07
	First Named Inventor	Naganuma
	Art Unit	
	Examiner Name	
	Attorney Docket Number	SAJVP172US

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Examiner Signature	/MARTIN LERNER/	Date Considered	09/03/2020

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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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INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	
	Filing Date	2019-03-07
	First Named Inventor	Naganuma
	Art Unit	
	Examiner Name	
	Attorney Docket Number	SAJVP172US

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.

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

☒ None

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	/Greg Turocy/	Date (YYYY-MM-DD)	2019-03-07
Name/Print	Gregory Turocy	Registration Number	36952

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【書類名】明細書
【発明の名称】出力内容制御装置、出力内容制御方法、及び出力内容制御プログラム
【技術分野】
【０００１】
本発明は、出力内容制御装置、出力内容制御方法、及び出力内容制御プログラムに関する。
【背景技術】
【０００２】
例えば特許文献１に示すように、検出したユーザの音声を解析して、ユーザの意図に応じた処理を行う音声制御装置が提案されている。また、ユーザの意図した処理を行ったことを音声で出力したり、ユーザの問い合わせ内容を音声で出力したりする音声制御装置も提案されている。
【先行技術文献】
【特許文献】
【０００３】
【特許文献１】特公平７―１０９５６０号公報
【発明の概要】
【発明が解決しようとする課題】
【０００４】
ここで、音声を出力する音声処理装置を用いる場合、ユーザの問い合わせ内容に対する音声制御装置からの通知が、ユーザ以外の周囲にいる人にも聞こえてしまう場合がある。この場合、音声制御装置からの通知をユーザ以外に知られたくない場合でも、ユーザ以外にも知られてしまうおそれがある。従って、ユーザの問い合わせ内容を通知する場合に、その通知の内容をユーザ以外に理解させ難くすることが求められている。
【０００５】
本発明は、上記課題を鑑み、ユーザの問い合わせ内容を通知する場合に、その通知の内容をユーザ以外に理解させ難くする出力内容制御装置、出力内容制御方法、及び出力内容制御プログラムを提供することを目的とする。
【課題を解決するための手段】
【０００６】
本発明の一態様にかかる出力内容制御装置は、音声取得部が取得したユーザが発する音声を解析して、前記音声が、所定の音声であるか否かを判定する音声分類部と、前記音声取得部が取得した音声を解析して、前記ユーザがどのような情報を求めているかを示す意図情報を検出する意図解析部と、前記意図情報に基づき、前記ユーザへ通知する情報である通知情報を取得する通知情報取得部と、前記通知情報に基づき、前記ユーザに向けて出力する文章データである出力文章を生成する出力内容生成部と、を有し、前記出力内容生成部は、前記所定の音声と判定された場合に、前記通知情報に含まれる単語のうちから選択した単語を他の単語に置換した前記出力文章を生成する。
【０００７】
本発明の一態様にかかる出力内容制御方法は、音声取得部が取得したユーザが発する音声を解析して、前記音声が、所定の音声であるか否かを判定する音声分類ステップと、前記音声取得部で取得した音声を解析して、前記ユーザがどのような情報を求めているかを示す意図情報を抽出する意図解析ステップと、前記意図情報に基づき、前記ユーザへ通知する情報である通知情報を取得する通知情報取得ステップと、前記通知情報に基づき、前記ユーザに向けて出力する文章データである出力文章を生成する出力文章生成ステップと、を有し、前記出力文章生成ステップにおいて、前記所定の音声と判定された場合に、前記通知情報に含まれる単語のうちから選択した単語を他の単語に置換した前記出力文章を生成する。
【０００８】
本発明の一態様にかかる出力内容制御プログラムは、音声取得部が取得したユーザが発

する音声を解析して、前記音声が、所定の音声であるか否かを判定する音声分類ステップと、前記音声取得部で取得した音声を解析して、前記ユーザがどのような情報を求めているかを示す意図情報を抽出する意図解析ステップと、前記意図情報に基づき、前記ユーザへ通知する情報である通知情報を取得する通知情報取得ステップと、前記通知情報に基づき、前記ユーザに向けて出力する文章データである出力文章を生成する出力文章生成ステップと、をコンピュータに実行させ、前記出力文章生成ステップにおいて、前記所定の音声と判定された場合に、前記通知情報に含まれる単語のうちから選択した単語を他の単語に置換した前記出力文章を生成する。

【発明の効果】

【０００９】

本発明によれば、ユーザの問い合わせ内容を通知する場合に、その通知の内容をユーザ以外に理解させ難くすることができる。

【図面の簡単な説明】

【００１０】

【図１】図１は、第１実施形態に係る出力内容制御装置の模式図である。

【図２】図２は、第１実施形態に係る出力内容制御装置の模式的なブロック図である。

【図３】図３は、意図情報の例を示すテーブルである。

【図４】図４は、属性情報の例を示すテーブルである。

【図５】図５は、取得情報の例を示すテーブルである。

【図６】図６は、関係情報の一例を示すテーブルである。

【図７】図７は、第１実施形態に係る出力文章の出力処理のフローを示すフローチャートである。

【図８】図８は、第１実施形態に係る出力内容制御装置の他の例を示す模式図である。

【図９】図９は、第２実施形態に係る情報出力システムの模式的なブロック図である。

【００１１】

以下に、本発明の実施形態を図面に基づいて詳細に説明する。なお、以下に説明する実施形態により本発明が限定されるものではない。

【００１２】

（第１実施形態）

最初に、第１実施形態について説明する。図１は、第１実施形態に係る出力内容制御装置の模式図である。図１に示すように、第１実施形態に係る出力内容制御装置１は、ユーザＨが発する音声Ｖ１を音声検出部１０で検出し、検出した音声Ｖ１を解析して所定の処理を行って、音声出力部１２により、音声Ｖ２を出力するものである。ここで、音声Ｖ２は、ユーザＨに向かって出力されるが、出力内容制御装置１の周囲に他の人がいる場合、その人にも届く場合がある。この場合、ユーザＨにとって、他の人に知られたくない情報が音声Ｖ２に含まれている場合であっても、ユーザＨ以外にも音声Ｖ２が聞こえ、情報を知られてしまうおそれがある。本実施形態に係る出力内容制御装置１は、音声Ｖ１を解析して、音声Ｖ２として出力される文章などを調整することで、音声Ｖ２の内容をユーザＨにのみ適切に理解することを可能とし、さらにユーザＨ以外のユーザには理解させ難くすることを可能としている。

【００１３】

図２は、第１実施形態に係る出力内容制御装置の模式的なブロック図である。図２に示すように、出力内容制御装置１は、音声検出部１０と、音声出力部１２と、点灯部１４と、制御部１６と、通信部１８と、記憶部２０とを有する。出力内容制御装置１は、いわゆるスマートスピーカ（ＡＩスピーカ）であるが、後述する機能を発揮する装置であれば、それに限られない。出力内容制御装置１は、例えばスマートフォンやタブレットなどであってもよい。

【００１４】
音声検出部１０は、マイクであり、ユーザＨが発する音声Ｖ１を検出する。ユーザＨは、音声検出部１０に向けて、出力内容制御装置１に実行して欲しい処理内容の情報を含めるように、音声Ｖ１を発する。なお、音声検出部１０は、外部からの情報を受け付ける入力部であるともいえるが、入力部は、音声検出部１０以外にも設けられていてよく、例えば、ユーザＨの操作により音声Ｖ２の音量を調整するスイッチなどが設けられていてもよい。音声出力部１２は、スピーカであり、制御部１６が生成した文章（後述する出力文章）を、音声Ｖ２として出力する。点灯部１４は、例えばＬＥＤ（Light Emitting Diode）などの光源であり、制御部１６の制御により、点灯する。通信部１８は、例えばアンテナなど、外部サーバなどに通信する機構であり、制御部１６の制御により、図示しない外部サーバと情報の送受信を行う。通信部１８は、無線通信により外部サーバと情報の送受信を行うが、有線通信により外部サーバと情報の送受信を行ってもよい。記憶部２０は、制御部１６の演算内容やプログラムの情報などを記憶するメモリであり、例えば、ＲＡＭ（Ｒａｎｄｏｍ　Ａｃｃｅｓｓ　Ｍｅｍｏｒｙ）と、ＲＯＭ（Ｒｅａｄ　Ｏｎｌｙ　Ｍｅｍｏｒｙ）と、フラッシュメモリ（Ｆｌａｓｈ　Ｍｅｍｏｒｙ）などの外部記憶装置とのうち、少なくとも１つ含む。
【００１５】
制御部１６は、演算装置、すなわちＣＰＵ（Ｃｅｎｔｒａｌ　Ｐｒｏｃｅｓｓｉｎｇ　Ｕｎｉｔ）である。制御部１６は、音声取得部３０と、音声解析部３２と、意図解析部３４と、通知情報取得部３６と、処理部３８と、出力内容生成部（音声内容生成部）４０と、音声分類部４２と、出力制御部４４とを有する。音声取得部３０と、音声解析部３２と、意図解析部３４と、通知情報取得部３６と、処理部３８と、出力内容生成部４０と、音声分類部４２と、出力制御部４４とは、記憶部２０に記憶されたソフトウェア（プログラム）を読み出すことで、後述する処理を実行する。
【００１６】
音声取得部３０は、音声検出部１０が検出した音声Ｖ１を取得する。音声解析部３２は、音声取得部３０が取得した音声Ｖ１の音声解析を実行して、音声Ｖ１をテキストデータに変換する。テキストデータは、音声Ｖ１として発せられた文章を含む文字データ（テキストデータ）である。音声解析部３２は、例えば、音声Ｖ１から、時間毎の振幅波形（音声波形）を検出する。そして、音声解析部３２は、振幅と文字との関係を記憶したテーブルに基づき、時間毎の振幅をそれぞれ文字に置き換えることで、音声Ｖ１をテキストデータに変換する。ただし、音声解析部３２は、音声Ｖ１をテキストデータに変換できるものであれば、変換の方法は任意である。
【００１７】
意図解析部３４は、音声解析部３２が生成したテキストデータを取得して、テキストデータに基づき、意図情報Ｉを検出する。意図情報Ｉとは、ユーザＨの意図を示す情報、すなわちインテントである。言い換えれば、意図情報Ｉは、ユーザＨが、出力内容制御装置１にどのような処理を行うことを意図しているかを示す情報であり、本実施形態では、ユーザＨがどのような情報を求めているかを示す情報である。
【００１８】
意図解析部３４は、例えば自然言語処理を用いて、テキストデータから意図情報Ｉを検出する。本実施形態では、意図解析部３４は、記憶部２０に記憶されている複数の教師ありデータに基づき、テキストデータから、意図情報Ｉを検出する。ここでの教師有りデータは、テキストデータに対して意図情報Ｉが予め設定されているデータである。すなわち、意図解析部３４は、音声解析部３２が生成したテキストデータと類似している教師ありデータを抽出し、その教師ありデータの意図情報Ｉを、音声解析部３２が生成したテキストデータの意図情報Ｉとする。なお、教師有りデータは、記憶部２０に記憶されていなくてもよく、意図解析部３４が、通信部１８を制御して外部サーバから教師ありデータを検索してもよい。なお、意図解析部３４は、テキストデータから意図情報Ｉを検出するものであれば、意図情報Ｉの検出方法は任意である。例えば、意図解析部３４は、記憶部２０

に記憶されたキーワードと意図情報Ｉとの関係テーブルを読み出し、テキストデータに関係テーブル中のキーワードが含まれている場合に、そのキーワードに紐づいた意図情報Ｉを抽出してもよい。

【００１９】

図３は、意図情報の例を示すテーブルである。例えばテキストデータが「今日のスケジュールは」という文章である場合、意図解析部３４は、上述のような解析を行って、スケジュールをユーザＨに通知するという処理が、ユーザＨが要求している処理の情報である、すなわち意図情報Ｉであると認識する。すなわち、意図解析部３４は、ユーザが求めている情報、すなわち意図情報Ｉが、スケジュールであると検出する。

【００２０】

なお、テキストデータによる意図情報Ｉの検出方法は、これに限られず任意である。例えば、出力内容制御装置１は、キーワードと意図情報Ｉとの関係テーブルを記憶部２０に記憶しておき、ユーザＨが発した音声Ｖ１のテキストデータがそのキーワードを含む場合に、そのキーワードに紐付けられた意図情報Ｉを検出してもよい。この場合の例としては、「こんにちは」というキーワードと、天気情報及びニュースの情報とを紐付けておくことが挙げられる。この場合、ユーザＨが「こんにちは」という音声Ｖ１を発すると、意図解析部３４は、天気情報とニュースの情報とを、意図情報Ｉとして検出する。

【００２１】

通知情報取得部３６は、意図情報Ｉに基づき、ユーザＨへ通知する情報の内容である通知情報を取得する。図２に示すように、通知情報取得部３６は、属性情報Ｅを取得する属性情報取得部５０と、取得情報Ａを取得する取得情報取得部５２とを有する。なお、通知情報は、属性情報Ｅと取得情報Ａとを含む情報である。

【００２２】

属性情報取得部５０は、意図情報Ｉに基づき、属性情報Ｅを取得する。属性情報Ｅとは、意図情報Ｉに紐づいた情報であり、ユーザＨが求める情報を取得するために必要となる条件を示す情報である。すなわち、属性情報Ｅは、エンティティである。例えば、意図情報Ｉがスケジュールであるとしても、いつのスケジュールであって誰のスケジュールであるかという、意図情報Ｉをより特定するための条件が分からない場合、出力内容制御装置１は、どのようなスケジュールを通知すればよいかの判断ができない。この場合、出力内容制御装置１は、ユーザＨの意図に応じた通知をすることができない。それに対し、属性情報取得部５０は、どのようなスケジュールを通知すればよいかを判断可能とするために、意図情報Ｉをより特定するための条件として、属性情報Ｅを取得する。

【００２３】

図４は、属性情報の例を示すテーブルである。属性情報Ｅは、属性種類情報Ｅ０と、属性内容情報Ｅ１とを含む。属性種類情報Ｅ０は、条件の種類、すなわちどのような条件であるかを示す情報であり、言い換えれば、意図情報Ｉをより特定するための条件を分類した情報である。そして、属性内容情報Ｅ１は、その属性種類情報Ｅ０の内容を指す。従って、属性種類情報Ｅ０は、属性内容情報Ｅ１の種類を示す情報であるともいえる。従って、属性種類情報Ｅ０と属性内容情報Ｅ１とは、互いに紐付けられている。図４に示すように、例えば、属性種類情報Ｅ０が、条件の種類を人であると分類するものである場合、それに紐付けられた属性内容情報Ｅ１は、その人の名称（ここでは「山田さん」）を指した情報となる。また、図４の例のように、属性種類情報Ｅ０が、条件の種類を日付であると分類するものである場合、それに紐付けられた属性内容情報Ｅ１は、日付（ここでは２０２０年３月２０日）を示す情報となる。このように属性内容情報Ｅ１を設定することにより、例えば、２０２０年３月２０日の山田さんのスケジュールを通知すればよいことが明らかとなる。なお、本実施形態の例では、山田さんとは、ユーザＨ自身である。

【００２４】

本実施形態では、属性情報取得部５０は、抽出した意図情報Ｉから、属性種類情報Ｅ０を検出する。属性情報取得部５０は、記憶部２０に記憶されている意図情報Ｉと属性種類情報Ｅ０との関係テーブルを読み出し、関係テーブルから、意図解析部３４が検出した意

図情報Ｉと一致する意図情報Ｉを、検出する。そして、属性情報取得部５０は、関係テーブルから、意図解析部３４が検出した意図情報Ｉと一致する意図情報Ｉに紐付けられた属性種類情報Ｅ０を、抽出して取得する。例えば、意図情報Ｉがスケジュールである場合、関係テーブルには、スケジュールに紐付けられた属性種類情報Ｅ０として、人と日付とが含まれる。この場合、属性情報取得部５０は、属性種類情報Ｅ０として、人と日付との２つを抽出する。このように、１つの意図情報Ｉに対応する属性種類情報Ｅ０は、この例では２つであるが、１つの意図情報Ｉに対応する属性種類情報Ｅ０の数は、意図情報Ｉの内容によって異なる。すなわち、１つの意図情報Ｉに対応する属性種類情報Ｅ０の数は、１つでもよいし、３つ以上であってもよい。また、意図解析部３４は、記憶部２０から関係テーブルを読み出していたが、関係テーブルの読出し先は任意であり、例えば通信部１８を介して図示しない外部サーバ（外部装置）と通信し、外部サーバから関係テーブルを取得してもよい。

【００２５】

属性情報取得部５０は、属性種類情報Ｅ０を取得したら、属性種類情報Ｅ０毎に、属性内容情報Ｅ１を設定する。属性情報取得部５０は、例えば、音声解析部３２が生成したテキストデータから、属性内容情報Ｅ１を抽出する。例えば、音声Ｖ１から生成されたテキストデータに「今日」というキーワードが含まれていたら、日付の属性種類情報Ｅ０に対応する属性内容情報Ｅ１を、今日の日付（図４の例では「２０２０年３月２０日」）に設定する。また、属性情報取得部５０は、属性種類情報Ｅ０に対する属性内容情報Ｅ１を予め設定していてもよい。この場合、例えば、意図情報Ｉがスケジュールである場合、属性内容情報Ｅ１が予め決められた内容である旨の設定データを、記憶部２０に記憶させておく。すなわち、例えば人の属性種類情報Ｅ０に対応する属性内容情報Ｅ１が「山田さん」である旨を、記憶部２０に記憶させておく。このようにしておけば、属性情報取得部５０は、人を示すキーワードがテキストデータに含まれない場合でも、人の属性内容情報Ｅ１を設定可能である。また、属性情報取得部５０は、通信部１８によって外部サーバと通信して属性内容情報Ｅ１を設定してもよい。例えば属性種類情報Ｅ０が場所である場合、意図解析部３４は、通信によりＧＰＳにより現在の場所を取得し、それを属性内容情報Ｅ１として設定してよい。また、出力内容制御装置１は、ユーザＨに、属性内容情報Ｅ１の情報を伝えることを促す通知を出力してもよい。この場合、例えば、属性情報取得部５０が、属性内容情報Ｅ１の取得が必要な属性種類情報Ｅ０を選択し、出力内容生成部４０に、ユーザＨに対してその属性種類情報Ｅ０についての属性内容情報Ｅ１を伝達することを要請する文章を、生成させる。例えば、日付の属性種類情報Ｅ０の場合は、出力内容生成部４０は、たとえば、「通知するスケジュールの日付を教えて下さい」などの文章を生成する。そして、出力制御部４４が、この文章を、音声出力部１２に出力させる。これにより、ユーザＨは、例えば日付が今日である旨の音声を発し、その音声を音声解析部３２で解析して、属性情報取得部５０が、属性内容情報Ｅ１が今日である旨の情報を取得する。

【００２６】

図５は、取得情報の例を示すテーブルである。図２に示す取得情報取得部５２は、意図情報Ｉと属性情報Ｅとに基づき、取得情報Ａを取得する。取得情報Ａとは、ユーザＨの意図に応じた情報であり、言い換えれば、ユーザＨが求めている情報である。取得情報Ａは、取得種類情報Ａ０と、取得内容情報Ａ１とを含む。取得種類情報Ａ０は、ユーザＨが求めている情報がどのような種類のものであるかを示す情報であり、言い換えれば、ユーザＨが求めている情報を分類した情報である。そして、取得内容情報Ａ１は、その取得種類情報Ａ０の内容を指す。すなわち、取得種類情報Ａ０は、取得内容情報Ａ１の種類を示す情報であるともいえる。従って、取得種類情報Ａ０と取得内容情報Ａ１とは、互いに紐付けられている。図５に示すように、例えば、取得種類情報Ａ０が、ユーザＨが求めている情報の種類を場所であると分類するものである場合、それに紐付けられた取得内容情報Ａ１は、その場所を指す情報（図５の例では、「東京ビルディング」）となる。

【００２７】

本実施形態において、取得情報取得部５２は、意図情報Ｉから、取得種類情報Ａ０を検

出する。属性情報取得部５０は、記憶部２０に記憶されている意図情報Ｉと取得種類情報Ａ０との関係テーブルを読み出し、関係テーブルから、意図解析部３４が検出した意図情報Ｉと一致する意図情報Ｉを、検出する。そして、取得情報取得部５２は、関係テーブルから、意図解析部３４が検出した意図情報Ｉと一致する意図情報Ｉに紐付けられた取得種類情報Ａ０を、抽出して取得する。例えば、意図情報Ｉがスケジュールである場合、関係テーブルには、スケジュールに紐付けられた取得種類情報Ａ０として、場所と時間と内容と人とを含む。この場合、取得情報取得部５２は、取得種類情報Ａ０として、場所と時間と内容と人との４つを抽出する。このように、１つの意図情報Ｉに対応する取得種類情報Ａ０は、この例では４つであるが、１つの意図情報Ｉに対応する取得種類情報Ａ０の数は、意図情報Ｉの内容によって異なる。すなわち、１つの意図情報Ｉに対応する取得種類情報Ａ０の数は、１つでもよいし、３つ以上であってもよい。また、取得情報取得部５２は、記憶部２０から関係テーブルを読み出していたが、関係テーブルの読出し先は任意であり、例えば通信部１８を介して図示しない外部サーバと通信し、外部サーバから関係テーブルを取得してもよい。

【００２８】

取得情報取得部５２は、取得種類情報Ａ０を取得したら、取得種類情報Ａ０毎に、取得内容情報Ａ１を取得する。取得情報取得部５２は、取得情報取得部５２が取得した属性内容情報Ｅ１である場合の取得内容情報Ａ１を、取得種類情報Ａ０毎に取得する。すなわち、取得情報取得部５２は、属性内容情報Ｅ１の条件下においての取得内容情報Ａ１を、取得種類情報Ａ０毎に取得する。取得情報取得部５２は、記憶部２０に取得内容情報Ａ１が記憶されている場合、記憶部２０から取得内容情報Ａ１を取得する。また、取得情報取得部５２は、通信部１８によって外部サーバ（外部機器）と通信して、取得種類情報Ａ０毎に、外部サーバから、取得内容情報Ａ１を取得してもよい。すなわち、取得内容情報Ａ１とは、取得情報取得部５２が、外部サーバや記憶部２０などのデータベースから取得するデータであるといえる。

【００２９】

今回の例では、取得情報取得部５２は、２０２０年３月２０日の山田さんのスケジュールという条件における、取得内容情報Ａ１を取得する。この場合、例えば、取得情報取得部５２は、山田さんのスケジュールを記録してある外部サーバとしての端末と通信を行ったり、記憶部２０が記憶している山田さんのスケジュールを読み出したりして、２０２０年３月２０日における、山田さんのスケジュールの情報を、取得種類情報Ａ０毎に読み出す。ここでは、２０２０年３月２０日における山田さんのスケジュールが、東京ビルディングで１５時から吉田さんとのミーティングである場合を例にする。この場合、取得情報取得部５２は、場所の取得種類情報Ａ０に対する取得内容情報Ａ１として、「東京ビルディング」であるという情報を取得し、時間の取得種類情報Ａ０に対する取得内容情報Ａ１として、「１５時」であるという情報を取得し、内容の取得種類情報Ａ０に対する取得内容情報Ａ１として、「ミーティング」であるという情報を取得し、人の取得種類情報Ａ０に対する取得内容情報Ａ１として、「吉田さん」であるという情報を取得する。

【００３０】

取得情報取得部５２は、このようにして、ユーザＨが求めている情報の内容である取得内容情報Ａ１を、取得種類情報Ａ０毎に取得する。ここで、後述する出力内容生成部４０は、この取得内容情報Ａ１を含む文章を、ユーザＨに通知する出力文章として生成することで、ユーザＨが求めている情報を通知することができる。ただし、ユーザＨに通知する出力文章としては、取得内容情報Ａ１だけでなく、属性内容情報Ｅ１を含む場合がある。すなわち、取得内容情報Ａ１のみの文章は、「東京ビルディングで１５時から吉田さんとのミーティングです」という文章になるのに対し、属性内容情報Ｅ１を含む文章は、「２０２０年３月２０日の山田さんのスケジュールは、東京ビルディングで１５時から吉田さんとのミーティングです」となり、内容をより理解しやすくなる。このように、ユーザに通知する情報は、取得内容情報Ａ１と属性内容情報Ｅ１とを含む。従って、以下、属性情報Ｅと取得情報Ａとを、適宜、通知情報と呼ぶ。

