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APPLICATION NUMBER	FILING OR 371(C) DATE	FIRST NAMED APPLICANT	ATTY. DOCKET NO./TITLE
16/290,983	03/04/2019	Tatsumi Naganuma	SAJVP171US

CONFIRMATION NO. 5210

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

POWER OF ATTORNEY NOTICE

OC000000083673449

Date Mailed: 01/29/2025

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- The Power of Attorney to you in this application has been revoked by the applicant.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

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

/byemane/

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APPLICATION NUMBER	FILING OR 371(C) DATE	FIRST NAMED APPLICANT	ATTY. DOCKET NO./TITLE
16/290,983	03/04/2019	Tatsumi Naganuma	SAJVP171US

CONFIRMATION NO. 5210

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

POA ACCEPTANCE LETTER

OC000000083673488

Date Mailed: 01/29/2025

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**.

/byemane/

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
16/290,983	03/04/2019

(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.

PTO/AIA/96 (08-12)
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STATEMENT UNDER 37 CFR 3.73(c)

Applicant/Patent Owner: JVC Kenwood Corporation

Application No./Patent No.: 11,069,337 Filed/Issue Date: 03/04/2019

Titled: Voice-Content Control Device, Voice-Content Control method, and Non-Transitory Storage Medium

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: Tatsumi, Naganuma To: JVC Kenwood Corporation

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

   Reel 048487, Frame 0139, or for which a copy thereof is attached.

2. 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.

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)
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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

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

APPLICATION #	RECEIPT DATE / TIME	ATTORNEY DOCKET #
16/290,983	**01/17/2025 09:16:56 AM Z ET**	**SAJVP171US**

Title of Invention

VOICE-CONTENT CONTROL DEVICE, VOICE-CONTENT CONTROL METHOD, AND NON-TRANSITORY STORAGE MEDIUM

Application Information

APPLICATION TYPE	Utility - Nonprovisional Application under 35 USC 111(a)	PATENT #	11069337
CONFIRMATION #	5210	FILED BY	Kevin Sprenger
PATENT CENTER #	68791656	FILING DATE	03/04/2019
CUSTOMER #	23623	FIRST NAMED INVENTOR	Tatsumi Naganuma
CORRESPONDENCE ADDRESS	-	AUTHORIZED BY	-

Documents

TOTAL DOCUMENTS: 2

DOCUMENT	PAGES	DESCRIPTION	SIZE (KB)
1.15.2025_POA_11069337_Signed.pdf	1	Power of Attorney	656 KB
1.17.2025_3.73Statement_PTO-96_11069337.pdf	3	Assignee showing of ownership per 37 CFR 3.73	117 KB

Digest

DOCUMENT	MESSAGE DIGEST(SHA-512)
1.15.2025_POA_11069337_Signed.pdf	089D128D4FF556D2A53C4A8D4A70E3601098B76FE7F677150 7022128945152C580CF06517819A14332058BB88DDDEC4170B 04690ED1DF390D8BEE15389DD0ADE

1.17.2025_3.73Statement_PTO-96_11069337.pdf

1A3F31A8CCFC6798FE3E8E4159815130C51DE3D600A87549F4B19ECE583856CEB6663662C1B312E4F8886095547D78C00A10D576FB65A9769F96FB68553F3A8A

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.

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

PTO/SB/08a (01-10)
Approved for use through 07/31/2012. OMB 0651-0031
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
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INFORMATION DISCLOSURE STATEMENT BY APPLICANT (**Not for submission under 37 CFR 1.99)**		
	Application Number	16290983
	Filing Date	2019-03-04
	First Named Inventor	Naganuma
	Art Unit	2656
	Examiner Name	Linda Wong
	Attorney Docket Number	SAJVP171US

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Examiner Initial*	Cite No	Patent Number	Kind Code[1]	Issue Date	Name of Patentee or Applicant of cited Document	Pages,Columns,Lines where Relevant Passages or Relevant Figures Appear
	1					

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	1					

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Examiner Initial*	Cite No	Foreign Document Number[3]	Country Code[2] i	Kind Code[4]	Publication Date	Name of Patentee or Applicant of cited Document	Pages,Columns,Lines where Relevant Passages or Relevant Figures Appear	T[5]
	1	2016/136062	WO		2016-09-01	SONY CORP		

If you wish to add additional Foreign Patent Document citation information please click the Add button Add

NON-PATENT LITERATURE DOCUMENTS Remove

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

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	16290983
	Filing Date	2019-03-04
	First Named Inventor	Naganuma
	Art Unit	2656
	Examiner Name	Linda Wong
	Attorney Docket Number	SAJVP171US

	1		

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EXAMINER SIGNATURE

Examiner Signature		Date Considered	

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

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

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	16290983
	Filing Date	2019-03-04
	First Named Inventor	Naganuma
	Art Unit	2656
	Examiner Name	Linda Wong
	Attorney Docket Number	SAJVP171US

CERTIFICATION STATEMENT

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

X 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).

X See attached certification statement.

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

X 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)	2021-07-12
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.**

Privacy Act Statement

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

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

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

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

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

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

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

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

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

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

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

Espacenet

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)

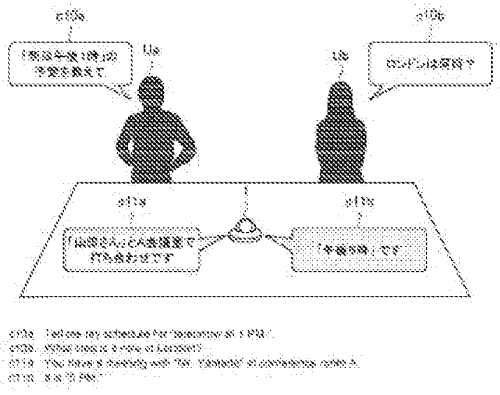
Application number: WO2015JP83232 20151126 Global Dossier

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
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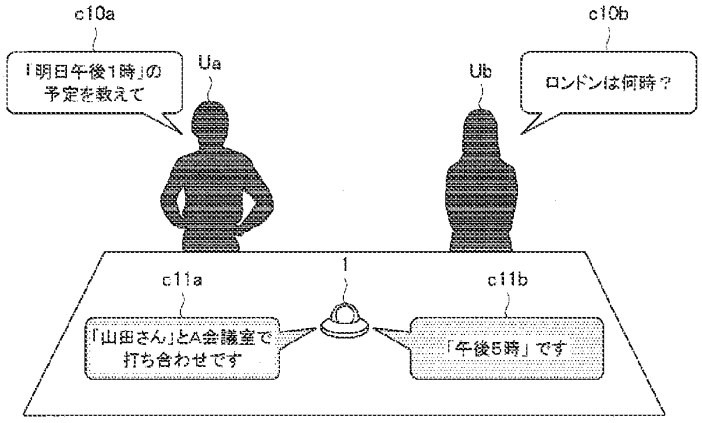
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— 国際調査報告（条約第 21 条(3)）

(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、