【００３１】
また、通知情報は、種類情報と内容情報とを有するといえる。内容情報は、属性内容情報Ｅ１と取得内容情報Ａ１とであり、ユーザＨに通知する情報の内容を示すものであるといえる。また、種類情報は、属性種類情報Ｅ０と取得種類情報Ａ０とを指し、ユーザに通知する情報の種類を示す情報であり、内容情報の種類を示すものであるといえる。図２に示す通知情報取得部３６は、種類情報と内容情報とを、通知情報として取得しているといえる。
【００３２】
なお、通知情報取得部３６は、意図情報Ｉが、ユーザＨが情報を通知することを求めているという内容である場合に、ユーザＨが求める情報を取得する処理を実行している。一方、ユーザＨは、出力内容制御装置１に対し、情報を通知することを求める以外に、他の機器を制御することを求める場合がある。例えば、ユーザＨは、「キッチンの照明をつけて」という音声Ｖ１を出力する場合がある。この場合、意図解析部３４は、機器を制御するという意図情報Ｉを検出する。そして、図２に示す処理部３８が、この意図情報Ｉに基づき、場所という属性種類情報Ｅ０の属性内容情報Ｅ１を「キッチン」とし、対象機器という属性種類情報Ｅ０の属性内容情報Ｅ１を「照明」とし、処理内容という属性種類情報Ｅ０の属性内容情報Ｅ１を「オンにする」として検出し、属性内容情報Ｅ１に基づき、キッチンの照明をオンにするという制御を実行する。この場合、出力内容生成部４０は、「はい、処理を終了しました」という出力文章を生成し、出力制御部４４が、この出力文章を、音声出力部１２に出力させる。ただし、出力内容制御装置１は、ユーザＨが求める情報を通知するものであればよく、このように他の機器を制御する処理を行わなくてもよい。
【００３３】
図２に戻り、出力内容生成部４０は、通知情報取得部３６が取得した通知情報、より具体的には属性内容情報Ｅ１と取得内容情報Ａ１とに基づき、出力文章を生成する。出力文章とは、音声出力部１２に出力させる音声Ｖ２用の文章のデータ、すなわちテキストデータである。出力文章は、ダイアログデータであるということもできる。出力内容生成部４０は、出力文章として第１出力文章を生成する第１出力内容生成部６０と、出力文章として第２出力文章を生成する第２出力内容生成部６２とを有する。第１出力内容生成部６０と第２出力内容生成部６２とを説明する前に、音声分類部４２について説明する。
【００３４】
音声分類部４２は、音声取得部３０が取得した音声Ｖ１を解析して、音声が、所定の音声であるか否かを判定する。本実施形態では、音声分類部４２は、音声取得部３０が取得した音声Ｖ１を解析して、音声Ｖ１を、第１音声Ｖ１Ａと第２音声Ｖ１Ｂとのいずれかに分類する。第１音声Ｖ１Ａが、所定の音声に相当する。本実施形態では、音声分類部４２は、音声Ｖ１を解析して、音声Ｖ１がささやき声である場合、その音声Ｖ１を第１音声Ｖ１Ａに分類する（所定の音声であると判定する）。そして、音声分類部４２は、音声Ｖ１がささやき声でない場合、その音声Ｖ１を第２音声Ｖ１Ｂに分類する。ささやき声とは、声帯を振動させず無声化したときの声であるが、例えば後述の方法で第１音声Ｖ１Ａとして分類される声であれば、声帯を振動させず無声化したときの声であることに限られない。
【００３５】
例えば、音声分類部４２は、音声Ｖ１の強度の時間波形を取得し、その時間波形をフーリエ変換することで、周波数毎の音声Ｖ１の強度を示すスペクトルを取得する。そして、音声分類部４２は、スペクトルが有する所定強度以上のピークの周波数を特徴量として、音声Ｖ１が、第１音声Ｖ１Ａであるか第２音声Ｖ１Ｂであるか分類する。例えば、音声分類部４２は、ピークの周波数が閾値以下である場合、ささやき声であるとして、第１音声Ｖ１Ａであると分類し、ピークの周波数が閾値より大きい場合、ささやき声でないとして、第２音声Ｖ１Ｂであると分類する。ただし、音声分類部４２は、任意の方法で、第１音声Ｖ１Ａと第２音声Ｖ１Ｂとを分類してもよい。例えば、音声分類部４２は、スペクトル

のピークの傾きを特徴量として、第１音声Ｖ１Ａと第２音声Ｖ１Ｂとを分類してもよい。また、音声分類部４２は、音声Ｖ１の音量、音声Ｖ１に含まれるユーザＨの発語の速度、及び、音声Ｖ１のうちの人の発語と風切音との音量比のいずれかを特徴量として、第１音声Ｖ１Ａと第２音声Ｖ１Ｂとを分類してもよい。また、出力内容制御装置１に近接センサを設け、近接センサの検出結果によりユーザＨと出力内容制御装置１との間の距離を算出し、その距離を特徴量として、第１音声Ｖ１Ａと第２音声Ｖ１Ｂとを分類してもよい。また、音声分類部４２は、音声Ｖ１から、特徴量としてメル周波数ケプストラム係数を導出して、メル周波数ケプストラム係数に基づき、第１音声Ｖ１Ａと第２音声Ｖ１Ｂとを分類してもよい。これらの場合において、音声分類部４２は、特徴量について閾値を設定しておき、特徴量が閾値を上回るか否かに基づき、音声Ｖ１を、第１音声Ｖ１Ａと第２音声Ｖ１Ｂとのいずれかに分類する。

【００３６】

このように、音声分類部４２は、音声取得部３０が取得した音声Ｖ１を用いて、音声Ｖ１を分類するものである。すなわち、音声分類部４２は、音声Ｖ１の意味が同じであっても、音声Ｖ１がささやき声である場合は、第１音声Ｖ１Ａに分類し、音声Ｖ１がささやき声でない場合は、第２音声Ｖ１Ｂに分類する。

【００３７】

また、音声分類部４２は、音声Ｖ１から第１音声Ｖ１Ａであるか第２音声Ｖ１Ｂであるかを分類する方法に限らない。音声取得部３０が取得した音声Ｖ１に対して文字解析を行うことで音声Ｖ１のテキストデータを生成し、音声Ｖ１のテキストデータを用いて分類することであってもよい。例えば、音声分類部４２は、ささやき声であるかの判定ではなく、例えば音声Ｖ１に含まれるキーワードに基づき音声Ｖ１を分類してもよい。すなわち、音声分類部４２は、音声Ｖ１に、記憶部２０が記憶したキーワードが含まれる場合に、第１音声Ｖ１Ａであると分類し、記憶部２０が記憶したキーワードが含まれない場合に、第２音声Ｖ１Ｂであると分類してもよい。

【００３８】

音声分類部４２は、以上説明した分類方法のいずれかを用いてもよいし、以上説明した分類方法を組み合わせて、分類を行ってもよい。

【００３９】

出力内容生成部４０は、音声分類部４２によって、音声Ｖ１が第２音声Ｖ１Ｂであると分類された場合に、第２出力内容生成部６２に、第２出力文章を生成させる。すなわち、出力内容生成部４０は、音声Ｖ１が第２音声Ｖ１Ｂであると分類された場合には、第１出力文章を生成せず第２出力文章を生成する。第２出力内容生成部６２は、属性情報取得部５０に取得された属性内容情報Ｅ１と取得情報取得部５２に取得された取得内容情報Ａ１と意図解析部３４に取得された意図情報Ｉとの全ての情報を含む文章を、第２出力文章として生成する。すなわち、第２出力文章は、属性内容情報Ｅ１と取得内容情報Ａ１と意図情報Ｉとを全て含むテキストデータである。

【００４０】

さらに言えば、第２出力文章は、意図情報Ｉの内容を示す単語と属性内容情報Ｅ１の内容を示す単語と取得内容情報Ａ１の内容を示す単語とを含んだテキストデータであるといえる。意図情報Ｉの内容を示す単語は、ここでは「スケジュール」という名詞である。また、属性内容情報Ｅ１の内容を示す単語は、ここでは、「山田さん」という名詞（さらに言えば固有名詞）と、「２０２０年３月２０日」という数値を含む単語である。また、取得内容情報Ａの内容を示す単語は、ここでは、「東京ビルディング」、「吉田さん」という名詞（さらに言えば固有名詞）と、「ミーティング」という名詞、「１５時」という数値とを含む。第２出力文章は、これらの単語を全て含むテキストデータであるといえる。具体的には、この例での第２出力文章は、「２０２０年３月２０日の山田さんのスケジュールは、東京ビルディングで１５時から吉田さんとのミーティングです」というものとなる。ただし、第２出力文章は、意図情報Ｉと属性内容情報Ｅ１と取得内容情報Ａ１との内容を示す単語を全て含むものでなくてもよく、意図情報Ｉと属性内容情報Ｅ１と取得内容

情報Ａ１との内容を示す単語の少なくともいずれかを含まなくてもよい。第２出力文章は、後述する第１出力文章とは異なり、意図情報Ｉと属性内容情報Ｅ１と取得内容情報Ａ１との内容を示す単語が、他の単語に置換されたものでなければよい。

【００４１】

一方、出力内容生成部４０は、音声分類部４２によって、音声Ｖ１が第１音声Ｖ１Ａであると分類された場合に、第１出力内容生成部６０に、第１出力文章を生成させる。すなわち、出力内容生成部４０は、音声Ｖ１が第１音声Ｖ１Ａであると分類された場合には、第２出力文章を生成せず第１出力文章を生成する。第１出力内容生成部６０は、内容情報（属性内容情報Ｅ１と取得内容情報Ａ１）に含まれる単語のうちから選択した単語を他の単語に置換した文章を、第１出力文章として生成する。すなわち、第１出力内容生成部６０は、意図情報Ｉの内容を示す単語と属性内容情報Ｅ１の内容を示す単語と取得内容情報Ａ１の内容を示す単語とを取得する。そして、第１出力内容生成部６０は、属性内容情報Ｅ１と取得内容情報Ａ１との内容を示す単語から、他の単語に置換する単語を選択する。そして、第１出力内容生成部６０は、選択した単語を他の単語に置換し、選択しなかった単語は置換しない。従って、第１出力文章は、意図情報Ｉと属性内容情報Ｅ１と取得内容情報Ａ１との内容を示す単語とのうち置換しなかった単語と、意図情報Ｉと属性内容情報Ｅ１と取得内容情報Ａ１との内容を示す単語とのうち置換した単語とを含んだ文章となる。このように、本実施形態では、属性内容情報Ｅ１と取得内容情報Ａ１とを示す通知情報から、置換する単語を選択する。ただし、第１出力内容生成部６０は、意図情報Ｉについても通知情報として、意図情報Ｉからも置換する単語を選択してもよい。

【００４２】

なお、第１出力内容生成部６０は、置換する単語として、名詞、より好適には固有名詞を選択することが好ましい。ただし、置換する単語として動詞や数値を選択してもよい。ただし、置換する単語が名詞である場合は置換後の単語も名詞であることが好ましく、置換する単語が動詞である場合は置換後の単語も動詞であることが好ましく、置換する単語が数値である場合は置換後の単語も数値であることが好ましい。このように置換前と置換後の品詞を一致させておくことで、置換後の第１出力文章が、ユーザＨにも分かり難くなることを抑制する。

【００４３】

ここで、内容情報と置換情報とは、紐付けられている。言い換えれば、属性内容情報Ｅ１と属性種類情報Ｅ０とは、例えば図４に示す「山田さん」と「人」とのように、紐付けられており、取得内容情報Ａ１と取得種類情報Ａ０とも、例えば図５に示す「ミーティング」と「内容」とのように、紐付けられている。第１出力内容生成部６０は、属性内容情報Ｅ１に含まれる単語とその属性内容情報Ｅ１に紐付けられた属性種類情報Ｅ０とに基づき、他の単語に置換する単語を選択する。同様に、第１出力内容生成部６０は、取得内容情報Ａ１に含まれる単語とその取得内容情報Ａ１に紐付けられた取得種類情報Ａ０とに基づき、他の単語に置換する単語を選択する。以下、より具体的に説明する。

【００４４】

図６は、関係情報の一例を示すテーブルである。記憶部２０は、図６に示すような関係情報を、テーブルとして予め記憶している。ここでの関係情報は、置換の対象となる単語である置換元単語（第１単語）と、置換された後の単語である置換単語（第２単語）とが紐付けられた情報である。関係情報は、互いに異なる複数の置換元単語を有しており、１つの置換元単語には、１つの置換単語が紐付けられている。すなわち、関係情報は、置換元単語と置換単語との組を、複数有している。なお、置換単語は、置換元単語ごとに、すなわち組毎に、異なる単語となっている。なお、ここでの置換元単語と置換単語とも、名詞であるが、動詞や数値であってよい。ただし、置換元単語が名詞である場合は置換単語も名詞であることが好ましく、置換元単語が動詞である場合は置換単語も動詞であることが好ましく、置換元単語が数値である場合は置換単語も数値であることが好ましい。

【００４５】

また、関係情報は、置換元単語が示す情報の種類を示す種類情報も含んでいる。関係情

報は、種類情報毎に、置換元単語と置換単語との組を有している。例えば、図６の例では、種類情報は、内容である。従って、図６の例では、関係情報は、「内容」という種類情報について、置換元単語が「ミーティング」であり置換単語が「食事」である組と、置換元単語が「通院」であり置換単語が「ミーティング」である組とを有している。なお、種類情報毎の組の数は、図６の例では２つであるが、任意の数であってよい。また、図６の例では、種類情報が「内容」である例を示したが、複数の種類情報について、それぞれ置換元単語と置換単語との組を有していてもよい。

【００４６】

第１出力内容生成部６０は、このような関係情報を、記憶部２０から読み出す。そして、第１出力内容生成部６０は、内容情報に紐付けられた種類情報（例えば図５の「内容」）と一致する種類情報が、関係情報に存在するかを検出する。そして、第１出力内容生成部６０は、一致する種類情報がある場合、種類情報に紐付けられた内容情報に含まれる単語（例えば図５の「ミーティング」）と一致する単語が、一致する種類情報に紐付けられた置換元単語（例えば図６の「ミーティング」）として存在するかを、検出する。第１出力内容生成部６０は、一致する置換元単語がある場合、内容情報に含まれる単語を、置換する単語として選択して、その単語を、一致する置換元単語に紐付けられた置換単語に置換する。すなわち、第１出力内容生成部６０は、内容情報に含まれる単語の種類情報と置換元単語の種類情報とが一致し、かつ、内容情報に含まれる単語が置換元と一致する場合に、その内容情報に含まれる単語を、他の単語に置換する単語として選択する。そして、第１出力内容生成部６０は、置換する単語として選択した単語を、その選択した単語に一致する置換元単語に紐付けられた置換単語に、置換する。なお、第１出力内容生成部６０は、種類情報と単語とのいずれか一方が一致していたとしても、その内容情報に含まれる単語を、他の単語に置換する単語として選択せず、その単語を置換しないで第１出力文章に含めることが好ましい。

【００４７】

今回の例では、関係情報での種類情報が「内容」であるため、図５に示す「内容」という種類情報（取得種類情報Ａ０）に一致する。そして、今回の例では、「内容」という種類情報（取得種類情報Ａ０）についての内容情報（取得内容情報Ａ１）は、図５に示すように、「ミーティング」であり、図６に示すように、「内容」という種類情報についての置換元単語には、一致する「ミーティング」が含まれる。従って、今回の例では、「内容」という種類情報が一致し、かつ、「ミーティング」という単語が一致する。従って、図５に示す「内容」という取得種類情報Ａ０についての「ミーティング」という単語が、置換単語である「通院」に置換される。また、今回の例では、「ミーティング」の他に、種類情報と単語との両方が一致する内容情報が無いため、他の単語は、置換されない。従って、今回の例において、第１出力内容生成部６０は、第１出力文章として、「２０２０年３月２０日の山田さんのスケジュールは、東京ビルディングで１５時から吉田さんとの食事です」となり、「ミーティング」が「食事」に置換された文章となる。

【００４８】

なお、この説明では、記憶部２０が、関係情報をテーブルとして記憶していた。すなわち、関係情報は、予め設定されたものであった。ただし、関係情報は、記憶部２０にテーブルとして記憶されているものに限られない。第１出力内容生成部６０は、ユーザＨ（ここでは山田さん）に関する情報から、関係情報を生成してもよい。例えば、出力内容制御装置１や、ユーザＨが有する他の機器に、ユーザＨに関する情報が記憶されている場合、第１出力内容生成部６０は、その情報を読み出し、その情報から、関係情報を生成する。

【００４９】

例えば、出力内容制御装置１や、ユーザＨが有する他の機器に、連絡先リストが設定されており、その連絡先リストに名前が設定されている人に、ユーザＨによって、その名前とは別の名称（ニックネームなど）が設定されている場合がある。このような場合、第１出力内容生成部６０は、その連絡先リストから、その人の名前と、別の名称とを読み出して、関係情報を生成する。すなわち、この場合、第１出力内容生成部６０は、種類情報と

して「人」という関係情報を生成し、その関係情報における置換元単語を、その人の名前（例えば吉田さん）とし、置換単語として、その人に設定された別の名称（例えばヨシ）とする。この場合、図５に示す「吉田さん」という取得内容情報Ａ１について、種類情報と単語との両方が一致する。従って、「吉田さん」が、置換単語としての「ヨシ」に置換される。この場合、第１出力文章は、「２０２０年３月２０日の山田さんのスケジュールは、東京ビルディングで１５時からヨシとのミーティングです」となる。

【００５０】

また、例えば、出力内容制御装置１や、ユーザＨが有する他の機器に、地図アプリや住所録が記憶されており、それらに含まれる住所や建物に、ユーザＨによって、別の名称が設定されている場合がある。このような場合、第１出力内容生成部６０は、地図アプリや住所録から、その住所や建物の名称と、別の名称とを読み出して、関係情報を生成する。すなわち、この場合、第１出力内容生成部６０は、種類情報として「場所」という関係情報を生成し、その関係情報における置換元単語を、その住所や建物（例えば東京ビルディング）とし、置換単語として、その住所や建物に設定された別の名称（例えば東ビル）とする。この場合、図５に示す「吉田さん」という取得内容情報Ａ１について、種類情報と単語との両方が一致する。従って、「東京ビルディング」が、置換単語としての「東ビル」に置換される。この場合、第１出力文章は、「２０２０年３月２０日の山田さんのスケジュールは、東ビルで１５時から吉田さんとのミーティングです」となる。

【００５１】

なお、出力内容制御装置１は、関係情報を予めテーブルとして記憶していた場合、このようにユーザＨに関する情報に基づき新たに生成した関係情報を、このテーブルにさらに加えてもよい。

【００５２】

このように、関係情報は、予め置換元単語と置換単語とが設定されているため、ユーザＨは認識できるが、ユーザＨ以外には認識し難い。従って、第１出力文章が音声として出力された場合、ユーザＨにその内容は理解可能であるが、ユーザＨ以外には、内容が理解し難くなり、情報がユーザＨ以外に伝わることを抑制することができる。また、第１出力内容生成部６０は、種類情報が一致した場合に、単語を置換する。従って、第１出力内容生成部６０は、異なる種類、すなわち異なる意味であるが読みとして一致する単語がある場合に、その単語が置換されることを抑制し、置換後の第１出力文章が、ユーザＨにも分かり難くなることを抑制する。ただし、第１出力内容生成部６０は、種類情報が一致しない場合でも、単語さえ一致すれば、その単語を置換してもよい。

【００５３】

また、以上の説明では、第１出力内容生成部６０は、予め置換元単語と置換単語とが設定された関係情報を用いて単語を置換していたが、単語の置換に、必ずしもこのような関係情報を用いなくてもよい。例えば、第１出力内容生成部６０は、内容情報に含まれる単語を、その単語の上位概念となる単語に置換する。上位概念となる単語とは、その単語が、他の単語を包括することを指し、さらに言えば、他の単語より一般的、総称的、又は抽象的な単語をいう。従って、内容情報に含まれる単語を上位概念の単語に置換した場合、その上位概念の単語に包括される単語は、内容情報に含まれる単語以外にも複数あることとなる。従って、ユーザＨ以外の人は、上位概念の単語を聞いても、置換前の内容情報に含まれる単語を類推することができず、情報がユーザＨ以外に伝わることを抑制することができる。一方、ユーザＨは、内容情報に含まれる単語を元々認識していることが多いため、上位概念の単語を聞いて置換前の内容情報に含まれる単語を類推することが可能となり、内容を理解することができる。なお、この場合でも、第１出力内容生成部６０は、種類情報に基づいて置換を行ってよい。すなわち、第１出力内容生成部６０は、内容情報に含まれる単語が上位概念に置換可能であり（例えば後述するような固有名詞である場合など）、かつ、その内容情報に紐付けられた種類情報が、予め定めた所定の種類情報に該当する場合に、その内容情報に含まれる単語を、上位概念の単語に置換する。

【００５４】

例えば、第１出力内容生成部６０は、内容情報に含まれる単語が固有名詞である場合、その固有名詞を、その固有名詞の頭文字に置換する。すなわち、頭文字が、固有名詞の上位概念となる。なお、この場合でも、第１出力内容生成部６０は、種類情報に基づいて置換を行ってよい。すなわち、第１出力内容生成部６０は、内容情報に含まれる単語が固有名詞であって、かつ、その内容情報に紐付けられた種類情報が、予め定めた所定の種類情報に該当する場合、例えば「人」や「法人名」や「店名」などの名称に関連する種類情報である場合に、その単語（固有名詞）を、その頭文字に置換する。この場合、例えば、第１出力文章は、「２０２０年３月２０日のＹさんのスケジュールは、東京ビルディングで１５時からＹさんとのミーティングです」となる。

【００５５】

また例えば、第１出力内容生成部６０は、内容情報の紐付けられた種類情報が場所である場合、その内容情報の単語を、その内容情報における場所の近隣にある施設の名称や、その内容情報の建物や住所が属する地区（町や区や通り）の名称などに置換する。すなわち、近隣にある施設の名称や地区の名称が、上位概念となる。例えば、図５に示す「東京ビルディング」を「東京駅」に置換した場合、第１出力文章は、「２０２０年３月２０日の山田さんのスケジュールは、東京駅近くで１５時から吉田さんとのミーティングです」となる。

【００５６】

第１出力内容生成部６０は、第１音声Ｖ１Ａと分類された場合に、以上のようにして、内容情報に含まれる単語のうちから選択した単語を他の単語に置換した文章を、第１出力文章として生成する。なお、以上説明した単語の置換方法は、それぞれ組み合わせてもよいし、いずれか１つだけ用いてもよい。それぞれ組みわせることで、より他人に理解させ難くすることが可能となる。

【００５７】

図２に戻り、出力制御部４４は、出力内容生成部４０が生成した出力文章、すなわち第１出力文章又は第２出力文章を取得する。出力制御部４４は、このテキストデータとしての出力文章を音声データに変換し、その音声データを、音声Ｖ２として、音声出力部１２に出力させる。また、出力制御部４４は、音声Ｖ２を出力する際や、処理部３８による処理が終了した際や、音声Ｖ１を検出した際などに、点灯部１４を制御して点灯させてもよい。

【００５８】

制御部１６は、以上のような構成となっている。以下、制御部１６による出力文章の出力処理のフローを、フローチャートに基づき説明する。図７は、第１実施形態に係る出力文章の出力処理のフローを示すフローチャートである。図７に示すように、制御部１６は、音声取得部３０により、入力音声、すなわち音声Ｖ１の音声データを取得する（ステップＳ１０）。制御部１６は、音声解析部３２により、音声取得部３０が取得した音声Ｖ１の音声データを解析して、テキストデータを生成する（ステップＳ１２）。そして、制御部１６は、意図解析部３４により、テキストデータから、意図情報Ｉを検出し（ステップＳ１４）、属性情報取得部５０により、意図情報Ｉに基づき、属性情報Ｅを導出する（ステップＳ１６）。属性情報取得部５０は、意図情報Ｉに基づき、属性種類情報Ｅ０と、属性内容情報Ｅ１とを取得する。属性情報Ｅを導出したら、制御部１６は、取得情報取得部５２により、意図情報Ｉと属性情報Ｅとに基づき、取得情報Ａ、すなわち取得種類情報Ａ０と、取得内容情報Ａ１とを取得する（ステップＳ１８）。また、ステップＳ１０で入力音声、すなわち音声Ｖ１を取得したら、制御部１６は、音声分類部４２により、音声Ｖ１を第１音声Ｖ１Ａ、第２音声Ｖ１Ｂのいずれかに分類する（ステップＳ２２）。

【００５９】

制御部１６は、音声Ｖ１が第１音声Ｖ１Ａであるかを判定し（ステップＳ２４）、第１音声Ｖ１Ａである場合（ステップＳ２４；Ｙｅｓ）、第１出力内容生成部６０により、第１出力文章を生成する（ステップＳ２６）。一方、制御部１６は、第１音声Ｖ１Ａでない場合（ステップＳ２４；Ｎｏ）、すなわち第２音声Ｖ１Ｂである場合、第２出力内容生成

部６２により、第２出力文章を生成する（ステップＳ２８）。制御部１６は、出力文章、すなわち第１出力文章又は第２出力文章を生成したら、出力制御部４４により、その出力文章を、音声出力部１２により音声Ｖ２として出力させ（ステップＳ３０）、処理を終了する。すなわち、出力制御部４４は、第１出力文章が生成されたら、その第１出力文章を音声データに変換して、音声出力部１２により音声Ｖ２として出力させる。そして、出力制御部４４は、第２出力文章が生成された場合には、その第２出力文章を音声データに変換して、音声出力部１２により音声Ｖ２として出力させる。

【００６０】

以上説明したように、本実施形態に係る出力内容制御装置１は、音声分類部４２と、意図解析部３４と、通知情報取得部３６と、出力内容生成部４０とを有する。音声分類部４２は、音声取得部３０が取得したユーザＨが発する音声Ｖ１を解析して、音声Ｖ１が所定の音声（第１音声Ｖ１Ａ）であるか否かを判定する。意図解析部３４は、音声取得部３０が取得した音声Ｖ１を解析して、ユーザＨがどのような情報を求めているかを示す意図情報Ｉを検出する。通知情報取得部３６は、意図情報Ｉに基づき、ユーザＨへ通知する情報である通知情報を取得する。出力内容生成部４０は、通知情報に基づき、ユーザＨに向けて出力する文章データである出力文章を生成する。出力内容生成部４０は、第１音声Ｖ１Ａと分類された場合、すなわち所定の音声と判定された場合に、通知情報に含まれる単語のうちから選択した単語を他の単語に置換した出力文章（第１出力文章）を生成する。

【００６１】

出力文章の音声データとして出力される音声Ｖ２は、ユーザＨに向かって出力されるが、上述のように、出力内容制御装置１の周囲にいるユーザＨ以外の人にも届く場合がある。しかし、例えばプライバシーの観点から、音声Ｖ２の内容を、ユーザＨ以外には知られたくない場合がある。ユーザＨは、周りの人に音声Ｖ２の内容、すなわち出力内容制御装置１からの出力文章の内容を、他の人に知られたくない場合には、ささやき声で音声Ｖ１を発したりするなど、内容が知られてもよい場合に対し、同じ内容を伝える場合であっても、音声Ｖ１を変化させる。一方、出力内容制御装置１は、第１音声Ｖ１Ａと分類されるような音声Ｖ１が検出された場合には、ユーザＨ以外に内容を知られなくする必要があると判断して、音声Ｖ２用に、第１出力文章を生成する。第１出力文章は、内容情報、すなわちユーザＨに通知する内容（ユーザＨが知りたい情報）に含まれる単語を、他の単語に置換する。これにより、他の単語に置換されると、ユーザＨ以外は、第１出力文章の意味が理解し難くなるため、ユーザＨ以外に、内容を理解させ難くすることができる。

【００６２】

また、出力内容生成部４０は、第２音声Ｖ２Ｂと分類された場合に、通知情報に含まれる単語を置換しない第２出力文章を生成する。この出力内容制御装置１は、ユーザの音声Ｖ１を解析して、第２音声Ｖ１Ｂと分類されるような音声Ｖ１が検出された場合には、ユーザＨ以外に知られてもよい判断して、単語を置換せずに第２出力文章を生成する。これにより、不要な際に単語を置換することを抑制することができる。

【００６３】

また、通知情報取得部３６は、通知情報として、ユーザＨへ通知する情報の内容である内容情報と、内容情報の種類を示す種類情報とを取得する。出力内容生成部４０は、内容情報に含まれる単語とその内容情報に紐付けられた種類情報とに基づき、他の単語に置換する単語を選択する。内容情報に含まれる単語を他の単語に置換した場合、ユーザＨも内容を理解し難くなるおそれがある。それに対し、出力内容制御装置１は、通知する情報と、その情報の種類とに基づき、置換する単語を選択するため、ランダムに単語が置換されることを抑制して、ユーザＨが理解し難くなることを抑制する。

【００６４】

また、出力内容生成部４０は、所定の単語である置換元単語（第１単語）と置換元単語（第１単語）に紐付けられた置換単語（第２単語）との情報を有する関係情報を読み出す。出力内容生成部４０は、通知情報に含まれる単語が置換元単語（第１単語）と一致する場合に、通知情報に含まれる単語を、置換単語（第２単語）に置換する。関係情報は、予

め置換元単語と置換単語とが設定されているため、ユーザＨは認識できるが、ユーザＨ以外には認識し難い。従って、出力内容制御装置１は、このように置換単語に置換するため、ユーザＨにその内容は理解可能であるが、情報がユーザＨ以外に伝わることを適切に抑制することができる。

【００６５】

また、関係情報は、置換元単語（第１単語）の種類を示す種類情報の情報も含んでいる。出力内容生成部４０は、通知情報に含まれる単語の種類情報と置換元単語（第１単語）の種類情報とが一致し、かつ、通知情報に含まれる単語が置換元単語（第１単語）と一致する場合に、通知情報に含まれる単語を、他の単語に置換する単語として選択する。このように、出力内容制御装置１は、種類情報が一致した場合に、単語を置換する。従って、第１出力内容生成部６０は、異なる種類、すなわち異なる意味であるが読みとして一致する単語がある場合に、その単語が置換されることを抑制し、置換後の第１出力文章が、ユーザＨにも分かり難くなることを抑制する。

【００６６】

また、出力内容生成部４０は、通知情報に含まれる単語を、その単語の上位概念となる単語に置換する。ユーザＨ以外の人は、上位概念の単語を聞いても、置換前の内容情報に含まれる単語を類推することができず、情報がユーザＨ以外に伝わることを抑制することができる。一方、ユーザＨは、内容情報に含まれる単語を元々認識しておくことが可能であるため、上位概念の単語を聞いて置換前の内容情報に含まれる単語を類推することが可能となり、内容を適切に理解することができる。

【００６７】

また、出力内容生成部４０は、通知情報に含まれる単語が固有名詞である場合、その単語を、固有名詞の頭文字に置換する。ユーザＨ以外の人は、頭文字を聞いても、置換前の内容情報に含まれる単語を類推することができず、情報がユーザＨ以外に伝わることを抑制することができる。一方、ユーザＨは、内容情報に含まれる単語を元々認識しておくことが可能であるため、頭文字を聞いて置換前の内容情報に含まれる単語を類推することが可能となり、内容を適切に理解することができる。

【００６８】

音声分類部４２は、ユーザが発する音声Ｖ１がささやき声である場合に、音声Ｖ１を第２音声Ｖ２Ｂとして分類する。この出力内容制御装置１は、ささやき声を検出して、その場合に第２出力文章を生成ことで、ユーザＨに聞かれたくない内容であるかを適切に検出して、その影響を適切に抑制することができる。

【００６９】

図８は、第１実施形態に係る出力内容制御装置の他の例を示す模式図である。第１実施形態に係る出力内容制御装置１は、上述のように、出力制御部４４は、出力文章を音声データに変換し、その音声データを、音声Ｖ２として、音声出力部１２に出力させていた。ただし、出力内容制御装置１は、第１出力文章を出力する際には、図８に示すように、第１出力文章を、テキストデータとして、音声出力部１２以外の出力部に出力してもよい。例えば、出力内容制御装置１は、出力内容制御装置１に接続された表示装置１２Ａに、第１出力文章を表示させてもよい。また、出力内容制御装置１は、例えばユーザＨが有する端末１０２に、第１出力文章を表示させてもよい。また、出力内容制御装置１は、第１出力文章を電子メールに添付して、その電子メールを、所定の宛先に送信してもよい。この場合、出力内容制御装置１は、送信する宛先を、予め定めておくことが好ましい。このように、出力内容制御装置１は、第１出力文章を出力する際には、音声でなく、テキストデータとして、第１出力文章を出力してもよい。このような場合、音声が出力されないため、他の人に聞かれることがなくなり、内容が知られる可能性をより低減することができる。さらに、例えこのテキストデータを視認されたとしても、第１出力文章として、単語が置換されているため、他の人は理解し難くなる。

【００７０】

（第２実施形態）

次に、第２実施形態について説明する。第１実施形態に係る出力内容制御装置１は、音声検出部１０及び音声出力部１２を有しているが、第２実施形態に係る出力内容制御装置１Ａは、音声検出部１０及び音声出力部１２を有していない。第２実施形態において第１実施形態と構成が共通する箇所は、説明を省略する。

【００７１】

図９は、第２実施形態に係る情報出力システムの模式的なブロック図である。図９に示すように、第２実施形態に係る情報出力システム１００は、出力内容制御装置１Ａと、応答装置２Ａとを有する。応答装置２Ａは、例えば、スマートスピーカであり、音声検出部１０と、音声出力部１２と、点灯部１４と、通信部１５Ａとを有する。出力内容制御装置１Ａは、応答装置２Ａから離れた箇所にある装置（サーバ）であり、制御部１６と、通信部１８Ａと、記憶部２０とを有する。出力内容制御装置１Ａと応答装置２Ａとは、無線通信で接続されているが、有線通信で接続されていてもよい。

【００７２】

出力内容制御装置１Ａは、音声検出部１０が検出した音声Ｖ１を、通信部１５Ａと通信部１８Ａとを介した情報通信により、取得する。そして、出力内容制御装置１Ａは、第１実施形態と同様の処理を実行して出力文章を生成し、その出力文章を、応答装置２Ａに出力する。応答装置２Ａは、音声出力部１２で、出力文章を音声データに変換して、音声Ｖ２として出力する。ただし、出力内容制御装置１Ａが、出力文章の音声データを生成し、応答装置２Ａに送信してもよい。この場合、音声出力部１２は、取得した音声データを、音声Ｖ２として出力する。このように、情報出力システム１００は、出力内容制御装置１Ａと、ユーザＨが発する音声Ｖ１を検出する音声検出部１０と、出力内容生成部４０が生成した出力文章を、音声Ｖ２として出力する音声出力部１２と、を有する。このように、出力内容制御装置１Ａは、応答装置２Ａと別体であっても、第１実施形態と同様の効果を奏する。すなわち、第１実施形態に係る出力内容制御装置１は、応答装置２Ａと一体であるということができ、言い換えれば、情報出力システムであるということもできる。

【００７３】

このように、情報出力システムは、出力内容制御装置と、出力内容生成部４０が生成した出力文章を出力する出力部とを有する。出力部は、出力文章を音声として出力する音声出力部１２であるが、上述のように、表示装置１２Ａなどであってもよく、出力文章の出力の方法は、音声であってもよいし、テキストデータであってもよい。

【００７４】

以上、本発明の実施形態を説明したが、これら実施形態の内容により実施形態が限定されるものではない。また、前述した構成要素には、当業者が容易に想定できるもの、実質的に同一のもの、いわゆる均等の範囲のものが含まれる。さらに、前述した構成要素は適宜組み合わせることが可能である。さらに、前述した実施形態の要旨を逸脱しない範囲で構成要素の種々の省略、置換又は変更を行うことができる。

【符号の説明】

【００７５】

１　出力内容制御装置
１０　音声検出部
１２　音声出力部
１６　制御部
３０　音声取得部
３２　音声解析部
３４　意図解析部
３６　通知情報取得部
４０　出力内容生成部（音声内容生成部）
４４　出力制御部
５０　属性情報取得部
５２　取得情報取得部

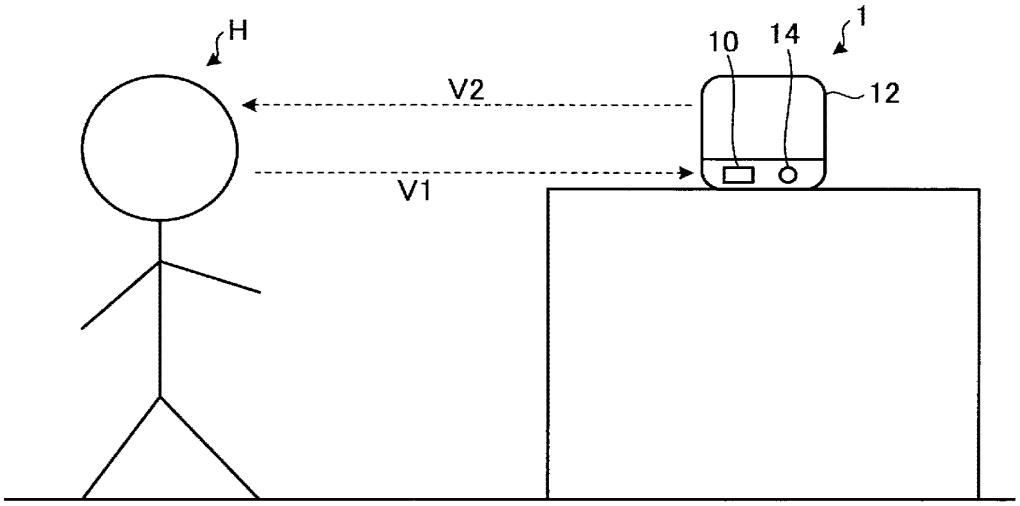
Ａ　取得情報
Ｅ　属性情報
Ｈ　ユーザ
Ｉ　意図情報
Ｖ１、Ｖ２　音声
Ｖ１Ａ　第１音声
Ｖ１Ｂ　第２音声

【書類名】特許請求の範囲
【請求項１】
　音声取得部が取得したユーザが発する音声を解析して、前記音声が、所定の音声であるか否かを判定する音声分類部と、
　前記音声取得部が取得した音声を解析して、前記ユーザがどのような情報を求めているかを示す意図情報を検出する意図解析部と、
　前記意図情報に基づき、前記ユーザへ通知する情報である通知情報を取得する通知情報取得部と、
　前記通知情報に基づき、前記ユーザに向けて出力する文章データである出力文章を生成する出力内容生成部と、を有し、
　前記出力内容生成部は、前記所定の音声と判定された場合に、前記通知情報に含まれる単語のうちから選択した単語を他の単語に置換した前記出力文章を生成する、
　出力内容制御装置。
【請求項２】
　前記通知情報取得部は、前記通知情報として、前記ユーザへ通知する情報の内容である内容情報と、前記内容情報の種類を示す種類情報とを取得し、
　前記出力内容生成部は、前記内容情報に含まれる単語とその内容情報に紐付けられた前記種類情報とに基づき、他の単語に置換する単語を選択する、請求項１に記載の出力内容制御装置。
【請求項３】
　前記出力内容生成部は、所定の単語である第１単語と前記第１単語に紐付けられた第２単語との情報を有する関係情報を読み出し、前記通知情報に含まれる単語が前記第１単語と一致する場合に、前記通知情報に含まれる単語を、前記第２単語に置換する、請求項２に記載の出力内容制御装置。
【請求項４】
　前記関係情報は、前記第１単語の種類を示す種類情報の情報も含んでおり、
　前記出力内容生成部は、前記通知情報に含まれる単語の種類情報と前記第１単語の種類情報とが一致し、かつ、前記通知情報に含まれる単語が前記第１単語と一致する場合に、前記通知情報に含まれる単語を、他の単語に置換する単語として選択する、請求項３に記載の出力内容制御装置。
【請求項５】
　前記音声分類部は、前記ユーザが発する音声がささやき声である場合に、前記所定の音声として判定する、請求項１から請求項４のいずれか１項に記載の出力内容制御装置。
【請求項６】
　音声取得部が取得したユーザが発する音声を解析して、前記音声が、所定の音声であるか否かを判定する音声分類ステップと、
　前記音声取得部で取得した音声を解析して、前記ユーザがどのような情報を求めているかを示す意図情報を抽出する意図解析ステップと、
　前記意図情報に基づき、前記ユーザへ通知する情報である通知情報を取得する通知情報取得ステップと、
　前記通知情報に基づき、前記ユーザに向けて出力する文章データである出力文章を生成する出力文章生成ステップと、を有し、
　前記出力文章生成ステップにおいて、前記所定の音声と判定された場合に、前記通知情報に含まれる単語のうちから選択した単語を他の単語に置換した前記出力文章を生成する、
　出力内容制御方法。
【請求項７】
　音声取得部が取得したユーザが発する音声を解析して、前記音声が、所定の音声であるか否かを判定する音声分類ステップと、
　前記音声取得部で取得した音声を解析して、前記ユーザがどのような情報を求めている

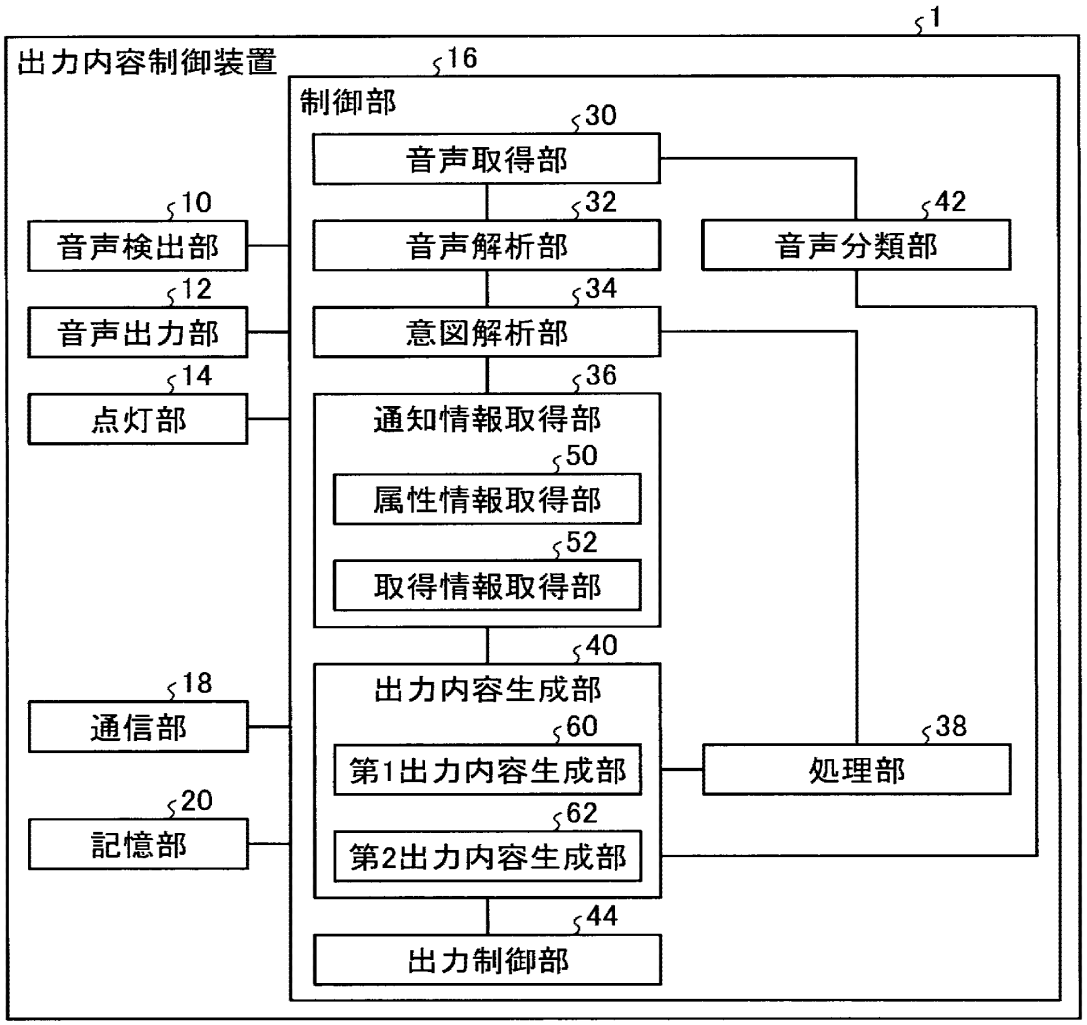
かを示す意図情報を抽出する意図解析ステップと、
　前記意図情報に基づき、前記ユーザへ通知する情報である通知情報を取得する通知情報取得ステップと、
　前記通知情報に基づき、前記ユーザに向けて出力する文章データである出力文章を生成する出力文章生成ステップと、をコンピュータに実行させ、
　前記出力文章生成ステップにおいて、前記所定の音声と判定された場合に、前記通知情報に含まれる単語のうちから選択した単語を他の単語に置換した前記出力文章を生成する、
　出力内容制御プログラム。

【書類名】要約書
【要約】
【課題】ユーザの問い合わせ内容を通知する場合に、その通知の内容をユーザ以外に理解させ難くする。
【解決手段】出力内容制御装置１は、ユーザが発する音声を解析して、音声が所定の音声であるか否かを判定する音声分類部４２と、音声を解析して、前記ユーザがどのような情報を求めているかを示す意図情報を検出する意図解析部３４と、意図情報に基づき、ユーザへ通知する情報である通知情報を取得する通知情報取得部３６と、通知情報に基づき、ユーザに向けて出力する文章データである出力文章を生成する出力内容生成部４０と、を有し、出力内容生成部４０は、所定の音声と判定された場合に、通知情報に含まれる単語のうちから選択した単語を他の単語に置換した出力文章を生成する。
【選択図】図２

【書類名】図面
【図１】



【図２】


1
出力内容制御装置
16
制御部
30
音声取得部
10
音声検出部
32
音声解析部
42
音声分類部
12
音声出力部
34
意図解析部
14
点灯部
36
通知情報取得部
50
属性情報取得部
52
取得情報取得部
40
出力内容生成部
18
通信部
60
第1出力内容生成部
38
処理部
20
記憶部
62
第2出力内容生成部
44
出力制御部

【図３】

意図情報I	スケジュール

【図４】

属性種類情報E0	人	日付
属性内容情報E1	山田さん	2020年3月20日

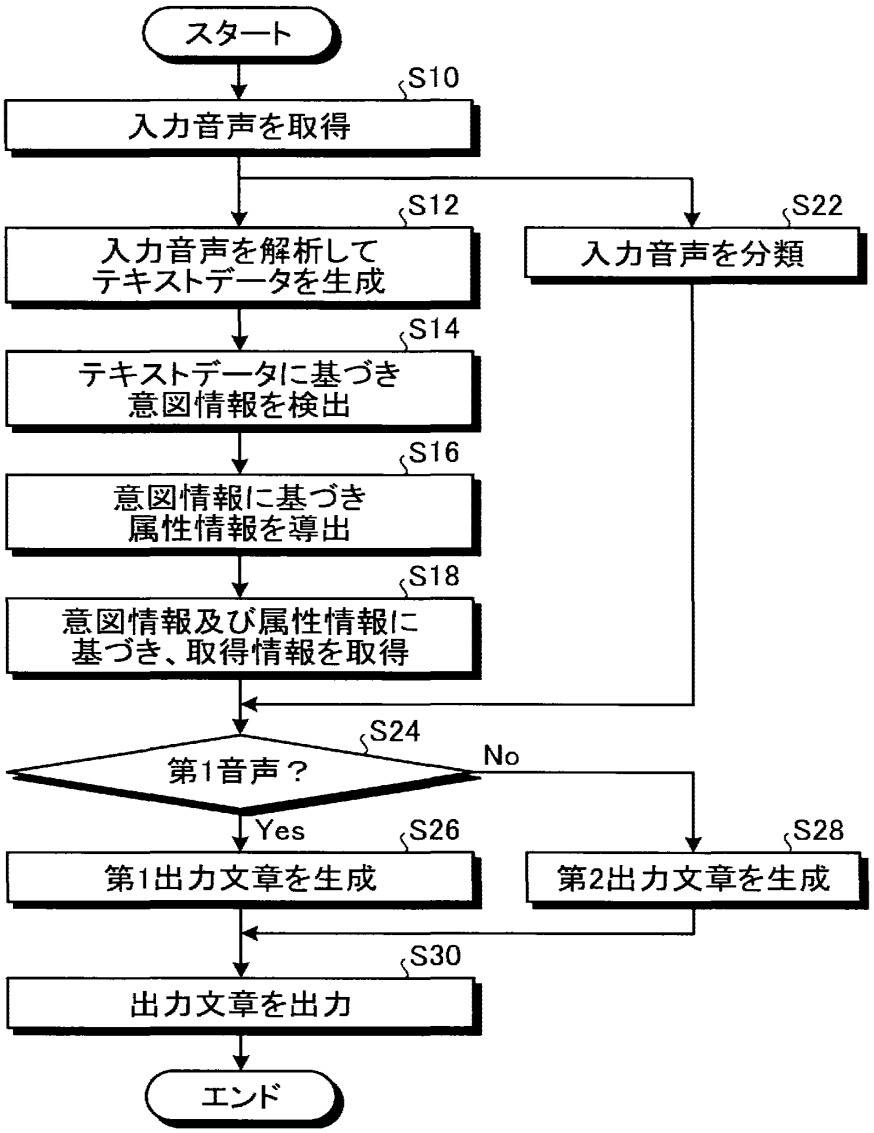
【図５】

取得種類情報A0	場所	時間	内容	人
取得内容情報A1	東京ビルディング	15時から	ミーティング	吉田さん

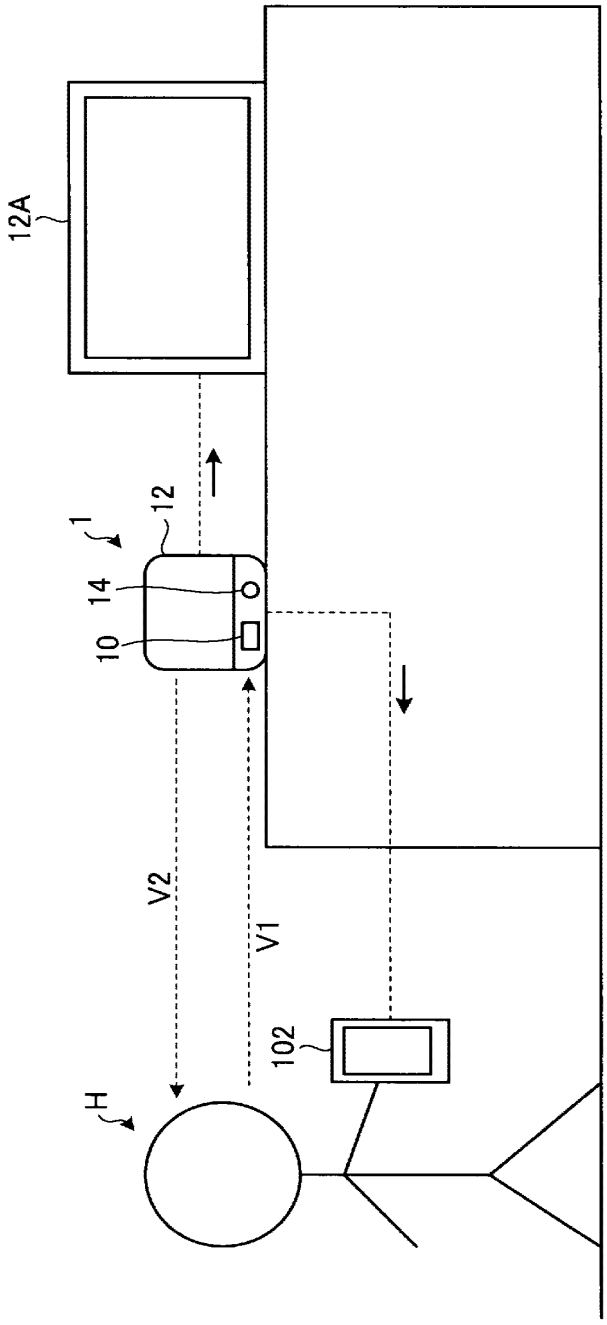
【図６】

置換元単語	ミーティング	食事
置換単語	通院	ミーティング

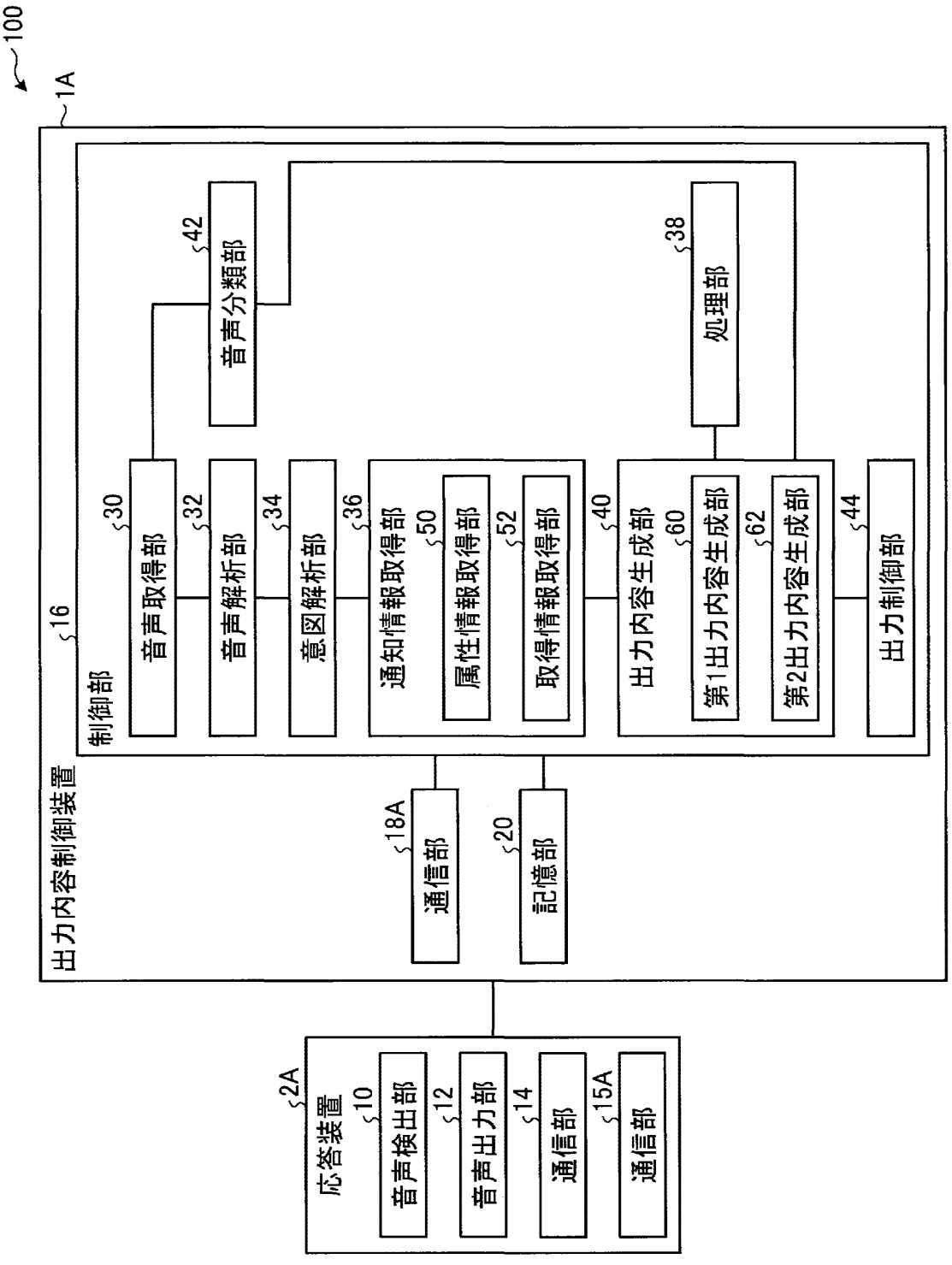
【図７】


スタート
S10
入力音声を取得
S12
入力音声を解析して
テキストデータを生成
S14
テキストデータに基づき
意図情報を検出
S16
意図情報に基づき
属性情報を導出
S18
意図情報及び属性情報に
基づき、取得情報を取得
S22
入力音声を分類
S24
第1音声？
No
Yes
S26
第1出力文章を生成
S28
第2出力文章を生成
S30
出力文章を出力
エンド

【図８】



【図９】


100
1A
出力内容制御装置
16
制御部
音声取得部
30
音声解析部
32
意図解析部
34
通知情報取得部
36
属性情報取得部
50
取得情報取得部
52
出力内容生成部
40
第1出力内容生成部
60
第2出力内容生成部
62
処理部
38
音声分類部
42
出力制御部
44
通信部
18A
記憶部
20
2A
応答装置
音声検出部
10
音声出力部
12
通信部
14
通信部
15A

出願人履歴

３０８０３６４０２

20110810

名称変更

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株式会社ＪＶＣケンウッド

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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
16/295,034	03/07/2019	2658	1720	SAJVP172US	7	3

CONFIRMATION NO. 1688

FILING RECEIPT

23623
AMIN, TUROCY & WATSON, LLP
200 Park Avenue
Suite 300
Beachwood, OH 44122

OC000000108792283

Date Mailed: 03/25/2019

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**

Inventor(s)

Tatsumi Naganuma, Yokohama-shi, JAPAN;

Applicant(s)

JVC KENWOOD Corporation, Yokohama-shi, JAPAN;

Power of Attorney: The patent practitioners associated with Customer Number 23623

Domestic Applications for which benefit is claimed - None.
A proper domestic benefit claim must be provided in an Application Data Sheet in order to constitute a claim for domestic benefit. See 37 CFR 1.76 and 1.78.

Foreign Applications (You may be eligible to benefit from the **Patent Prosecution Highway** program at the USPTO. Please see http://www.uspto.gov for more information.)
JAPAN 2018-044598 03/12/2018 Access Code Provided

Permission to Access Application via Priority Document Exchange: Yes

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The country code and number of your priority application, to be used for filing abroad under the Paris Convention, is **US 16/295,034**

Projected Publication Date: 09/12/2019

Non-Publication Request: No

Early Publication Request: No

Title

OUTPUT-CONTENT CONTROL DEVICE, OUTPUT-CONTENT CONTROL METHOD, AND NON-TRANSITORY STORAGE MEDIUM

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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PATENT APPLICATION FEE DETERMINATION RECORD

Substitute for Form PTO-875

Application or Docket Number: 16/295,034

APPLICATION AS FILED - PART I

FOR	(Column 1) NUMBER FILED	(Column 2) NUMBER EXTRA	SMALL ENTITY RATE($)	SMALL ENTITY FEE($)	OR	OTHER THAN SMALL ENTITY RATE($)	OTHER THAN SMALL ENTITY FEE($)
BASIC FEE (37 CFR 1.16(a), (b), or (c))	N/A	N/A	N/A			N/A	300
SEARCH FEE (37 CFR 1.16(k), (i), or (m))	N/A	N/A	N/A			N/A	660
EXAMINATION FEE (37 CFR 1.16(o), (p), or (q))	N/A	N/A	N/A			N/A	760
TOTAL CLAIMS (37 CFR 1.16(i))	7 minus 20 =	*			OR	x 100 =	0.00
INDEPENDENT CLAIMS (37 CFR 1.16(h))	3 minus 3 =	*				x 460 =	0.00
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).						0.00
MULTIPLE DEPENDENT CLAIM PRESENT (37 CFR 1.16(j))							0.00
* If the difference in column 1 is less than zero, enter "0" in column 2.			TOTAL			TOTAL	1720

APPLICATION AS AMENDED - PART II

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

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

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

PATENT ASSIGNMENT COVER SHEET

Electronic Version v1.1
Stylesheet Version v1.2

EPAS ID: PAT5408976

SUBMISSION TYPE:	NEW ASSIGNMENT
NATURE OF CONVEYANCE:	ASSIGNMENT

CONVEYING PARTY DATA

Name	Execution Date
TATSUMI NAGANUMA	01/25/2019

RECEIVING PARTY DATA

Name:	JVC KENWOOD CORPORATION
Street Address:	3-12, MORIYACHO, KANAGAWA-KU
City:	YOKOHAMA-SHI, KANAGAWA
State/Country:	JAPAN
Postal Code:	221-0022

PROPERTY NUMBERS Total: 1

Property Type	Number
Application Number:	16295034

CORRESPONDENCE DATA

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ATTORNEY DOCKET NUMBER:	SAJVP172US
NAME OF SUBMITTER:	GREGORY TUROCY
SIGNATURE:	/Greg Turocy/
DATE SIGNED:	03/07/2019
	This document serves as an Oath/Declaration (37 CFR 1.63).

Total Attachments: 2
source=DEC172#page1.tif
source=DEC172#page2.tif

Docket No. Amin, Turocy & Watson, LLP

COMBINED DECLARATION AND ASSIGNMENT FOR U.S. PATENT APPLICATION USING AN APPLICATION DATA SHEET

DECLARATION

As a below named inventor, I hereby declare that:

I believe I am the original inventor or an original joint inventor of the subject matter which is claimed and for which a patent is sought on the invention entitled:

Title: OUTPUT-CONTENT CONTROL DEVICE, OUTPUT-CONTENT CONTROL METHOD, AND NON-TRANSITORY STORAGE MEDIUM

the application of which is attached hereto unless the following is checked

_____ was filed on _____ as United States application Serial No. _____, or as described and claimed in PCT International Application No. _____filed on _____ and amended on _____ (if any).

The above-identified application was made or authorized to be made by me.

Please direct all communications to the following address:

the address associated with Customer Number **23623**, and direct telephone calls to

Gregory Turocy of Amin, Turocy & Watson, LLP at 216-696-8730.

I hereby acknowledge that any willful false statement made in this declaration is punishable under 18 U.S.C. Section 1001 by fine or imprisonment of not more than five (5) years, or both.

ASSIGNMENT

For good and valuable consideration received of the hereinafter named assignee, receipt of which is hereby acknowledged, the undersigned

Name: Tatsumi NAGANUMA **Residence:** Yokohama-shi, Kanagawa, JAPAN

hereby sell and assign to JVC KENWOOD Corporation, a corporation of Japan, having a business address at 3-12, Moriyacho, Kanagawa-ku, Yokohama-shi, Kanagawa 221-0022 Japan, its successors and assigns, the entire right, title and interest, so far as concerns the United States and the Territories and Possessions thereof and all foreign countries, in and to the inventions titled above for which application for United States Letters Patent is executed by the undersigned on the date below and is being filed concurrently herewith, said application for United States Letters Patent, any and all other applications for Letters Patent on said inventions in countries foreign to the United States, including all divisional, renewal, substitute, continuation, Convention applications, reissue, reexamination, supplemental examination, inter partes review, post grant review, or other procedures thereof for the full term or terms for which the same may be granted based in whole or in part upon said inventions or upon said applications, and any and all Letters Patent and

reissues and extensions of Letters Patent granted for said inventions or upon said applications, and every priority right that is or may be predicated upon or arise from said inventions, said applications and said Letters Patent; said assignee being hereby authorized to file patent applications in any or all countries on any or all said inventions in the name of the undersigned or in the name of said assignee or otherwise as said assignee may deem advisable, under the International Convention or otherwise; the Commissioner of Patents and Trademarks of the United States of America and the empowered officials of all other governments being hereby authorized to issue or transfer all said Letters Patent to said assignee in accordance herewith; this assignment being under covenant, not only that full power to make the same is had by the undersigned, but also that such assigned right is not encumbered by any grant, license, or other right heretofore given, and that the undersigned will do all acts reasonably serving to assure that said inventions, patent applications and Letters Patent shall be held and enjoyed by said assignee as fully and entirely as the same could have been held and enjoyed by the undersigned if this assignment had not been made, and particularly to execute and deliver to said assignee all lawful documents including petitions, specifications, oaths, assignments, invention disclaimers, and lawful affidavits in form and substance which may be requested by said assignee, to furnish said assignee with all facts relating to said inventions or the history thereof and any and all documents, photographs, models, samples or other physical exhibits which may be useful for establishing the facts of conception, disclosure and reduction to practice of said inventions, and to testify in any proceedings relating to said inventions, patent applications and Letters Patent.

The undersigned hereby appoint, request, and grant power to the following law firm to insert on this Assignment further identification which may be necessary or desirable in order to comply with the Rules of the U.S. Patent and Trademark Office for recordation of this document, for example, the U.S. Serial No. and filing date.

Amin, Turocy & Watson, LLP, 57th Floor - Key Tower, 127 Public Square, Cleveland, Ohio 44114.

Legal name of inventor: Tatsumi NAGANUMA

Inventor's signature: Tatsumi Naganuma Date: Jan. 25, 2019

Doc Code: PA
Document Description: Power of Attorney

PTO/AIA/82B (07-13)
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私はここに、添付の伝送書もしくは下記枠内で特定された出願に対して、現時点より前に与えられたすべての委任状を破棄します。
I hereby revoke all previous powers of attorney given in the application identified in either the attached transmittal letter or the boxes below.

出願番号 Application Number	出願日 Filing Date

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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: 23623

又は
OR

☐ 私は、添付のリスト(PTO/AIA/82C)に記載の特許弁護士を、当方の弁護士あるいは代理人に指名し、添付の伝送書（PTO/AIA/82A）内もしくは上記に記載の特許出願に関連した米国特許商標庁との業務の全てを同弁護士あるいは代理人に委任します。(注記: PTO/AIA/82C を記入すること。)
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.)

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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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出願人による委任状
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私は出願人であり（出願人が法人の場合、出願人名を下記枠内に記入）：
I am the Applicant (if the Applicant is a juristic entity, list the Applicant name in the box):

JVC KENWOOD Corporation

- ☐ 発明者もしくは共同発明者である（下記役職の明記は不要）
  Inventor or Joint Inventor (title not required below)
- ☐ 死亡したもしくは成年被後見人である発明者の法定代理人である（下記役職の明記は不要）
  Legal Representative of a Deceased or Legally Incapacitated Inventor (title not required below)
- ☑ 被譲渡人もしくは発明者が譲渡する義務を負う人物である
  Assignee or Person to Whom the Inventor is Under an Obligation to Assign (provide signer's title if applicant is a juristic entity)
- ☐ 上記以外で、十分な独占的所有権を示す人物である（例：37 CFR 1.46(b)(2)に基づく申請が本出願において認められた、又は本書類と共にその申請がなされている場合）（出願人が法人の場合、署名者の役職を明記すること）
  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)

特許出願人の署名
SIGNATURE of Applicant for Patent

下記署名者（役職は下記に記載）は出願人の代理人と認められている（出願人が法人の場合等）
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).

署名 Signature		署名日（任意） Date (Optional)	Dec. 21. 2015
氏名 Name	Junichi OGURA		
役職 Title	Senior Manager, Intellectual Property Department		

注記: 署名 - 本書類は37 CFR 1.33に基づき署名されなければならない。署名の要件および証明に関しては37 CFR 1.4を参照。出願人が複数いる場合は、複数の書類を使うこと。

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.

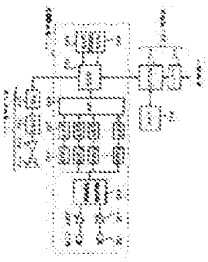
☑ 提出書類 計 1 枚。
Total of 1 forms are submitted.

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Legal Status

(11)Publication number 04-204700
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(21)Application number 02-334766
(22)Date of filing 30.11.1990
(71)Applicant FUJITSU TEN LTD
(72)Inventor SAKO KAZUYA



(54)SPEECH RECOGNITION DEVICE

(57)Abstract
PURPOSE: To allow the correspondence of plural operation contents to one speech command and the simultaneous execution thereof and to enhance the flexibility of this kind of system by corresponding a speech input to an immediate post equipment operation and storing this speech input as a fresh registered pattern when the speech input does not coincide with the registered pattern.
CONSTITUTION: An in-phase component extraction circuit 203 extracts in-phase components from the outputs of two microphones 201 and takes in only the speaker's speech existing an equal distance from the two microphones. The output of the extraction circuit 203 is band divided by n-pieces of band-pass filters 204 and the respective outputs are converted to the absolute values in absolute value circuits 205. The outputs of the respective absolute value circuits 205 are converted to digital signals by an AD converter 206 and the digital signals are inputted to a digital signal processor(DSP) 207. The DSP 207 executes processing of speech recognition, speech synthesis, speech pattern registration and judgment. A memory 209 is a RAM and the added speech patterns are registered therein.

(19)日本国特許庁（ＪＰ）　(12)特　許　公　報（Ｂ２）　(11)特許出願公告番号

特公平7－109560

(24)(44)公告日　平成７年(1995)11月22日

(51)Int.Cl.[6]	識別記号	庁内整理番号	ＦＩ	技術表示箇所
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	Ｂ			
	５６１　Ｅ			

請求項の数２(全　７　頁)

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(22)出願日　平成２年(1990)11月30日

(65)公開番号　特開平4－204700

(43)公開日　平成４年(1992)７月27日

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審査官　橋本　武

(56)参考文献　特開　昭57－62097（ＪＰ，Ａ）

(54)【発明の名称】　音声認識装置

1

【特許請求の範囲】

【請求項１】音声入力を記憶された登録パターンと照合し、一致した場合には該登録パターンに対応づけて記憶された被制御機器の所定の動作制御を行う音声認識装置において、

前記音声入力が前記登録パターンと一致しないときは、該音声入力を新たな動作に対応する登録パターンとして記憶すると共に、直後になされた操作による前記被制御機器の動作制御を該新たな動作に対応する登録パターンに対応づけて記憶することを特徴とする音声認識装置。

【請求項２】前記登録パターンに対応づけて、前記被制御機器の動作制御の複数を記憶することを特徴とする請求項１記載の音声認識装置。

【発明の詳細な説明】

〔概要〕

2

音声コマンドにより電子機器の操作を行うシステムの音声認識装置において、使用者による任意の音声コマンドを、希望する機器動作に対応づけて登録できるようにすることを目的とし、音声入力を登録パターンと照合し、一致した場合には該登録パターンに対応づけられた所定の機器制御を行う音声認識装置において、前記音声入力が前記登録パターンと一致しないときは、直後の機器操作に対応づけて該音声入力を新たな登録パターンとして記憶するよう構成する。

〔産業上の利用分野〕

本発明は、音声コマンドにより電子機器の操作を行うシステムの音声認識装置に関する。

〔従来の技術〕

使用者による音声コマンドで機器動作を制御するシステムは、使用者が直接機器のスイッチ等を操作しなくて済

むので、例えば車載用システムに適用すると運転中でも安全に機器制御（例えばパワーウインドウの開閉）することができ、便利である。

〔発明が解決しようとする課題〕

しかしながら、音声コマンドは予め定められた語句で登録されているため、それと同じ意味でも言葉が違えば動作しない。例えば「窓開」という動作を“ウインドウオープン”という音声コマンドで指示するように登録されているシステムでは、“マドゼンカイ”と発声しても応動しない。一般に人間の記憶力には限界があるため、数10項目にも及ぶ音声コマンドを正確に覚えておくことは難しい。また、覚える作業そのものも手間であり、中には一旦覚えた音声コマンドを忘れることもある。

また、「窓開」と「音量ダウン」等という２以上の動作を同時に行う場合、これらの必要性のある高速道路の料金所や鉄道の踏切りではその都度複数の音声コマンド入力をする必要があり、不便である。

本発明は、音声コマンドにより電子機器の操作を行うシステムの音声認識装置において、使用者による任意の音声コマンドを、希望する機器動作に対応づけて登録できるようにすることを目的とする。

〔課題を解決するための手段〕

図１は本発明の原理図で、１は話者、２は音声認識装置、３は音声コマンド①または直接操作⑤で制御される各機器である。

〔作用〕

図１において話者１の音声コマンド①を入力すると、音声認識装置２は該コマンドの種類を登録パターンと比較して認識する。認識結果は話者により確認してもらう必要があるので、確認音声②を第１候補から順に音声合成して出力する。これに対し話者１が否定音声③（例えば“NO”,“いいえ”）を入力したら、次の候補の確認音声②を再生して確認を求める。このようにして第ｉ候補の確認音声②に対する否定音声③がないまま一定時間経過したら、第ｉ候補の登録パターンで音声コマンド①が入力されたものと確定し、その制御コード④を機器３に出力して動作させる。

以上は一般的な音声コマンドによる機器操作であるが、本発明では否定音声③の直後に機器３を直接操作したら、該操作⑤の内容⑥を音声認識装置２に取込み、そのときの音声コマンド①に対応づけて登録する。このようにすることで、認識できなかった音声コマンド①が新たな登録パターンとして記憶され、次の入力時に使用される。

この方法のメリットは、話者１が正規の音声コマンドを覚えなくともシステムを使用できる点であり、また１つの音声コマンドに対し同時に行われる複数の操作内容⑥を対応づけて記憶できる点である。

〔実施例〕

図２は本発明の一実施例を示す構成図で、破線枠21内は音声認識部、22は確認音声出力部、23は制御部である。

音声認識部21の入力端は２つのマイク（MIC）201であり、その出力をAGC回路202を通して同相成分抽出回路203に入力する。この回路203は２つのマイク201の出力から同相成分を抽出し、両マイクから等距離にある話者だけの音声を取込むようにしている。抽出回路203の出力はｎ個のバンドパスフィルタ（BPF）204で帯域分割され、それぞれが絶対値回路（ABS）205で絶対値化される。各絶対値回路205の出力はAD変換器206でデジタル信号に変換され、デジタル信号処理器（DSP）207に入力する。

このDSP207は音声認識、音声合成、音声パターン登録，判断の各処理を行う。音声認識はメモリ208,209に登録されたパターンを用いて行う。メモリ208はROMであり、ここには女性用、男性用に分けて各標準パターンが登録されている。メモリ209はRAMであり、ここには本発明により追加される音声パターンが登録される。

DSP207の音声合成出力は音声出力部22のDA変換器210でアナログ信号に変換され、ローパスフィルタ（LPF）211で平滑化される。そして、アンプ212で増幅されてスピーカ213を駆動する。

DSP207は制御部23のマイコン（μCOM）214と通信し、認識結果を出力するとマイコン214はバッファ215を介して各機器を制御する。逆に各機器の操作内容はバッファ215を通して取込まれ、マイコン214からDSP207に伝えられるので、DSP207は音声パターンと操作内容を対応づけてRAM209に登録することができる。216はマイコン214が使用する各種メモリである。

図３は車両４に適用した具体例で、２つのマイク201は運転席の左右前方に分けて配置されている。このようにすると運転席の話者（運転手）１だけの音声を同相成分として抽出でき、助手席等からの音声で誤動作することを防止できる。

音声認識装置２の内部は機能ブロック化して示してあるが、詳細は図２の通りである。

車両４に搭載されている機器にはオーディオ装置3a、エアコン3b、電話3c、ナビゲーション装置3d、……車両制御装置3nがあり、車両制御装置3nは更にパワーウインドウ、ドアロック制御装置、ワイパ制御装置等に細分化される。

図４は本発明のフローチャートで、音声認識および登録部分の処理を示している。初めに正当な話者からの音声入力があったと判定されたらステップS1でコマンド単語を取込み、ステップS2でそれをパターン化してステップS3でフェッチする。次にステップS4でパターンマッチング処理を行い、その認識結果に基いてステップS51では第１候補を音声合成して再生する。次のステップS61ではステップS51の確認音声に対する否定音声を一定時間待ち、無ければステップS71で第１候補が入力されたものと確定する。これに対しステップS61で否定発声有と

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判定されれば、ステップS81でシステム操作を待つ。そして、有ればステップS13へ分岐するが、一定時間内に無ければステップS51,S61,S71,S81を組とした次候補以下の処理を繰り返す。ステップS5n,S6n,S7n,S8nは第n候補を再生するn回目の処理である。

このn回目の処理でもシステム操作がなければステップS9で“システムを操作して下さい”という音声合成出力を出し、ステップS10でこれに対応したシステム操作の有無を判定する。そして、この操作が有ればステップS13へ分岐するが無ければステップS11で1s待ってからステップS12で再度システム操作の有無を判定する。ここでも操作無と判定されたら本ルーチンから出るが、有ればステップS13へ分岐する。

ステップS13ではステップS1のコマンド単語とシステム操作された内容を対応づけて登録する。このときステップS14で次のシステム操作が1s以内にあるか否かを監視し、あればそれらをまとめて同じコマンド単語に対応づけて登録する。

図5の（a）は第1登録パターン（標準音声コマンド）として“ウインドウオープン”が操作内容W01（マド開）に対応づけて記憶してある様子を示してある。

図5の（b）は同じ操作内容W01を第2登録パターンとしてユーザが追加した“マドゼンカイ”でも指示できるように対応づけて登録したものである。このようにするとユーザは“ウインドウオープン”という標準音声コマンドを忘れても（または覚えなくても）、自らが登録した“マドゼンカイ”で音声指示できる。

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＊図5の（c）は1つの音声コマンド（“リョウキンショ”）に対応して2つの操作内容W01とVOL0が登録されている。この場合はユーザが“リョウキンショ”と発声すると、W01によってマドが開き、同時にVOL0によってオーディオ出力にミュートがかかる。従って、高速道路の料金所において料金支払いをする場合、窓が自動的に開くだけでなく、相手の声が聞き易いようにラジオ等の音が自動的に絞られる。

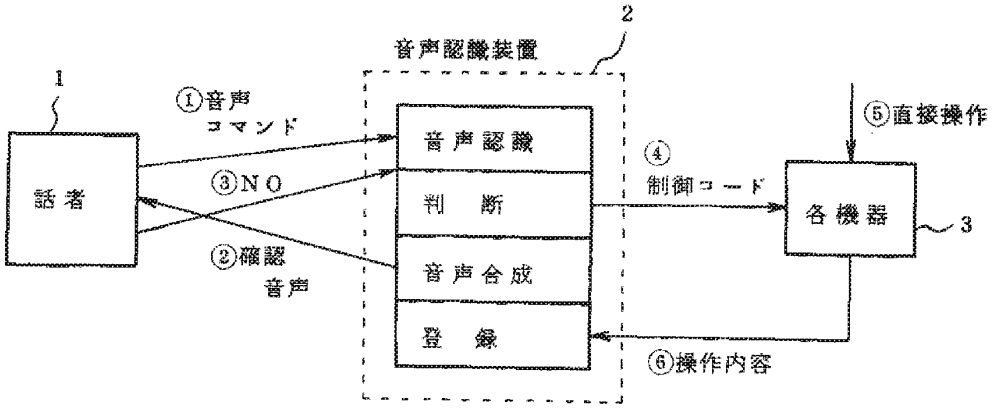
〔発明の効果〕

以上述べたように本発明によれば、音声コマンドにより電子機器の操作を行うシステムの音声認識装置において、使用者による任意の音声コマンドを、希望する機器動作に対応づけて登録できるようにすることができる。従って、使用者は多項目の音声コマンドの一部を忘れても問題なく、また無理に覚える必要もない。更に、1つの音声コマンドに複数の操作内容を対応づけて同時に実行させることができるので、この種のシステムの柔軟性を高めることができる。

【図面の簡単な説明】

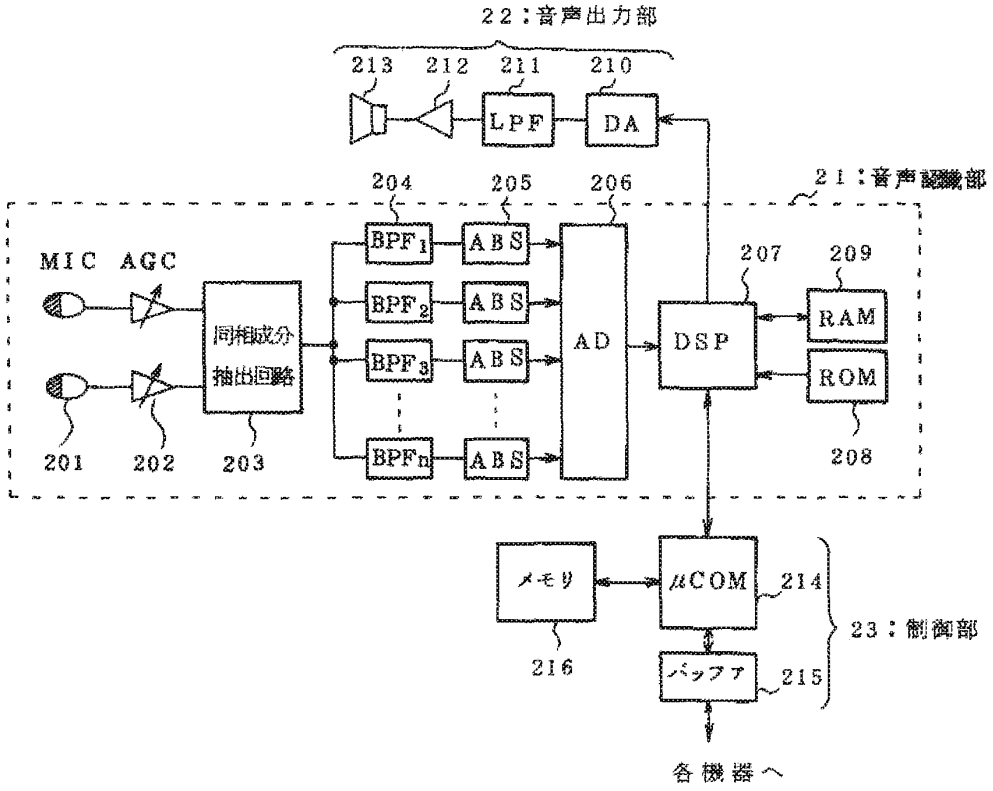
図1は本発明の原理図、
図2は本発明の実施例の構成図、
図3は具体的なシステム構成図、
図4は本発明のフローチャート、
図5は登録パターンの説明図である。
1……話者
2……音声認識装置
3……機器

【第1図】



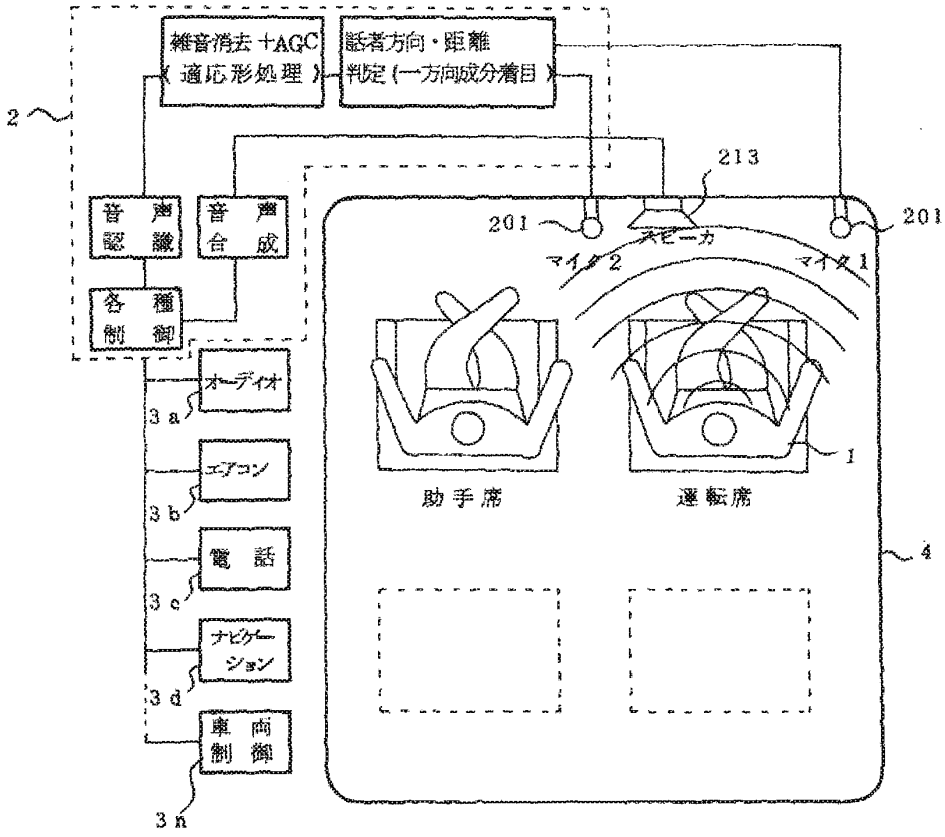
本発明の原理図

【第2図】



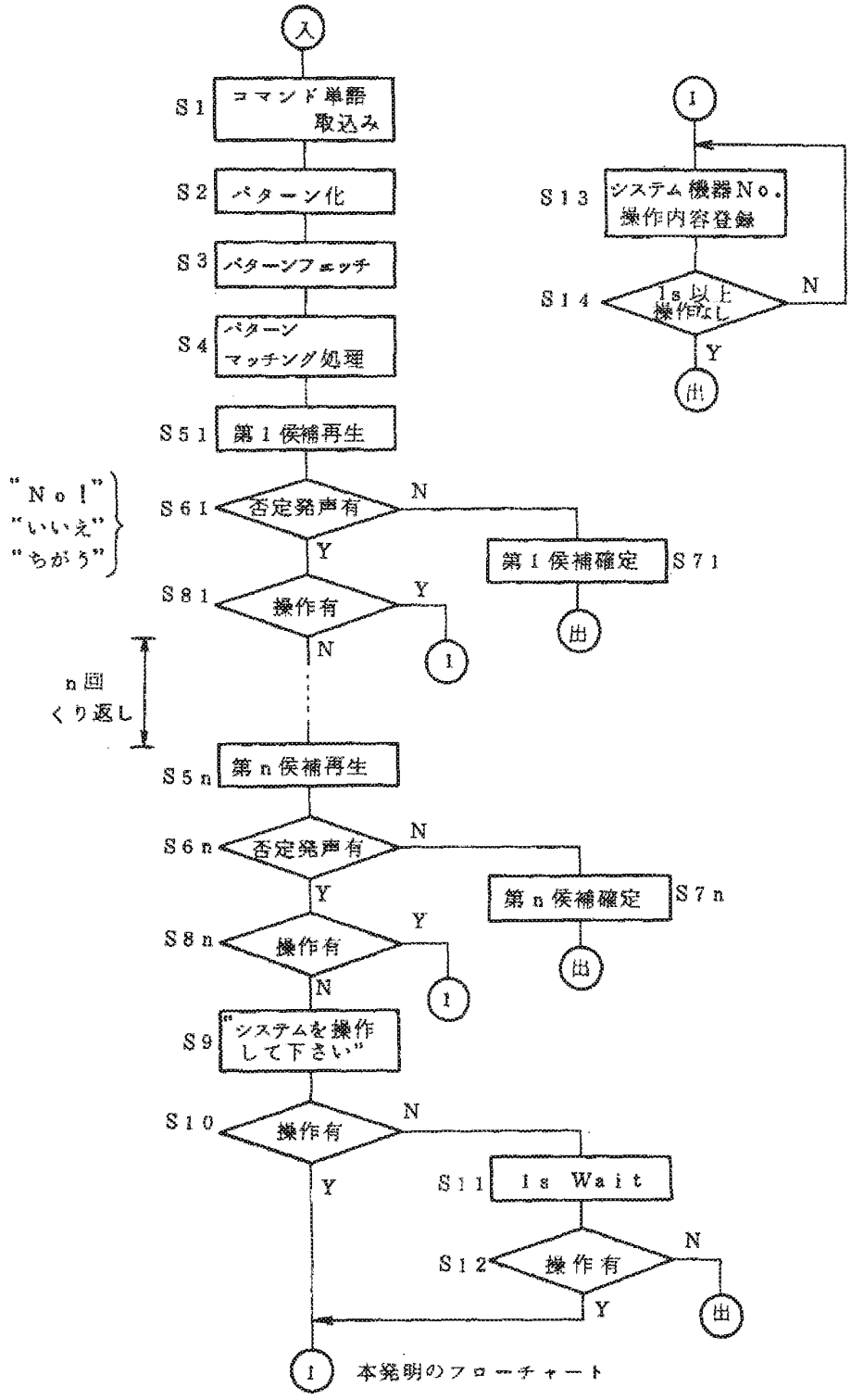
本発明の実施例の構成図

【第3図】



具体的なシステム構成図

【第4図】


入
S1 コマンド単語取込み
S2 パターン化
S3 パターンフェッチ
S4 パターンマッチング処理
S51 第1候補再生
"No!" "いいえ" "ちがう"
S61 否定発声有
N
Y
第1候補確定 S71
出
S81 操作有
Y
N
I
n回くり返し
S5n 第n候補再生
S6n 否定発声有
N
Y
第n候補確定 S7n
出
S8n 操作有
Y
N
I
S9 "システムを操作して下さい"
S10 操作有
N
Y
S11 1s Wait
S12 操作有
N
Y
出
I
I
S13 システム機器No. 操作内容登録
S14 1s以上操作なし
N
Y
出
本発明のフローチャート

【第5図】

(a)

	第1登録	第2登録
登録パターン	ウインドウオープン	
操作内容	WO1	

(b)

登録パターン	ウインドウオープン	マドゼンカイ
操作内容	WO1	WO1

(c)

登録パターン	リョウキンシャ
操作内容	WO1，VOL0

登録パターンの説明図

PTO/SB/08a (01-10)
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(Not for submission under 37 CFR 1.99)

Application Number	
Filing Date	2019-03-07
First Named Inventor	Naganuma
Art Unit	
Examiner Name	
Attorney Docket Number	SAJVP172US

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INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	
	Filing Date	2019-03-07
	First Named Inventor	Naganuma
	Art Unit	
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See attached certification statement.

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

☒ None

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	/Greg Turocy/	Date (YYYY-MM-DD)	2019-03-07
Name/Print	Gregory Turocy	Registration Number	36952

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Title of Invention:	OUTPUT-CONTENT CONTROL DEVICE, OUTPUT-CONTENT CONTROL METHOD, AND NON-TRANSITORY STORAGE MEDIUM
First Named Inventor/Applicant Name:	Tatsumi Naganuma
Filer:	Gregory Turocy/Rebecca Veri
Attorney Docket Number:	SAJVP172US
Filed as Large Entity	
Filing Fees for Utility under 35 USC 111(a)	

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Basic Filing:				
UTILITY APPLICATION FILING	1011	1	300	300
UTILITY SEARCH FEE	1111	1	660	660
UTILITY EXAMINATION FEE	1311	1	760	760
Pages:				
Claims:				
Miscellaneous-Filing:				
Petition:				
Patent-Appeals-and-Interference:				

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Post-Allowance-and-Post-Issuance:				
Extension-of-Time:				
Miscellaneous:				
			Total in USD ($)	1720

Electronic Acknowledgement Receipt	
EFS ID:	35338037
Application Number:	16295034
International Application Number:	
Confirmation Number:	1688
Title of Invention:	OUTPUT-CONTENT CONTROL DEVICE, OUTPUT-CONTENT CONTROL METHOD, AND NON-TRANSITORY STORAGE MEDIUM
First Named Inventor/Applicant Name:	Tatsumi Naganuma
Customer Number:	23623
Filer:	Gregory Turocy/Rebecca Veri
Filer Authorized By:	Gregory Turocy
Attorney Docket Number:	SAJVP172US
Receipt Date:	07-MAR-2019
Filing Date:	
Time Stamp:	10:22:33
Application Type:	Utility under 35 USC 111(a)

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	Multipart Description/PDF files in .zip description				
	Document Description		**Start**	**End**	
	Specification		1	42	
	Claims		43	46	
	Abstract		47	47	
Warnings:					
Information:					
2	Drawings-only black and white line drawings	DRAWINGS172.pdf	311583 704f863a1f67de2a497c9808ddd73f04096e28a8	no	6
Warnings:					
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3	Application Data Sheet	ADS_NEW_for_use_after_20151130.pdf	1793153 420f8a6dd820374a735f2d6972243f077c4d9a07	no	8
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5	Transmittal Letter	TRANSMITTALPOA.pdf	160820 ac149258becf411d8fd34b3c4b408e352fda84fe	no	1

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7	Foreign Reference	JPH07-109560B2.pdf	333370 73a8187b1d1e88b38a09a44f8996b352c2e529bc	no	8
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8	Information Disclosure Statement (IDS) Form (SB08)	updated_IDS.pdf	611972 a6c81a169f704828873d151ea250d80945e55a23	no	4
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9	Fee Worksheet (SB06)	fee-info.pdf	34786 fb6f97749520c10ca7f28ba4d1cb6c86e790ca86	no	2
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OUTPUT-CONTENT CONTROL DEVICE, OUTPUT-CONTENT CONTROL METHOD, AND NON-TRANSITORY STORAGE MEDIUM

CROSS-REFERENCE TO RELATED APPLICATION

[0001] This application claims priority from Japanese Application No. 2018-044598, filed on March 12, 2018, the contents of which are incorporated by reference herein in its entirety.

FIELD

[0002] The present application relates to an output-content control device, an output-content control method, and a non-transitory storage medium.

BACKGROUND

[0003] For example, as described in Japanese Examined Patent Application Publication No. H07-109560, voice control devices that analyze detected voice of a user and perform a processing according to an intention of the user have been disclosed. Moreover, voice control devices that output notification indicating that a processing intended by a user has been performed in voice, or that output an inquiry from a user in voice have also been disclosed.

[0004] When a voice processing device that outputs voice is used, there is a case in which a notification from the voice control device in response to an inquiry of a user is heard by people other than the user therearound. In this case, even when it is wished not to be known by people other than the user about the notification from the voice control device, it can be known by people other than the user. Therefore, it has been desired to make a content of notification in response to an inquiry of a user difficult to be understood by people other than the user when the

content of notification is output.

SUMMARY

[0005] An output-content control device, an output-content control method, and a non-transitory storage medium are disclosed.

[0006] According to one aspect, there is provided an output-content control device comprising: a voice classifying unit configured to analyze a voice spoken by a user and acquired by a voice acquiring unit to determine whether the voice is a predetermined voice; an intention analyzing unit configured to analyze the voice acquired by the voice acquiring unit to detect intention information indicating what kind of information is wished to be acquired by the user; a notification-information acquiring unit configured to acquire notification information to be notified to the user based on the intention information; and an output-content generating unit configured to generate an output sentence as sentence data to be output to the user based on the notification information, wherein the output-content generating unit is further configured to generate the output sentence in which at least one word selected among words included in the notification information is replaced with another word when the voice is determined to be the predetermined voice.

[0007] According to one aspect, there is provided an output-content control method comprising: analyzing an acquired voice spoken by a user to determine whether the voice is a predetermined voice; analyzing the acquired voice to detect intention information indicating what kind of information is wished to be acquired by the user; acquiring notification information to be notified to the user based on the intention information; and generating an

output sentence as sentence data to be output to the user based on the notification information, wherein the generating further includes generating the output sentence in which at least one word selected among words included in the notification information is replaced with another word when the voice is determined to be the predetermined voice.

[0008] According to one aspect, there is provided a non-transitory storage medium that stores an output-content control program that causes a computer to execute: analyzing an acquired voice spoken by a user to determine whether the voice is a predetermined voice; analyzing the acquired voice to detect intention information indicating what kind of information is wished to be acquired by the user; acquiring notification information to be notified to the user based on the intention information; and generating an output sentence as sentence data to be output to the user based on the notification information, wherein the generating further includes generating the output sentence in which at least one word selected among words included in the notification information is replaced with another word when the voice is determined to be the predetermined voice.

[0009] The above and other objects, features, advantages and technical and industrial significance of this application will be better understood by reading the following detailed description of presently preferred embodiments of the application, when considered in connection with the accompanying drawings.

BRIEF DESCRIPTION OF THE DRAWINGS

[0010] FIG. 1 is a schematic diagram of an output-content control device according to a first embodiment;

FIG. 2 is a schematic block diagram of the output-content control device according to the first embodiment;

FIG. 3 is a table showing an example of intention information;

FIG. 4 is a table showing an example of attribute information;

FIG. 5 is a table showing an example of acquisition information;

FIG. 6 is a table showing an example of relationship information;

FIG. 7 is a flowchart showing a flow of an output processing of output sentence according to the first embodiment;

FIG. 8 is a schematic diagram showing another example of the output-content control device according to the first embodiment; and

FIG. 9 is a schematic block diagram of an information output system according to a second embodiment.

DETAILED DESCRIPTION OF THE PREFERRED EMNODIMENTS

[0011] Embodiments of the present application are explained in detail below with reference to the drawings. The embodiments explained below are not intended to limit the present application.

First Embodiment

[0012] First, a first embodiment is explained. FIG. 1 is a schematic diagram of an output-content control device according to the first embodiment. As shown in FIG. 1, an output-content control device 1 according to the first embodiment detects a voice V1 spoken by a user H by a voice detecting unit 10, analyzes the detected voice V1 to perform a predetermined processing, and outputs a voice V2 by a voice output unit 12. Although the voice V2 is output toward the user H, when other people are present around the output-content control device 1, the voice V2 can be heard

by those people. In this case, even if the voice V2 includes information that the user H wishes not to be known by other people, there is a risk that the voice V2 is heard by people other than the user H and the information is learned by them. The output-content control device 1 according to the present embodiment analyzes the voice V1 and adjusts sentences and the like to be output as the voice V2, and thereby enables to make contents of the voice V2 be understood appropriately only by the user H, and hardly by the people other than the user H.

[0013] FIG. 2 is a schematic block diagram of the output-content control device according to the first embodiment. As shown in FIG. 2, the output-content control device 1 includes the voice detecting unit 10, the voice output unit 12, a lighting unit 14, a controller 16, a communication unit 18, and a storage 20. The output-content control device 1 is a so-called smart speaker (artificial intelligence (AI) speaker), but is not limited thereto as long as the device has functions described later. The output-content control device 1 can be, for example, a smart phone, a tablet, and the like.

[0014] The voice detecting unit 10 is a microphone and detects the voice V1 spoken by the user H. The user H speaks the voice V1 toward the voice detecting unit 10 so as to include information about a processing wished to be performed by the output-content control device 1. The voice detecting unit 10 can be regarded as an input unit that accepts information input externally. The input unit can include a function other than the voice detecting unit 10 and, for example, a switch to adjust volume of the voice V2 by operation performed by the user H, and the like can be provided. The voice output unit 12 is a speaker, and outputs sentences (output sentences described later)

generated by the controller 16 as the voice V2. The lighting unit 14 is a light source, such as a light emitting diode (LED), and is turned on by a control of the controller 16. The communication unit 18 is a mechanism to communicate with external servers, such as a Wi-Fi (registered trade mark) module and an antenna, and communicates information with an external server not shown under control of the controller 16. The communication unit 18 performs communication of information with external servers by wireless communication such as Wi-Fi, but the communication of information with external servers can be performed also by wired communication by cables connected. The storage 20 is a memory that stores information on arithmetic calculation of the controller 16 or programs, and includes, for example, at least one of a random access memory (RAM), a read-only memory (ROM), and an external storage device, such as a flash memory.

[0015] The controller 16 is an arithmetic unit, namely, a central processor (CPU). The controller 16 includes a voice acquiring unit 30, a voice analyzing unit 32, an intention analyzing unit 34, a notification-information acquiring unit 36, a processor 38, an output-content generating unit (voice-content generating unit) 40, a voice classifying unit 42, and an output controller 44. The voice acquiring unit 30, the voice analyzing unit 32, the intention analyzing unit 34, the notification-information acquiring unit 36, the processor 38, the output-content generating unit 40, the voice classifying unit 42, and the output controller 44 perform processes described later by reading software/program stored in the storage 20.

[0016] The voice acquiring unit 30 acquires the voice V1 that is detected by the voice detecting unit 10. The voice analyzing unit 32 performs voice analysis of the voice V1

acquired by the voice acquiring unit 30, to convert the voice V1 into text data. The text data is character data/text data that includes a sentence spoken as the voice V1. The voice analyzing unit 32 detects, for example, amplitude waveform/speech waveform per time from the voice V1. The voice analyzing unit 32 then replaces the amplitude waveform per time with a character based on a table in which a relationship between the amplitude waveforms and the characters is stored, thereby converting the voice V1 into text data. Note that the converting method can be arbitrarily chosen as long as it enables to convert the voice V1 into text data.

[0017] The intention analyzing unit 34 acquires the text data that is generated by the voice analyzing unit 32, and detects intention information I based on the text data. The intention information I is information indicating an intention of the user H, namely, an intent. In other words, the intention information I is information that indicates what kind of processing is intended by the user H to be performed on the output-content control device 1, and is information that indicates what kinds of information the user H wishes to obtain in the present embodiment.

[0018] The intention analyzing unit 34 extracts the intention information I from the text data by using, for example, a natural language processing. In the present embodiment, the intention analyzing unit 34 detects the intention information I from the text data based on multiple pieces of training data stored in the storage 20. The training data herein is data in which the intention information I has been assigned to text data in advance. That is, the intention analyzing unit 34 extracts the training data that is similar to the text data generated by the voice analyzing unit 32, and regards the intention

information I of the extracted training data as the intention information I of the text data generated by the voice analyzing unit 32. Note that the training data is not necessarily required to be stored in the storage 20, and the intention analyzing unit 34 can search for the training data in an external server by controlling the communication unit 18. As long as the intention analyzing unit 34 extracts the intention information I from text data, the extracting method of the intention information I can be arbitrarily chosen. For example, the intention analyzing unit 34 can read a relationship table of keywords and the intention information I stored in the storage 20, and can extract the intention information I that is associated with the keyword when the keyword in the relationship table is included in text data.

[0019] FIG. 3 is a table showing an example of the intention information. For example, when text data is a sentence "today's schedule is", the intention analyzing unit 34 recognizes that a processing of informing about a schedule to the user H corresponds to the processing requested by the user H, that is, the intention information I, by performing analysis as described above. That is, the intention analyzing unit 34 detects that the information that the user wishes to acquire, that is, the intention information I, is a schedule.

[0020] The detecting method of the intention information I using text data can be arbitrarily chosen, not limited thereto. For example, the output-content control device 1 can be configured to store relationship table of keywords and the intention information I in the storage 20, and to detect the intention information I associated with the keyword when the keyword is included in text data of the voice V1 spoken by the user H. As an example of this case,

a keyword "*konnichiwa*" may be associated with weather information and information of news. In this case, when the user H speaks the voice V1 "*konnichiwa*", the intention analyzing unit 34 detects the weather information and information of news as the intention information I.

[0021] The notification-information acquiring unit 36 acquires notification information that is a content of information to be given to the user H based on the intention information I. As shown in FIG. 2, the notification-information acquiring unit 36 includes an attribute-information acquiring unit 50 that acquires attribute information E, and an acquisition-information acquiring unit 52 that acquires acquisition information A. The notification information is information including the attribute information E and the acquisition information A.

[0022] The attribute-information acquiring unit 50 acquires the attribute information E based on the intention information I. The attribute information E is information that is associated with the intention information I, and is information that indicates a condition necessary for acquiring information that the user H wishes to acquire. Namely, the attribute information E is an entity. For example, even if it is determined that the intention information I is a schedule, the output-content control device 1 cannot determine which and whose schedule to notify when a condition to further specify the intention information I are unknown. In this case, the output-content control device 1 cannot provide notification according to the intention of the user H. For this, the attribute-information acquiring unit 50 acquires the attribute information E as a condition to further specify the intention information I to enable to determine which and whose schedule to notify.

[0023] FIG. 4 is a table showing an example of the attribute information. The attribute information E includes attribute type information E0 and attribute content information E1. The attribute type information E0 is information indicating types of condition, that is, what kinds of conditions they are, and in other words, it is information in which conditions to further specify the intention information I are classified. The attribute content information E1 is a content of the attribute type information E0. Therefore, the attribute type information E0 can be regarded as information indicating the types of the attribute content information E1. Therefore, the attribute type information E0 and the attribute content information E1 are associated with each other. As shown in FIG. 4, for example, when the attribute type information E0 includes “person” as one of the types of conditions, the attribute content information E1 associated therewith is to be information specifying a name of the person (in this example, "Mr. Yamada"). Furthermore, as the example shown in FIG. 4, when the attribute type information E0 includes “date” as one of the types of conditions, the attribute content information E1 associated therewith is to be information indicating a date (in this example, March 20, 2020). By thus setting the attribute content information E1, it becomes certain that, for example, the schedule of Mr. Yamada on March 20, 2020 should be notified. In the example of the present embodiment, Mr. Yamada is the user H himself.

[0024] In the present embodiment, the attribute-information acquiring unit 50 detects the attribute type information E0 from the extracted intention information I. The attribute-information acquiring unit 50 reads a relationship table of the intention information I and the

attribute type information E0 stored in the storage 20, and detects the intention information I that coincides with the intention information I detected by the intention analyzing unit 34 from the relationship table. The attribute-information acquiring unit 50 then extracts and acquires the attribute type information E0 that is associated with the intention information I coincident with the intention information I detected by the intention analyzing unit 34. For example, when the intention information I is a schedule, a person and a date are included in the relationship table as the attribute type information E0 associated with a schedule. In this case, the attribute-information acquiring unit 50 extracts two pieces of information of a person and of a date as the attribute type information E0. As above, two pieces of the attribute type information E0 that correspond to one piece of the intention information I are present in this example, but the number of pieces of the attribute type information E0 corresponding to one piece of the intention information I may be different depending on the content of the intention information I. That is, the number of pieces of the attribute type information E0 corresponding to one piece of the intention information I can be one, or three or more. Moreover, the intention analyzing unit 34 reads the relationship table from the storage 20, but a source of the relationship table to be read from can be any source and, for example, the relationship table can be acquired from an external server by communicating with the external server/external device not shown through the communication unit 18.

[0025] Having acquired the attribute type information E0, the attribute-information acquiring unit 50 sets the attribute content information E1 for each of the attribute type information E0. The attribute-information acquiring

unit 50 extracts, for example, the attribute content information E1 from the text data generated by the voice analyzing unit 32. For example, when a keyword "today" is included in the text data generated from the voice V1, the attribute content information E1 corresponding to the attribute type information E0 of a date is set to today's date ("March 20, 2020 in the example of FIG. 4). Furthermore, the attribute-information acquiring unit 50 can set the attribute content information E1 corresponding to the attribute type information E0 in advance. In this case, when the intention information I is a schedule, for example, setting data indicating that the attribute content information E1 is a content determined in advance is stored in the storage 20. That is, for example, it is stored in advance that the attribute content information E1 corresponding to the attribute type information E0 of a person is "Mr. Yamada" in the storage 20. By this, the attribute-information acquiring unit 50 can set the attribute content information E1 of a person even when a keyword representing a person is not included in the text data. Moreover, the attribute-information acquiring unit 50 can set the attribute content information E1 by communicating with an external server by the communication unit 18. For example, when one of the attribute type information E0 is a location, the intention analyzing unit 34 can acquire a current position using a global positioning system (GPS) by communication, and can set it as the attribute content information E1. Moreover, the output-content control device 1 can output a notification to prompt the user H to provide information of the attribute content information E1. In this case, for example, the attribute-information acquiring unit 50 selects the attribute type information E0 for which

acquisition of the attribute content information E1 is required, and causes the output-content generating unit 40 to generate a sentence to request the user H to give the attribute content information E1 for the output-content generating unit 40. For example, in the case of the attribute type information E0 of a date, the output-content generating unit 40 generates a sentence "Please provide a date for which the schedule is wished to be notified", or the like. Subsequently, the output controller 44 causes the voice output unit 12 to output this sentence. Thus, the user H speaks, for example, a voice indicating that the date is today, and the voice is analyzed by the voice analyzing unit 32, and the attribute-information acquiring unit 50 acquires information indicating that one of the attribute content information E1 is “today”.

[0026] FIG. 5 is a table showing an example of acquisition information. The acquisition-information acquiring unit 52 shown in FIG. 2 acquires the acquisition information A based on the intention information I and the attribute information E. The acquisition information A is information according to an intention of the user H and is, in other words, information that the user H wishes to acquire. The acquisition information A includes the acquisition type information A0 and acquisition content information A1. The acquisition type information A0 is information that indicates what kind of information the user H wishes to acquire and is, in other words, information in which information desired by the user H is classified. The acquisition content information A1 indicates a content of the acquisition type information A0. That is, the acquisition type information A0 can be regarded as information indicating the type of the acquisition content information A1. Therefore, the

acquisition type information A0 and the acquisition content information A1 are associated with each other. As shown in FIG. 5, for example, when the acquisition type information A0 includes “location” as one the type of information that the user H wishes to acquire, the acquisition content information A1 associated therewith is to be information indicating the location ("Tokyo building" in the example of FIG. 5).

[0027] In the present embodiment, the acquisition-information acquiring unit 52 detects the acquisition type information A0 from the intention information I. The acquisition-information acquiring unit 52 reads a relationship table of the intention information I and the acquisition type information A0 stored in the storage 20, and detects the intention information I that coincides with the intention information I detected by the intention analyzing unit 34 from the relationship table. The acquisition-information acquiring unit 52 then extracts and acquires the acquisition type information A0 that is associated with the intention information I that coincides with the intention information I detected by the intention analyzing unit 34 from the relationship table. For example, when the intention information I is a schedule, the relationship table includes a location, a time, what to do, and a person as the acquisition type information A0 associated with a schedule. In this case, the acquisition-information acquiring unit 52 extracts four pieces of information, a location, a time, what to do, and a person as the acquisition type information A0. As above, four pieces of the acquisition type information A0 that correspond to one piece of the intention information I are present in this example, but the number of the acquisition type information A0 corresponding to one piece of the

intention information I may be different depending on the content of the intention information I. That is, the number of pieces of the acquisition type information A0 corresponding to one piece of the intention information I can be one, or three or more. Moreover, the acquisition-information acquiring unit 52 reads the relationship table from the storage 20, but a source of the relationship table to be read from can be any source and, for example, the relationship table can be acquired from an external server by communicating with the external server/external device not shown through the communication unit 18.

[0028] After having acquired the acquisition type information A0, the acquisition-information acquiring unit 52 acquires the acquisition content information A1 for each of the acquisition type information A0. The acquisition-information acquiring unit 52 acquires the acquisition content information A1 for each of the acquisition type information A0 for the attribute content information E1. That is, the acquisition-information acquiring unit 52 acquires the acquisition content information A1 under the condition of the attribute content information E1, for each of the acquisition type information A0. The acquisition-information acquiring unit 52 acquires, when the acquisition content information A1 is included in the storage 20, the acquisition content information A1 from the storage 20. Moreover, the acquisition-information acquiring unit 52 can acquire the acquisition content information A1 from an external server for each of the acquisition type information A0, by communicating with the external server/external device by the communication unit 18. That is, it can be said that the acquisition content information A1 is data that is acquired by the acquisition-information acquiring unit 52 from a database in an

external server, the storage 20, and the like.

[0029] In this example, the acquisition-information acquiring unit 52 acquires the acquisition content information A1 based on the condition, Mr. Yamada's schedule on March 20, 2020. In this case, for example, the acquisition-information acquiring unit 52 reads information about Mr. Yamada's schedule on March 20, 2020 by communicating with a terminal serving as the external server that stores Mr. Yamada's schedule, or by reading Mr. Yamada's schedule stored in the storage 20 for each of the acquisition type information A0. Herein, a case in which Mr. Yamada's schedule on March 20, 2020 is a meeting with Mr. Yoshida from 15 o'clock at Tokyo building is taken as an example. In this case, the acquisition-information acquiring unit 52 acquires information indicating "Tokyo building" as the acquisition content information A1 corresponding to a location in the acquisition type information A0, acquires information indicating "15 o'clock." as the acquisition content information A1 corresponding to a time in the acquisition type information A0, acquires information indicating "meeting" as the acquisition content information A1 corresponding to what to do in the acquisition type information A0, and acquires information indicating "Mr. Yoshida" as the acquisition content information A1 corresponding to a person in the acquisition type information A.

[0030] The acquisition-information acquiring unit 52 thus acquires the acquisition content information A1 that indicates a content of information that the user H wishes to acquire for each of the acquisition type information A0. The output-content generating unit 40 can notify about the information that the user H wishes to acquire by generating a sentence including this acquisition content information

A1 as an output sentence to be notified to the user H. It should be noted that the output sentence to be notified to the user H may be include not only the acquisition content information A1 but also the attribute content information E1. Specifically, while a sentence that only includes the acquisition content information A1 is to be "Meeting with Mr. Yoshida from 15 o'clock at Tokyo building", a sentence that includes also the attribute content information E1 is to be "Mr. Yamada's schedule on March 20, 2020 is a meeting with Mr. Yoshida from 15 o'clock at Tokyo building", and is easier to understand the content. That is, the information to be notified to the user may include the acquisition content information A1 and the attribute content information E1. Therefore, hereinafter, the attribute information E and the acquisition information A are referred to as notification information appropriately.

[0031] Moreover, it can be said that the notification information includes type information and content information. It can be said that the content information includes the attribute content information E1 and the acquisition content information A1, and indicates a content of information to be notified to the user H. Furthermore, it can be said that the type information represents the attribute type information E0 and the acquisition type information A0, indicates a type of information to be notified to the user, and indicates a type of the content information. It can be said that the notification-information acquiring unit 36 shown in FIG. 2 acquires the type information and the content information as the notification information.

[0032] The notification-information acquiring unit 36 performs a processing to acquire information that the user H wishes to acquire when a content of the intention

information I indicates that the user H requests for notification of information. On the other hand, there is a case in which the user H requests the output-content control device 1 to control another device, other than requesting for the notification of information. For example, the user H can speak the voice V1 of "Turn on the light in the kitchen". In this case, the intention analyzing unit 34 detects the intention information I of controlling a device. The processor 38 shown in FIG. 2 then detects, based on this intention information I, "kitchen" as the attribute content information E1 corresponding to a location in the attribute type information E0, "light" as the attribute content information E1 corresponding to a target device in the attribute type information E0, and "turn on" as the attribute content information E1 corresponding to an operation in the attribute type information E0, and performs a control of turning on the light of the kitchen based on the attribute content information E1. In this case, the output-content generating unit 40 generates an output sentence, "Yes, the operation is completed", and the output controller 44 causes the voice output unit 12 to output this output sentence. However, the output-content control device 1 should only be one that notifies about information that the user H wishes to acquire, and a processing of controlling another device as described above may be not required to be performed.

[0033] Referring back to FIG. 2, the output-content generating unit 40 generates an output sentence based on the notification information, more specifically, the attribute content information E1 and the acquisition content information A1, acquired by the notification-information acquiring unit 36. The output sentence is data

of a sentence for the voice V2 to be output by the voice output unit 12, that is, text data. It can be said that the output sentence is dialog data. The output-content generating unit 40 includes a first output-content-generating unit 60 that generates a first output sentence as the output sentence, and a second output-content-generating unit 62 that generates a second output sentence as the output sentence. The voice classifying unit 42 is explained before explaining about the first output-content-generating unit 60 and the second output-content-generating unit 62.

[0034] The voice classifying unit 42 analyzes the voice V1 acquired by the voice acquiring unit 30, and determines whether the voice is a predetermined voice. In the present embodiment, the voice classifying unit 42 analyzes the voice V1 acquired by the voice acquiring unit 30, and classifies the voice V1 to either one of a first voice V1A and a second voice V1B. The first voice V1A corresponds to a predetermined voice. In the present embodiment, the voice classifying unit 42 classifies the voice V1 to the first voice V1A when the voice V1 is determined to be a whisper as a result of analysis (determines as the predetermined voice). The voice classifying unit 42 classifies the voice V1 to the second voice V1B when the voice V1 is determined not to be a whisper. A whisper is an unvoiced voice spoken without vibrating the vocal chords, but it is not limited to the unvoiced voice spoken without vibrating the vocal chords as long as being classified to the first voice V1A by, for example, a method described later.

[0035] For example, the voice classifying unit 42 acquires a time waveform of intensity of the voice V1, and performs Fourier-transformation on the time waveform,

thereby acquiring a spectrum that indicates intensity of the voice V1 per frequency. The voice classifying unit 42 classifies the voice V1 either to the first voice V1A or the second voice V1B by using a peak frequency that is equal to or higher than a predetermined intensity in the spectrum as a feature value. For example, the voice classifying unit 42 determines the voice as a whisper to classify to the first voice V1A when the peak frequency is equal to or lower than the threshold, and determines the voice as not a whisper to classify to the second voice V1B when the peak frequency is larger than the threshold. Note that the voice classifying unit 42 can perform the classification to the first voice V1A and the second voice V1B by using any method. For example, the voice classifying unit 42 can perform the classification to the first voice V1A and the second voice V1B by using a slope of the peak in the spectrum as a feature value. Moreover, the voice classifying unit 42 can perform the classification to the first voice V1A and the second voice V1B by using either one of a volume of the voice V1, a speaking speed of the user in the voice V1, and a volume ratio between a speech of a person and a wind noise as a feature value. Furthermore, a proximity sensor can be provided in the output-content control device 1, a distance between the user H and the output-content control device 1 is calculated from a detection result of the proximity sensor, and the distance can be used as a feature value to perform the classification to the first voice V1A and the second voice V1B. Moreover, the voice classifying unit 42 can derive a Mel-frequency cepstrum coefficient as a feature value, and can perform the classification to the first voice V1A and the second voice V1B based on the mel-frequency cepstrum coefficient. In these cases, the voice

classifying unit 42 sets a threshold of the feature value, and classifies the voice V1 to either the first voice V1A or the second voice V1B based on whether the feature value exceeds the threshold.

[0036] As described above, the voice classifying unit 42 classifies the voice V1 by using the voice V1 that is acquired by the voice acquiring unit 30. That is, the voice classifying unit 42 classifies the voice V1 to the first voice V1A when the voice V1 is a whisper, and to the second voice V1B when the voice V1 is not a whisper even when meaning of the voice V1 is the same.

[0037] Moreover, the voice classifying unit 42 is not limited to perform the classification to the first voice V1A or the second voice V1B, using the voice V1. The classification can be performed by generating text data of the voice V1 by performing character analysis of the voice V1 that is acquired by the voice acquiring unit 30, and by using the text data of the voice V1. For example, the voice classifying unit 42 can classify the voice V1 not by judging whether the voice is a whisper, but based on a keyword included in the voice V1. That is, the voice classifying unit 42 can classify the voice V1 to the first voice V1A when a keyword stored in the storage 20 is included in the voice V1, and to the second voice V1B when the keyword stored in the storage 20 is not included.

[0038] The voice classifying unit 42 can use either one of the classification methods explained above, or can perform the classification by combining the classification methods explained above.

[0039] The output-content generating unit 40 causes the second output-content-generating unit 62 to generate the second output sentence when the voice classifying unit 42 classifies the voice V1 to the second voice V1B. That is,

the output-content generating unit 40 generates the second output sentence, not generating the first output sentence when the voice V1 is classified to the second voice V1B. The second output-content-generating unit 62 generates a sentence that includes all pieces of information of the attribute content information E1 acquired by the attribute-information acquiring unit 50, the acquisition content information A1 acquired by the acquisition-information acquiring unit 52, and the intention information I acquired by the intention analyzing unit 34, as the second output sentence. That is, the second output sentence is text data that includes all of the attribute content information E1, the acquisition content information A1, and the intention information I.

[0040] Furthermore, it can be said that the second output sentence is text data that includes words indicating a content of the intention information I, words indicating a content of the attribute content information E1, and words indicating a content of the acquisition content information A1. The word indicating the content of the intention information I herein is a noun "schedule". Moreover, the words indicating the content of the attribute content information E1 herein are a noun (more specifically, a proper noun) "Mr. Yamada" and a word "March 20, 2020" which includes numeric values. Furthermore, the words indicating the content of the acquisition content information A herein include nouns (more specifically, proper nouns) "Tokyo building", "Mr. Yoshida", a noun "meeting", and a numeric value "15 o'clock". It can be said that the second output sentence is text data that includes all of these words. Specifically, the second output sentence in this example is to be "Mr. Yamada's schedule on March 20, 2020 is a meeting with Mr. Yoshida

from 15 o'clock at Tokyo building". Note that the second output sentence is not required to include all of the words indicating the contents of the intention information I, the attribute content information E1, and the acquisition content information A1, and can exclude at least either one of the words indicating the content of the intention information I, the attribute content information E1, and the acquisition content information A1. The second output sentence is different from the first output sentence described later, and the words indicating the content of the intention information I, the attribute content information E1, and the acquisition content information A1 should not be replaced with other words.

[0041] On the other hand, the output-content generating unit 40 causes the first output-content-generating unit 60 to generate the first output sentence when the voice V1 is classified into the first voice V1A by the voice classifying unit 42. That is, the output-content generating unit 40 generates the first output sentence when the voice V1 is classified into the first voice V1A, not generating the second output sentence. The first output-content-generating unit 60 generates a sentence in which a word selected from among words included in the content information (the attribute content information E1 and the acquisition content information A1) is replaced with another word, as the first output sentence. Specifically, the first output-content-generating unit 60 acquires words indicating the intention information I, words indicating the content of the attribute content information E1, and words indicating the content of the acquisition content information A1. Subsequently, the first output-content-generating unit 60 selects a word to be replaced with another word from among the words indicating the content of

the intention information I, the attribute content information E1, and the acquisition content information A1. The first output-content-generating unit 60 then replaces the selected word with the other word, leaving the not-selected words without replacing with the other word. Therefore, the first output sentence is to be a sentence that includes words that has not been replaced with other words among words indicating the content of the intention information I, the attribute content information E1, and the acquisition content information A1, and a word that has been replaced with the other word among the words indicating the content of the intention information I, the attribute content information E1, and the acquisition content information A1. As described above, in the present embodiment, a word to be replaced is selected from the notification information that includes the attribute content information E1 and the acquisition content information A1. Note that the first output-content-generating unit 60 can select a word to be replaced also from the intention information I, regarding the intention information I also as the notification information.

[0042] It is preferable that the first output-content-generating unit 60 select a noun, more preferably, a proper noun as a word to be replaced. However, also a verb or a numeric value can be selected as a word to be replaced. Note that when a word to be replaced is a noun, a word after replacement is preferable to be a noun also, and when a word to be replaced is a verb, a word after replacement is preferable to be a verb also, and when a word to be replaced is a numeric value, a word after replacement is preferable to be a numeric value also. By thus keeping parts of speech consistent before and after the replacement, it is suppressed that the first output sentence after the

replacement becomes difficult even for the user H.

[0043] Content information and replacement information are associated with each other. In other words, the attribute content information E1 and the attribute type information E0 are associated with each other, for example, as "Mr. Yamada" and "person" shown in FIG. 4, and also the acquisition content information A1 and the acquisition type information A0 are associated with each other, for example, as "meeting" and "what to do" shown in FIG. 5. The first output-content-generating unit 60 selects a word to be replaced with another word based on words included in the attribute content information E1 and on the attribute type information E0 associated with the attribute content information E1. Similarly, the first output-content-generating unit 60 selects a word to be replaced with another word based on words included in the acquisition content information A1 and on the acquisition type information A0 associated with the acquisition content information A1. In the following, it is more specifically explained.

[0044] FIG. 6 is a table showing an example of relationship information. The storage 20 has the relationship information as shown in FIG. 6 stored therein as a table in advance. The relationship information herein is information in which a word to be replaced (first word) and a replacing word (second word) that is a word after replacement are associated with each other. The replacement information includes multiple words to be replaced different from one another, and one replacing word is associated with one word to be replaced. That is, the relationship information has multiple sets of the word to be replaced and the replacing word. The replacing word is different per the word to be replaced, that is, different

per set. Although the word to be replaced and the replacing word are both nouns in this example, they can be verbs or numeric values. However, it is preferable that the replacing word be a noun when the word to be replaced is a noun, that the replacing word be a verb when the word to be replaced is a verb, and that the replacing word be a numeric value when the word to be replaced is a numeric value.

[0045] Moreover, the relationship information includes type information that represents a type information indicated by the word to be replaced. The relationship information includes sets of a word to be replaced and a replacing word per type information. For example, in the example in FIG. 6, the type information is what to do. Therefore, in the example in FIG. 6, the relationship information includes a set of the word to be replaced "meeting" and the replacing word "hospital visit", and a set of the word to be replaced "dinner" and the replacing word "meeting" for the type information of "what to do". Note that although the number of sets per the type information is two in the example in FIG. 6, it can be any number. Moreover, although the example in which the type information is "what to do" is shown in the example in FIG. 6, respective sets of the word to be replaced and the replacing word for multiple kinds of the type information can be included.

[0046] The first output-content-generating unit 60 reads the relationship information as described above from the storage 20. The first output-content-generating unit 60 then detects whether a type information matched with the acquisition type information A0 associated with the content information (for example, "what to do" in FIG. 5) is present in the relationship information. Subsequently,

when the matched type information is present in the relationship information, the first output-content-generating unit 60 detects whether a word included in the acquisition content information A1 associated with the acquisition type information A0 (for example, "meeting" in FIG. 5) is included in the relationship information as a word to be replaced (for example, "meeting" in FIG. 6). The first output-content-generating unit 60, when the word included in the acquisition content information A1 is included in the relationship information as a word to be replaced, selects and replaces the word to be replaced with a word being associated thereto. That is, when the type information of the word included in the content information matches with the type information of the word to be replaced and also the word included in the content information matches with the word to be replaced, the first output-content-generating unit 60 selects the word included in the content information as a word to be replaced with another word. The first output-content-generating unit 60 then replaces the selected word with a replacing word being associated therewith. Note that it is preferable that even if either one of the matching of the type information and the matching of the word is determined, the first output-content-generating unit 60 should not select and replace the word included in the content information as a word to be replaced with another word.

[0047] In this example, because the type information in the relationship information is "what to do", it matches with the type information (the acquisition type information A0) "what to do" shown in FIG. 5. Furthermore, in this example, the content information (the acquisition content information A1) for the type information "what to do" is "meeting" as shown in FIG. 5, and the word to be replaced

for the type information "what to do" includes "meeting", which matches therewith. Therefore, in this example, the matching of the type information "what to do" is determined, and the matched word is "meeting". Therefore, the word "meeting" for the acquisition type information A0 "what to do" shown in FIG. 5 is replaced with a replacing word "hospital visit". Moreover, in this example, since there is no content information with both the matched type information and the matched word except the word "meeting", no other words are replaced. Therefore, in this example, the first output-content-generating unit 60 generates a sentence "Mr. Yamada's schedule on March 20, 2020 is dinner with Mr. Yoshida from 15 o'clock at Tokyo building" as the first output document, in which "meeting" is replaced with "dinner".

[0048] In this explanation, the storage 20 stores the relationship information as a table. That is, the relationship information is information that is set in advance. However, the relationship information is not limited to that stored in the storage 20. The first output-content-generating unit 60 can generate relationship information from information relating to the user H (Mr. Yamada herein). For example, when information relating to the user H is stored in the output-content control device 1 or other devices owned by the user H, the first output-content-generating unit 60 reads the information and generates the relationship information from the information.

[0049] For example, there is a case in which a contact list including names of persons is set in the output-content control device 1 or other devices owned by the user H, and different names (nickname or the like) are designated to the names of the persons by the user H. In this case, the first output-content-generating unit 60

reads the names and the designated different names of the person from the contact list to generate the relationship information. That is, in this case, the first output-content-generating unit 60 generates the relationship information "person" as the type information, and sets the name of the person as the word to be replaced in the relationship information (for example, Mr. Yoshida), and sets the designated different name (for example, Yoshi) as the replacing word that has been set for the person. In this case, both the type information and the word in the acquisition content information A1 of "Mr. Yoshida" shown in FIG. 5 matches with those in the relation information. Therefore, "Mr. Yoshida" is replaced with "Yoshi" as the replacing word. In this case, the first output sentence is to be "Mr. Yamada's schedule on March 20, 2020 is a meeting with Yoshi from 15 o'clock at Tokyo building".

[0050] Moreover, for example, there is a case in which a map application or an address book is stored in the output-content control device 1 or other devices owned by the user H, and different names are designated to addresses or buildings included therein by the user H. In this case, the first output-content-generating unit 60 reads the names of the addresses or the buildings from the map application or the address book to generate relationship information. That is, in this case, the first output-content-generating unit 60 generates the relationship information "location" as the type information, and sets the address or the building (for example, Tokyo building) as the word to be replaced in the relationship information, and sets the designated different name as the replacing word (for example, T bldg.) that has been set for the address or the building. In this case, both the type information and the word in the acquisition content information A1 of "Tokyo

building" shown in FIG. 5 matches with those in the relation information. Therefore, "Tokyo building" is replaced with "T bldg." as the replacing word. In this case, the first output sentence is to be "Mr. Yamada's schedule on March 20, 2020 is a meeting with Mr. Yoshida from 15 o'clock at T bldg."

[0051] When the output-content control device 1 has the relationship information stored therein as a table, the output-content control device 1 can add relationship information newly generated based on the information relating to the user H as described above to the table.

[0052] As described above, the relationship information is understandable for the user H but difficult for people other than the user H since the word to be replaced and the replacing word are set in advance. Therefore, when the first output sentence is output in voice, the content is understandable for the user H, but is difficult to be understood by the people other than the user H, thereby enabling to suppress the information being known by people other than the user H. Furthermore, the first output-content-generating unit 60 replaces a word with another when the type information in the content information matches with that in the relationship information. Therefore, when there is a word having different type information, that is, when there is a word, the meaning of which is different but reading of which is the same, the first output-content-generating unit 60 avoids the word being replaced, to suppress the first output sentence after replacement becoming difficult for the user H. However, the first output-content-generating unit 60 can replace the word as long as the word in the content information matches with that in the relationship information, even if the type information in the content information does not match with

that in the relationship information.

[0053] Moreover, although the first output-content-generating unit 60 replaces a word using the relationship information in which the words to be replaced and the replacing words are set in advance in the above explanation, it is not necessarily required to use such relationship information for the replacement of the word. For example, the first output-content-generating unit 60 may replace a word included in content information with a word of a broader term of the word. The word of a broader term means that the word includes other words, and more specifically, the word is a more general, more generic, or more abstract term. That is, when the word included in the content information is replaced with a word of a broader term, the words other than the word included in the content information which are included in the word of the broader term can be replaced. Therefore, people other than the user H cannot infer the word included in the content information before the replacement even if they hear the word of the broader term, and it is possible to suppress the information from being known by people other than the user H. On the other hand, the user H can infer the word included in the content information before the replacement by hearing the word of the broader term because the user H is often aware of the word included in the content information in the first place, and can understand the content. In this case, the first output-content-generating unit 60 can also perform the replacement based on the type information. That is, the first output-content-generating unit 60 replaces the word included in the content information with the word of the broader term when the word included in the content information can be replaced with the broader term (for example, in the case of a proper noun

as described later) and the type information associated with the content information corresponds to predetermined type information set in advance.

[0054] For example, when the word included in the content information is a proper noun, the first output-content-generating unit 60 replaces the word with an initial of the proper noun. That is, the initial is regarded to be a broader term of the proper noun. In this case, the first output-content-generating unit 60 can also perform the replacement based on the type information. That is, the first output-content-generating unit 60 replaces the word (proper noun) with the initial when the word included in the content information is a pronoun, and when the type information associated with the content information corresponds to predetermined type information set in advance, for example, when it corresponds to the type information relating to a name of "person", "company name", "store name", and the like. In this case, for example, the first output sentence is to be "Mr. Y's schedule on March 20, 2020 is a meeting with Mr. Y from 15 o'clock at Tokyo building".

[0055] Moreover, for example, when the type information associated with the content information is a location, the first output-content-generating unit 60 replaces the word included in the content information with a name of facilities located near the place in the content information, a name of an area (town, ward, or street) to which the building or the address in the content information belongs, or the like. That is, the name of the facilities located in neighborhood or the name of the area is regarded as the broader term. For example, when "Tokyo building" shown in FIG. 5 is replaced with "Tokyo station", the first output sentence is to be "Mr. Yamada's schedule

on March 20, 2020 is a meeting with Mr. Yoshida from 15 o'clock near Tokyo station".

[0056] The first output-content-generating unit 60 generates a sentence in which a word selected from among words included in the content information is replaced with another word as the first output sentence as described above when a voice is classified into the first voice V1A. The methods of replacing words explained above can be combined to be used, or only either one can be used. By combining the methods, it is possible to make it more difficult for other people to understand the output sentence.

[0057] Referring back to FIG. 2, the output controller 44 acquires the output sentences generated by the output-content generating unit 40, that is, the first output sentence or the second output sentence. The output controller 44 converts the output sentences in text data into voice data, and causes the voice output unit 12 to output the voice data as the second voice V2. Moreover, the output controller 44 can control the lighting unit 14 to turn on a light when the voice V2 is output, when the processing by the processor 38 is completed, when the voice V1 is detected, or the like.

[0058] The controller 16 has a configuration as described above. A flow of output processing of an output sentence by the controller 16 is explained based on a flowchart. FIG. 7 is a flowchart showing a flow of output processing of output sentence according to the first embodiment. As shown in FIG. 7, the controller 16 acquires input voice, that is voice data of the voice V1 by the voice acquiring unit 30 (step S10). The controller 16 causes the voice analyzing unit 32 to analyze the voice data of the voice V1 acquired by the voice acquiring unit

30, and generates text data (step S12). Subsequently, the controller 16 causes the intention analyzing unit 34 to detect the intention information I from the text data (step S14), and causes the attribute-information acquiring unit 50 to derive the attribute information E based on the intention information I (step S16). The attribute-information acquiring unit 50 acquires the attribute type information E0 and the attribute content information E1 based on the intention information I. After having derived the attribute information E, the controller 16 causes the acquisition-information acquiring unit 52 to acquire the acquisition information A, that is the acquisition type information A0 and the acquisition content information A1 based on the intention information I and the attribute information E (step S18). Moreover, when the input voice, namely the voice V1, is acquired at step S10, the controller 16 causes the voice classifying unit 42 to classify the voice V1 to either one of the first voice V1A and the second voice V1B (step S22).

[0059] The controller 16 determines whether the voice V1 is the first voice V1A (step S24), and when it determines that the voice V1 is the first voice V1A (step S24: YES), causes the first output-content-generating unit 60 to generate the first output sentence (step S26). On the other hand, when it determines that the voice V1 is not the first voice V1A (step S24: NO), that is, the voice V1 is the second voice V1B, the controller 16 causes the second output-content-generating unit 62 to generate the second output sentence (step S28). After having generated the output sentence, that is, the first output sentence or the second output sentence, the controller 16 causes the output controller 44 to output the output sentence as the voice V2 by the voice output unit 12 (step S30), and ends the

processing. That is, when the first output sentence is generated, the output controller 44 converts the first output sentence into voice data, and causes the voice output unit 12 to output it as the voice V2. When the second output sentence is generated, the output controller 44 converts the second output sentence into voice data, and causes the voice output unit 12 to output it as the voice V2.

[0060] As explained above, the output-content control device 1 according to the present embodiment includes the voice classifying unit 42, the intention analyzing unit 34, the notification-information acquiring unit 36, and the output-content generating unit 40. The voice classifying unit 42 analyzes the voice V1 spoken by the user H and acquired by the voice acquiring unit 30, and determines whether the voice V1 is a predetermined voice (the first voice V1A). The intention analyzing unit 34 analyzes the voice V1 acquired by the voice acquiring unit 30, and detects the intention information I that indicates what kind of information the user H wishes to acquire. The notification-information acquiring unit 36 acquires the notification information that is information to be notified to the user H based on the intention information I. The output-content generating unit 40 generates the output sentence that is sentence data to be output to the user H, based on the notification information. The output-content generating unit 40 generates the output sentence in which a word selected from among words included in the notification information is replaced with another word (the first output sentence) when the voice V1 is classified into the first voice V1A, that is, determined as the predetermined voice.

[0061] The voice V2 output as the voice data of the output sentence is output toward the user H, but can be

heard by people other than the user H around the output-content control device 1 as described above. However, it can be preferable that the content of the voice V2 be not known by anyone other than the user H, for example, considering privacy. When the user H does not want other people to know the content of the voice V2, that is, the content of the output sentence from the output-content control device 1, the user H changes the voice V1 into the voice V1 in whispers even when speaking the same content. The output-content control device 1 determines that it is required to avoid the content being known by people other than the user H when the voice V1 classified into the first voice V1A is detected, and generates the first output sentence for the voice V2. In the first output sentence, the content information, that is, a word included in the content to be notified to the user H (information that the user H wishes to know) is replaced with another word. Thus, it becomes difficult to understand the meaning of the first output sentence for the people other than the user H as the replacement of the word with the other word is performed, thereby enabling to make the content difficult to be understood by the people other than the user H.

[0062] Furthermore, the output-content generating unit 40 generates the second output sentence in which a word included in the notification information is not replaced when the voice V1 is classified into the second voice V1B. The output-content control device 1 analyzes the voice V1 of the user, and determines that it can be known by the people other than the user H when the voice V1 that is classified into the second voice V1B is detected, and generates the second output sentence without replacing a word. Thus, it is possible to suppress the replacement of a word when it is not required.

[0063] Moreover, the notification-information acquiring unit 36 acquires the content information that is the content of information to be notified to the user H, and the type information that indicates a type of the content information, as the notification information. The output-content generating unit 40 selects a word to be replaced with another word based on the word included in the content information and the type information that is associated with the content information. When a word included in the content information is replaced with another word, it may become difficult to be understood also by the user H. Thus, the output-content control device 1 selects a word to be replaced, based on the information to be notified and the type of the information, and the random replacement of the word is thereby suppressed, and it is prevented from making it difficult for the user H to understand the output sentence.

[0064] Moreover, the output-content generating unit 40 reads relationship information including information about a word to be replaced (first word) being a predetermined word, and a replacing word (second word) associated with the word to be replaced (first word). The output-content generating unit 40 replaces the word included in the notification information with the replacing word (second word) when the word included in the notification information matches with the word to be replaced (first word). Since the word to be replaced and the replacing word are set in advance in the relationship information, it is possible for the user H to recognize the output sentence but is difficult for the people other than the user H to recognize the output sentence. Therefore, the output-content control device 1 can suppress information being known by the people other than the user H appropriately,

keeping the content thereof understandable for the user H, because the replacement with the replacing word is performed as described above.

[0065] Moreover, the relationship information also includes information of the type information that indicates a type of the word to be replaced (first word). The output-content generating unit 40 selects a word included in the notification information as a word to be replaced with another word when the type information of the word included in the notification information and the type information of the word to be replaced (first word) match with each other and the word included in the notification information matches with the word to be replaced (first word). As described above, the output-content control device 1 replaces a word with the word to be replaced when the type information thereof matches with that of the word to be replaced. Therefore, when there is a word of a different type, that is, a word the meaning of which is different but reading of which is the same, the first output-content-generating unit 60 avoids the word being replaced with the other word, thereby suppressing the first output sentence after the replacement becoming difficult also for the user H.

[0066] Furthermore, the output-content generating unit 40 replaces a word included in the notification information with a word of a broader term of the word. Since the people other than the user H cannot infer the word included in the content information before the replacement when the people hear the word of the broader term, it is possible to suppress the information being known by the people other than the user H. On the other hand, since the user H can be aware of the word included in the content information in the first place, the user H can infer the word included in

the notification information before the replacement when hearing the word of the broader term, and can understand the content appropriately.

[0067] Moreover, the output-content generating unit 40 replaces, when a word included in the notification information is a proper noun, the word with an initial of the proper noun. The people other than the user H cannot infer the word included in the notification information before the replacement when the people hear the initial, and it is possible to suppress the information being known by the people other than the user H. On the other hand, since the user H can be aware of the word included in the content information in the first place, the user H can infer the word included in the notification information before the replacement when hearing the initial, and can understand the content appropriately.

[0068] The voice classifying unit 42 classifies the voice V1 into the first voice V1A when the voice V1 spoken by the user is a whisper. The output-content control device 1 detects a whisper and, in that case, generates the first output sentence. It is thereby appropriately determined whether the content is preferable not to be known by the people other than the user H, and is possible to suppress the influence thereof appropriately.

[0069] FIG. 8 is a schematic diagram showing another example of the output-content control device according to the first embodiment. In the output-content control device 1 according to the first embodiment, the output controller 44 converts the output sentence into the voice data , and causes the voice output unit 12 to output the voice data as the voice V2 as described above. However, when outputting the first output sentence, the output-content control device 1 can output the first output sentence as text data

to an output unit other than the voice output unit 12 as shown in FIG. 8. For example, the output-content control device 1 can cause a display device 12A that is connected to the output-content control device 1 to display the first output sentence. Moreover, the output-content control device 1 can cause a terminal device 102 owned by the user H to display the first output sentence. Furthermore, the output-content control device 1 can attach the first output sentence to an e-mail and send the email to a predetermined destination. In this case, it is preferable that the output-content control device 1 determine a transmission destination in advance. As described above, when outputting the first output sentence, the output-content control device 1 can output the first output sentence as text data, not in a voice. In this case, since a voice is not output, it is possible to avoid it being heard by other people, and to further reduce the possibility that the content is known by other people. Furthermore, even if the text data is seen by people, since the word is replaced as the first output sentence, it is difficult for other people to understand the sentence.

Second Embodiment

[0070] Next, a second embodiment is explained. While the output-content control device 1 according to the first embodiment includes the voice detecting unit 10 and the voice output unit 12, an output-content control device 1A according to the second embodiment does not include the voice detecting unit 10 and the voice output unit 12. In the second embodiment, explanation of parts having the common configurations with the first embodiment is omitted.

[0071] FIG. 9 is a schematic block diagram of an information output system according to the second embodiment. As shown in FIG. 9, an information output

system 100 according to the second embodiment includes the output-content control device 1A and a response device 2A. The response device 2A is, for example, a smart speaker, and includes the voice detecting unit 10, the voice output unit 12, the lighting unit 14, and a communication unit 15A. The output-content control device 1A is a device (server) positioned distant from the response device 2A, and includes the controller 16, a communication unit 18A, and the storage 20. The output-content control device 1A and the response device 2A are connected by wireless communication, but can be connected by wired communication.

[0072] The output-content control device 1A acquires the voice V1 that has been detected by the voice detecting unit 10 through information communication via the communication unit 15A and the communication unit 18A. The output-content control device 1A then generates the output sentence by performing similar processing as the first embodiment, and output the output sentence to the response device 2A. The response device 2A converts the output sentence into the voice data by the voice output unit 12 to output as the voice V2. Note that the output-content control device 1A can generate the output sentence and transmit to the response device 2A. In this case, the voice output unit 12 outputs the acquired voice data as the voice V2. As described, the information output system 100 includes the output-content control device 1A, the voice detecting unit 10 that detects the voice V1 spoken by the user H, and the voice output unit 12 that outputs the output sentence generated by the output-content generating unit 40 as the voice V2. As described above, the output-content control device 1A produces effects similar to those of the first embodiment even when the response device 2A is a separate unit. That is, it can be said that the output-

content control device 1 according to the first embodiment is integrated with the response device 2A and, in other words, can also be regarded as an information output system.

[0073] As described above, the information output system includes the output-content control device, and an output unit that outputs the output sentence generated by the output-content generating unit 40. The output unit is a voice output unit 12 that outputs the output sentence as a voice, but can also be the display device 12A or the like as described above, and the method of outputting the output sentence can be in voice or in text data.

[0074] According to the present application, when a content of inquiry of a user is notified, a notification content can be made difficult to be understood by people other than the user.

[0075] Although the application has been described with respect to specific embodiments for a complete and clear disclosure, the appended claims are not to be thus limited but are to be construed as embodying all modifications and alternative constructions that may occur to one skilled in the art that fairly fall within the basic teaching herein set forth.

What is claimed is:

1. An output-content control device comprising:

a voice classifying unit configured to analyze a voice spoken by a user and acquired by a voice acquiring unit to determine whether the voice is a predetermined voice;

an intention analyzing unit configured to analyze the voice acquired by the voice acquiring unit to detect intention information indicating what kind of information is wished to be acquired by the user;

a notification-information acquiring unit configured to acquire notification information to be notified to the user based on the intention information; and

an output-content generating unit configured to generate an output sentence as sentence data to be output to the user based on the notification information, wherein

the output-content generating unit is further configured to generate the output sentence in which at least one word selected among words included in the notification information is replaced with another word when the voice is determined to be the predetermined voice.

2. The output-content control device according to claim 1, wherein

the notification-information acquiring unit is further configured to acquire, as the notification information, content information to be notified to the user and type information indicating a type of the content information, and

the output-content generating unit is further configured to select the at least one word to be replaced with the other word based on a word included in the content information and the type information that is associated with the content information.

3. The output-content control device according to claim 2, wherein

the output-content generating unit is further configured to read relationship information including information of a first word that is a predetermined word and a second word that is associated with the first word, and to replace a word included in the notification information with the second word when the word included in the notification information matches with the first word.

4. The output-content control device according to claim 3, wherein

the relationship information further includes information of type information indicating a type of the first word, and

the output-content generating unit is further configured to select a word included in the notification information as a word to be replaced with another word when the type information of the word included in the notification information matches with the type information of the first word and the word included in the notification information matches with the first word.

5. The output-content control device according to claim 1, wherein

the voice classifying unit is further configured to determine the voice to be the predetermined voice when the voice spoken by the user is a whisper.

6. An output-content control method comprising:

analyzing an acquired voice spoken by a user to determine whether the voice is a predetermined voice;

analyzing the acquired voice to detect intention information indicating what kind of information is wished to be acquired by the user;

acquiring notification information to be notified to the user based on the intention information; and

generating an output sentence as sentence data to be output to the user based on the notification information, wherein

the generating further includes generating the output sentence in which at least one word selected among words included in the notification information is replaced with another word when the voice is determined to be the predetermined voice.

7. A non-transitory storage medium that stores an output-content control program that causes a computer to execute:

analyzing an acquired voice spoken by a user to determine whether the voice is a predetermined voice;

analyzing the acquired voice to detect intention information indicating what kind of information is wished to be acquired by the user;

acquiring notification information to be notified to the user based on the intention information; and

generating an output sentence as sentence data to be output to the user based on the notification information, wherein

the generating further includes generating the output sentence in which at least one word selected among words included in the notification information is replaced with another word when the voice is determined to be the

predetermined voice.

ABSTRACT

An output-content control device includes a voice classifying unit configured to analyze a voice spoken by a user and acquired by a voice acquiring unit to determine whether the voice is a predetermined voice; an intention analyzing unit configured to analyze the voice acquired by the voice acquiring unit to detect intention information indicating what kind of information is wished to be acquired by the user; a notification-information acquiring unit configured to acquire notification information to be notified to the user based on the intention information; and an output-content generating unit configured to generate an output sentence as sentence data to be output to the user based on the notification information and also configured to generate the output sentence in which at least one word selected among words included in the notification information is replaced with another word when the voice is determined to be the predetermined voice.

FIG.1

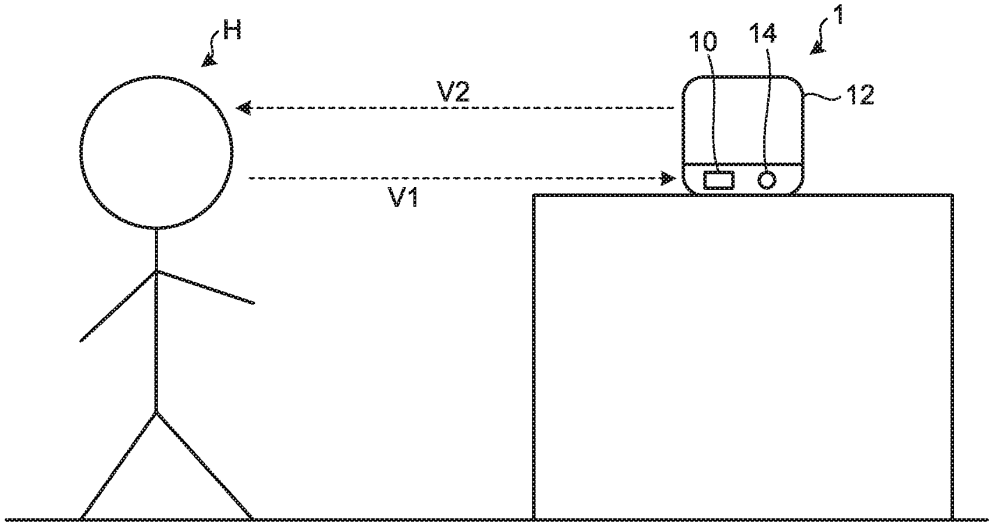


FIG.2

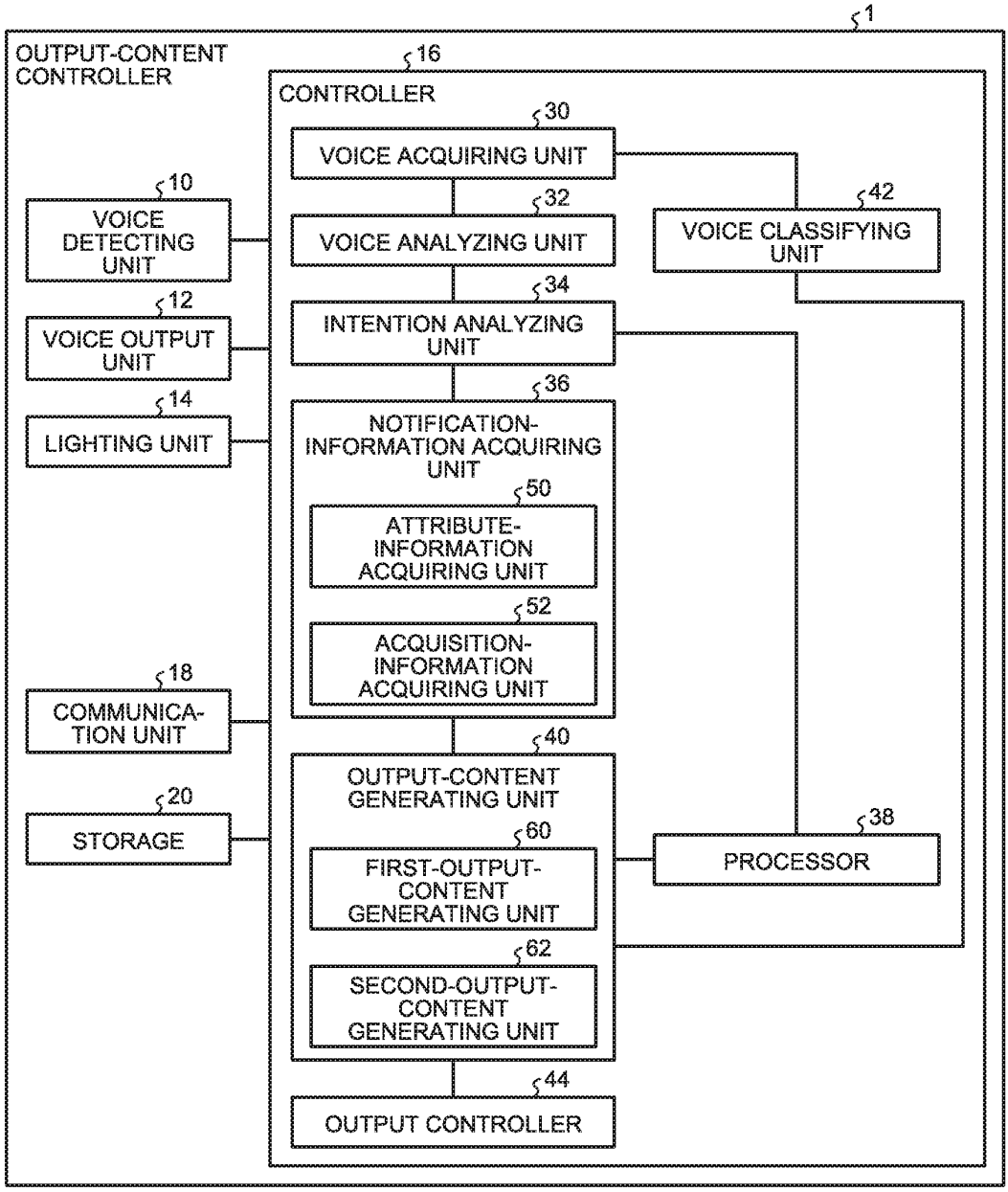

1
OUTPUT-CONTENT CONTROLLER
16
CONTROLLER
30
VOICE ACQUIRING UNIT
10
VOICE DETECTING UNIT
32
VOICE ANALYZING UNIT
42
VOICE CLASSIFYING UNIT
12
VOICE OUTPUT UNIT
34
INTENTION ANALYZING UNIT
14
LIGHTING UNIT
36
NOTIFICATION-INFORMATION ACQUIRING UNIT
50
ATTRIBUTE-INFORMATION ACQUIRING UNIT
52
ACQUISITION-INFORMATION ACQUIRING UNIT
18
COMMUNICA-TION UNIT
40
OUTPUT-CONTENT GENERATING UNIT
20
STORAGE
38
PROCESSOR
60
FIRST-OUTPUT-CONTENT GENERATING UNIT
62
SECOND-OUTPUT-CONTENT GENERATING UNIT
44
OUTPUT CONTROLLER

FIG.3

INTENTION INFORMATION I	SCHEDULE

FIG.4

ATTRIBUTE TYPE INFORMATION E0	PERSON	DATE
ATTRIBUTE CONTENT INFORMATION E1	MR. YAMADA	MARCH 20, 2020

FIG.5

ACQUISITION TYPE INFORMATION A0	LOCATION	TIME	WHAT TO DO	PERSON
ACQUISITION CONTENT INFORMATION A1	TOKYO BUILDING	FROM 15 O'CLOCK	MEETING	MR. YOSHIDA

FIG.6

WORD TO BE REPLACED	MEETING	DINNER
REPLACING WORD	HOSPITAL VISIT	MEETING

FIG.7

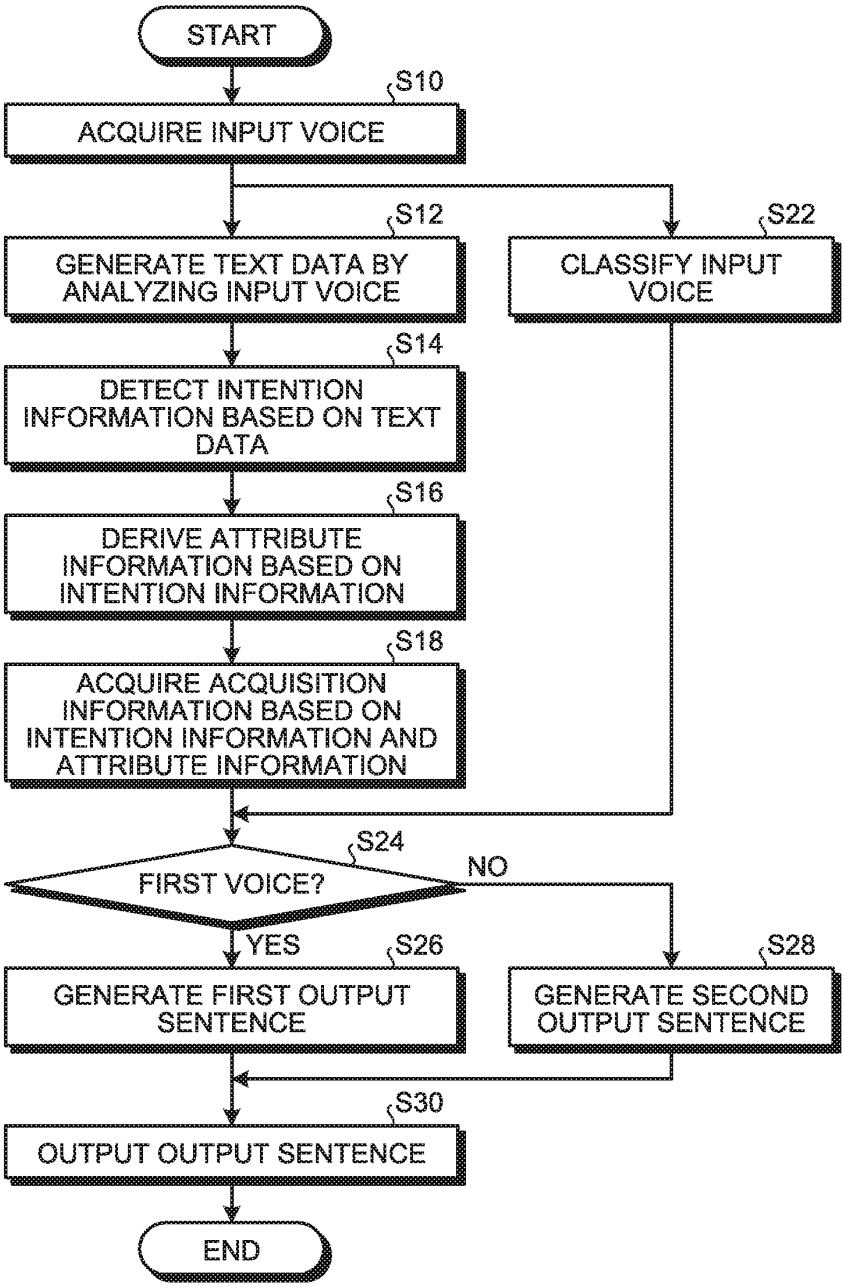

START
S10
ACQUIRE INPUT VOICE
S12
GENERATE TEXT DATA BY ANALYZING INPUT VOICE
S22
CLASSIFY INPUT VOICE
S14
DETECT INTENTION INFORMATION BASED ON TEXT DATA
S16
DERIVE ATTRIBUTE INFORMATION BASED ON INTENTION INFORMATION
S18
ACQUIRE ACQUISITION INFORMATION BASED ON INTENTION INFORMATION AND ATTRIBUTE INFORMATION
S24
FIRST VOICE?
NO
YES
S26
GENERATE FIRST OUTPUT SENTENCE
S28
GENERATE SECOND OUTPUT SENTENCE
S30
OUTPUT OUTPUT SENTENCE
END

FIG.8

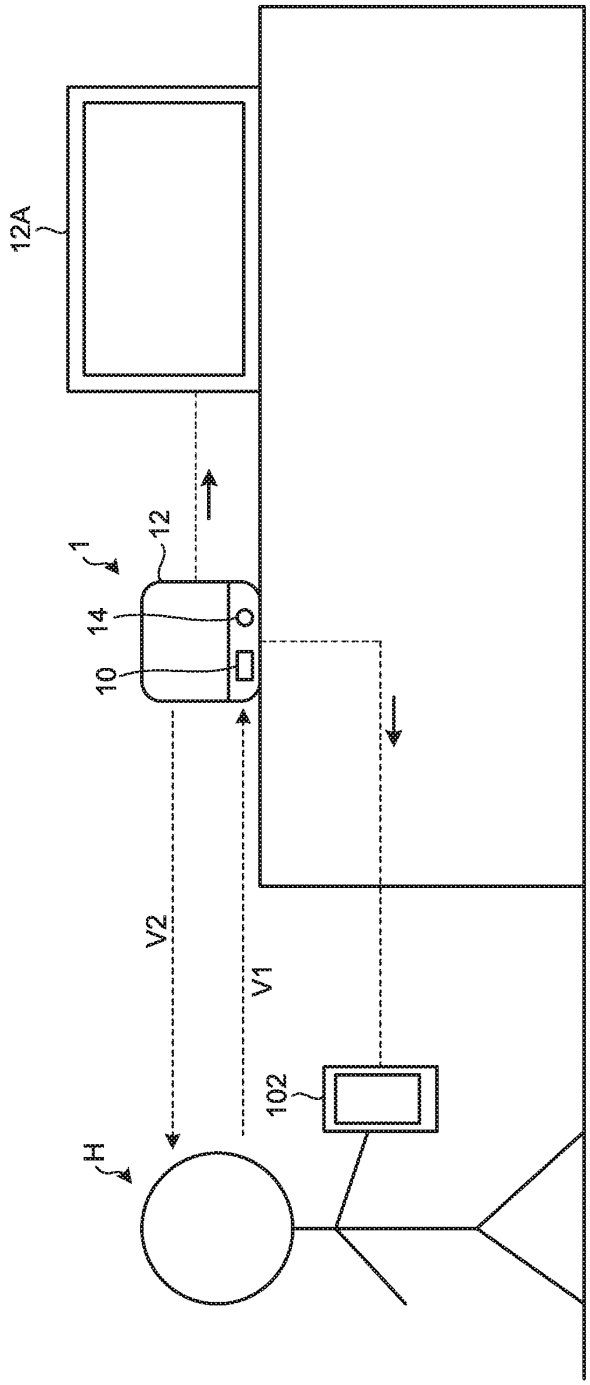
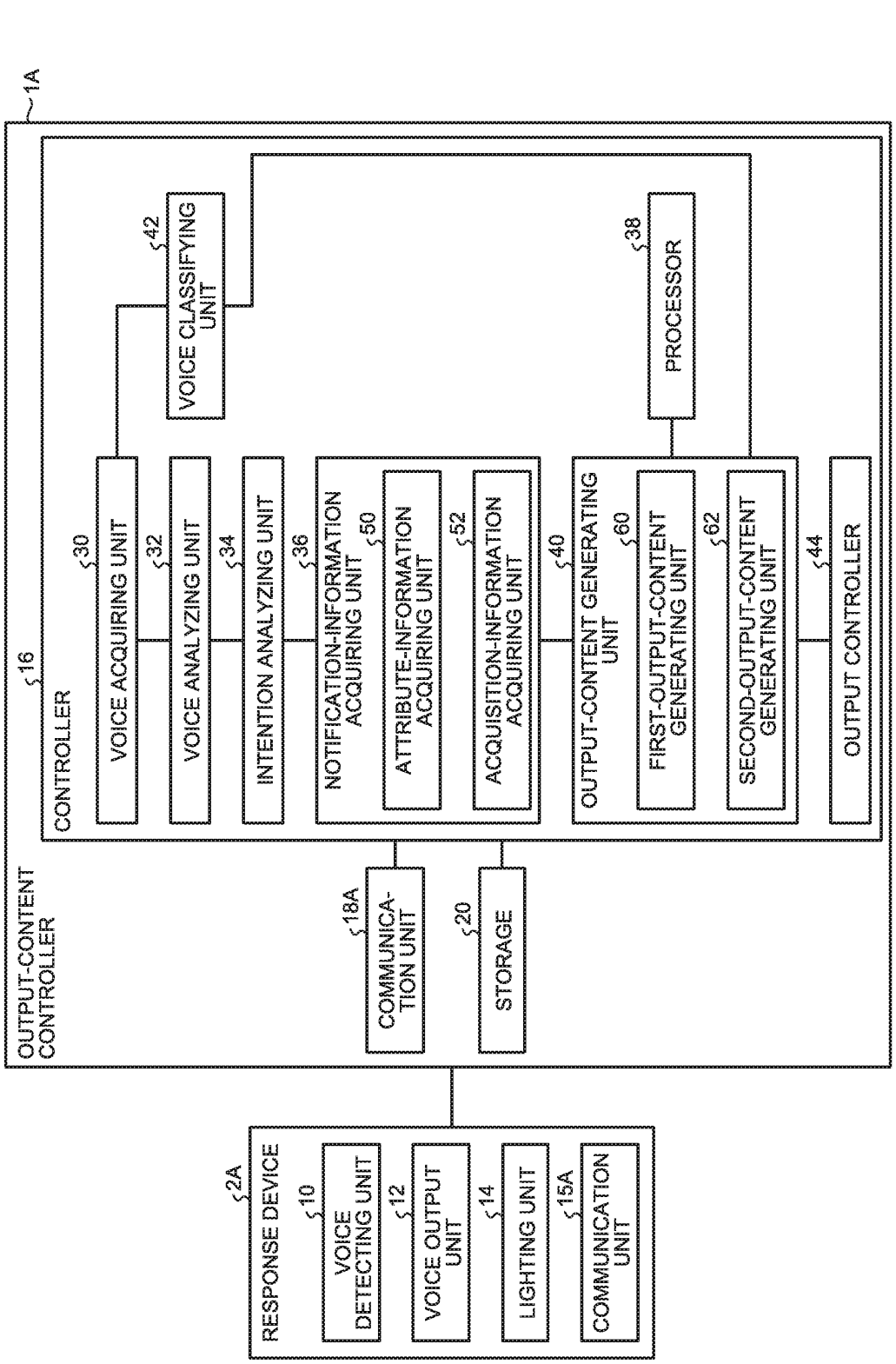


FIG.9


100
1A
OUTPUT-CONTENT CONTROLLER
CONTROLLER
16
VOICE ACQUIRING UNIT
30
VOICE ANALYZING UNIT
32
INTENTION ANALYZING UNIT
34
NOTIFICATION-INFORMATION ACQUIRING UNIT
36
ATTRIBUTE-INFORMATION ACQUIRING UNIT
50
ACQUISITION-INFORMATION ACQUIRING UNIT
52
OUTPUT-CONTENT GENERATING UNIT
40
FIRST-OUTPUT-CONTENT GENERATING UNIT
60
SECOND-OUTPUT-CONTENT GENERATING UNIT
62
OUTPUT CONTROLLER
44
VOICE CLASSIFYING UNIT
42
PROCESSOR
38
COMMUNICATION UNIT
18A
STORAGE
20
RESPONSE DEVICE
2A
VOICE DETECTING UNIT
10
VOICE OUTPUT UNIT
12
LIGHTING UNIT
14
COMMUNICATION UNIT
15A

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Application Data Sheet 37 CFR 1.76	Attorney Docket Number	SAJVP172US
	Application Number	
Title of Invention	OUTPUT-CONTENT CONTROL DEVICE, OUTPUT-CONTENT CONTROL METHOD, AND NON-TRANSITORY STORAGE MEDIUM	

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
	Tatsumi		Naganuma	

Residence Information (Select One) US Residency ● Non US Residency Active US Military Service

City	Yokohama-shi, Kanagawa	Country of Residence [i]	JP

Mailing Address of Inventor:

Address 1	c/o Intellectual Property Dept., JVC KENWOOD Corp.
Address 2	3-12, Moriyacho, Kanagawa-ku
City	Yokohama-shi, Kanagawa — **State/Province**
Postal Code	221-0022 — **Country** [i] JP

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.**

Customer Number	23623
Email Address	Add Email Remove Email

Application Information:

Title of the Invention	OUTPUT-CONTENT CONTROL DEVICE, OUTPUT-CONTENT CONTROL METHOD, AND NON-TRANSITORY STORAGE MEDIUM		
Attorney Docket Number	SAJVP172US	**Small Entity Status Claimed**	☐
Application Type	Nonprovisional		
Subject Matter	Utility		
Total Number of Drawing Sheets (if any)	6	**Suggested Figure for Publication (if any)**	1

PTO/AIA/14 (11-15)
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Application Data Sheet 37 CFR 1.76	Attorney Docket Number	SAJVP172US
	Application Number	
Title of Invention	OUTPUT-CONTENT CONTROL DEVICE, OUTPUT-CONTENT CONTROL METHOD, AND NON-TRANSITORY STORAGE MEDIUM	

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	23623		

Domestic Benefit/National Stage Information:

This section allows for the applicant to either claim benefit under 35 U.S.C. 119(e), 120, 121, 365(c), or 386(c) or indicate National Stage entry from a PCT application. Providing benefit claim 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" field blank.

Prior Application Status			Remove
Application Number	Continuity Type	Prior Application Number	Filing or 371(c) Date (YYYY-MM-DD)

Additional Domestic Benefit/National Stage Data may be generated within this form by selecting the **Add** button. Add

Application Data Sheet 37 CFR 1.76	Attorney Docket Number	SAJVP172US
	Application Number	
Title of Invention	OUTPUT-CONTENT CONTROL DEVICE, OUTPUT-CONTENT CONTROL METHOD, AND NON-TRANSITORY STORAGE MEDIUM	

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. 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(i)(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)
2018-044598	JP	2018-03-12	647C

Additional Foreign Priority Data may be generated within this form by selecting the **Add** button. Add

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.

Application Data Sheet 37 CFR 1.76	Attorney Docket Number	SAJVP172US
	Application Number	
Title of Invention	OUTPUT-CONTENT CONTROL DEVICE, OUTPUT-CONTENT CONTROL METHOD, AND NON-TRANSITORY STORAGE MEDIUM	

Authorization or Opt-Out of Authorization to Permit Access:

When this Application Data Sheet is properly signed and filed with the application, applicant has provided written authority to permit a participating foreign intellectual property (IP) office access to the instant application-as-filed (see paragraph A in subsection 1 below) and the European Patent Office (EPO) access to any search results from the instant application (see paragraph B in subsection 1 below).

Should applicant choose not to provide an authorization identified in subsection 1 below, applicant **must opt-out** of the authorization by checking the corresponding box A or B or both in subsection 2 below.

NOTE: This section of the Application Data Sheet is **ONLY** reviewed and processed with the **INITIAL** filing of an application. After the initial filing of an application, an Application Data Sheet cannot be used to provide or rescind authorization for access by a foreign IP office(s). Instead, Form PTO/SB/39 or PTO/SB/69 must be used as appropriate.

1. Authorization to Permit Access by a Foreign Intellectual Property Office(s)

A. Priority Document Exchange (PDX) - Unless box A in subsection 2 (opt-out of authorization) is 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 State Intellectual Property Office of the People's Republic of China (SIPO), the World Intellectual Property Organization (WIPO), and any other foreign intellectual property office participating with the USPTO in a bilateral or multilateral priority document exchange agreement in which a foreign application claiming priority to the instant patent application is filed, access to: (1) the instant patent application-as-filed and its related bibliographic data, (2) any foreign or domestic application to which priority or benefit is claimed by the instant application and its related bibliographic data, and (3) the date of filing of this Authorization. See 37 CFR 1.14(h)(1).

B. Search Results from U.S. Application to EPO - Unless box B in subsection 2 (opt-out of authorization) is checked, the undersigned hereby **grants the USPTO authority** to provide the EPO access to the bibliographic data and search results from the instant patent application when a European patent application claiming priority to the instant patent application is filed. See 37 CFR 1.14(h)(2).

The applicant is reminded that the EPO's Rule 141(1) EPC (European Patent Convention) requires applicants to submit a copy of search results from the instant application without delay in a European patent application that claims priority to the instant application.

2. Opt-Out of Authorizations to Permit Access by a Foreign Intellectual Property Office(s)

☐ A. Applicant **DOES NOT** authorize the USPTO to permit a participating foreign IP office access to the instant application-as-filed. If this box is checked, the USPTO will not be providing a participating foreign IP office with any documents and information identified in subsection 1A above.

☐ B. Applicant **DOES NOT** authorize the USPTO to transmit to the EPO any search results from the instant patent application. If this box is checked, the USPTO will not be providing the EPO with search results from the instant application.

NOTE: Once the application has published or is otherwise publicly available, the USPTO may provide access to the application in accordance with 37 CFR 1.14.

Application Data Sheet 37 CFR 1.76	Attorney Docket Number	SAJVP172US
	Application Number	
Title of Invention	OUTPUT-CONTENT CONTROL DEVICE, OUTPUT-CONTENT CONTROL METHOD, AND NON-TRANSITORY STORAGE MEDIUM	

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.

Applicant 1 Remove

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	JVC KENWOOD Corporation		
Mailing Address Information For Applicant:			
Address 1	3-12, Moriyacho, Kanagawa-ku		
Address 2			
City	Yokohama-shi, Kanagawa	**State/Province**	
Country	JP	Postal Code	221-0022
Phone Number		Fax Number	
Email Address			

Additional Applicant Data may be generated within this form by selecting the Add button. Add

Assignee Information including Non-Applicant Assignee 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	SAJVP172US
	Application Number	
Title of Invention	OUTPUT-CONTENT CONTROL DEVICE, OUTPUT-CONTENT CONTROL METHOD, AND NON-TRANSITORY STORAGE MEDIUM	

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.

Remove

If the Assignee or Non-Applicant Assignee is an Organization check here. ☐

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 i		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. Add

Signature:

Remove

NOTE: This Application Data Sheet must be signed in accordance with 37 CFR 1.33(b). **However, if this Application Data Sheet is submitted with the INITIAL filing of the application and either box A or B is not checked in subsection 2 of the "Authorization or Opt-Out of Authorization to Permit Access" section, then this form must also be signed in accordance with 37 CFR 1.14(c).**

This Application Data Sheet **must** be signed by a patent practitioner if one or more of the applicants is a **juristic entity** (e.g., corporation or association). If the applicant is two or more joint inventors, this form must be signed by a patent practitioner, **all** joint inventors who are the applicant, or one or more joint inventor-applicants who have been given power of attorney (e.g., see USPTO Form PTO/AIA/81) on behalf of **all** joint inventor-applicants.

See 37 CFR 1.4(d) for the manner of making signatures and certifications.

Signature	/Greg Turocy/			Date (YYYY-MM-DD)	2019-03-07
First Name	Gregory	Last Name	Turocy	Registration Number	36952

Additional Signature may be generated within this form by selecting the Add button. Add

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Application Data Sheet 37 CFR 1.76	Attorney Docket Number	SAJVP172US
	Application Number	
Title of Invention	OUTPUT-CONTENT CONTROL DEVICE, OUTPUT-CONTENT CONTROL METHOD, AND NON-TRANSITORY STORAGE MEDIUM	

This collection of information is required by 37 CFR 1.76. 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 23 minutes to complete, including gathering, preparing, and submitting the completed application data sheet 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 records.

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 CooperationTreaty.

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.

Docket No. Amin, Turocy & Watson, LLP

COMBINED DECLARATION AND ASSIGNMENT FOR U.S. PATENT APPLICATION USING AN APPLICATION DATA SHEET

DECLARATION

As a below named inventor, I hereby declare that:

I believe I am the original inventor or an original joint inventor of the subject matter which is claimed and for which a patent is sought on the invention entitled:

Title: OUTPUT-CONTENT CONTROL DEVICE, OUTPUT-CONTENT CONTROL METHOD, AND NON-TRANSITORY STORAGE MEDIUM

the application of which is attached hereto unless the following is checked

_____ was filed on _____ as United States application Serial No. _____, or as described and claimed in PCT International Application No. _____filed on _____ and amended on _____ (if any).

The above-identified application was made or authorized to be made by me.

Please direct all communications to the following address:

the address associated with Customer Number **23623**, and direct telephone calls to

Gregory Turocy of Amin, Turocy & Watson, LLP at 216-696-8730.

I hereby acknowledge that any willful false statement made in this declaration is punishable under 18 U.S.C. Section 1001 by fine or imprisonment of not more than five (5) years, or both.

ASSIGNMENT

For good and valuable consideration received of the hereinafter named assignee, receipt of which is hereby acknowledged, the undersigned

Name: Tatsumi NAGANUMA **Residence:** Yokohama-shi, Kanagawa, JAPAN

hereby sell and assign to JVC KENWOOD Corporation, a corporation of Japan, having a business address at 3-12, Moriyacho, Kanagawa-ku, Yokohama-shi, Kanagawa 221-0022 Japan, its successors and assigns, the entire right, title and interest, so far as concerns the United States and the Territories and Possessions thereof and all foreign countries, in and to the inventions titled above for which application for United States Letters Patent is executed by the undersigned on the date below and is being filed concurrently herewith, said application for United States Letters Patent, any and all other applications for Letters Patent on said inventions in countries foreign to the United States, including all divisional, renewal, substitute, continuation, Convention applications, reissue, reexamination, supplemental examination, inter partes review, post grant review, or other procedures thereof for the full term or terms for which the same may be granted based in whole or in part upon said inventions or upon said applications, and any and all Letters Patent and

reissues and extensions of Letters Patent granted for said inventions or upon said applications, and every priority right that is or may be predicated upon or arise from said inventions, said applications and said Letters Patent; said assignee being hereby authorized to file patent applications in any or all countries on any or all said inventions in the name of the undersigned or in the name of said assignee or otherwise as said assignee may deem advisable, under the International Convention or otherwise; the Commissioner of Patents and Trademarks of the United States of America and the empowered officials of all other governments being hereby authorized to issue or transfer all said Letters Patent to said assignee in accordance herewith; this assignment being under covenant, not only that full power to make the same is had by the undersigned, but also that such assigned right is not encumbered by any grant, license, or other right heretofore given, and that the undersigned will do all acts reasonably serving to assure that said inventions, patent applications and Letters Patent shall be held and enjoyed by said assignee as fully and entirely as the same could have been held and enjoyed by the undersigned if this assignment had not been made, and particularly to execute and deliver to said assignee all lawful documents including petitions, specifications, oaths, assignments, invention disclaimers, and lawful affidavits in form and substance which may be requested by said assignee, to furnish said assignee with all facts relating to said inventions or the history thereof and any and all documents, photographs, models, samples or other physical exhibits which may be useful for establishing the facts of conception, disclosure and reduction to practice of said inventions, and to testify in any proceedings relating to said inventions, patent applications and Letters Patent.

The undersigned hereby appoint, request, and grant power to the following law firm to insert on this Assignment further identification which may be necessary or desirable in order to comply with the Rules of the U.S. Patent and Trademark Office for recordation of this document, for example, the U.S. Serial No. and filing date.

Amin, Turocy & Watson, LLP, 57th Floor - Key Tower, 127 Public Square, Cleveland, Ohio 44114.

Legal name of inventor: Tatsumi NAGANUMA

Inventor's signature: Tatsumi Naganuma Date: Jan. 25, 2019

Doc Code: PA..

Document Description: Power of Attorney

PTO/AIA/82A (07-12)

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U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE

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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 or equivalent) to identify the application to which the Power of Attorney is directed, in accordance with 37 CFR 1.5. If the Power of Attorney by Applicant form is not accompanied by this transmittal form or an equivalent, the Power of Attorney will not be recognized in the application.

Application Number	
Filing Date	March 7, 2019
First Named Inventor	Naganuma
Title	OUTPUT-CONTENT CONTROL DEVICE, OUTPUT-CONTENT CONTROL METHOD, AND NON-TRANSITORY STORAGE MEDIUM
Art Unit	
Examiner Name	
Attorney Docket Number	SAJVP172US

SIGNATURE of Applicant or Patent Practitioner

Signature	/Greg Turocy/	Date	March 7, 2019
Name	Gregory Turocy	Telephone	216-696-8730
Registration Number	36,952		

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

☐ *Total of _____ forms are submitted.

This collection of information is required by 37 CFR 1.31, 1.32 and 1.33. The information is required to obtain or retain a benefit by the public which is to 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.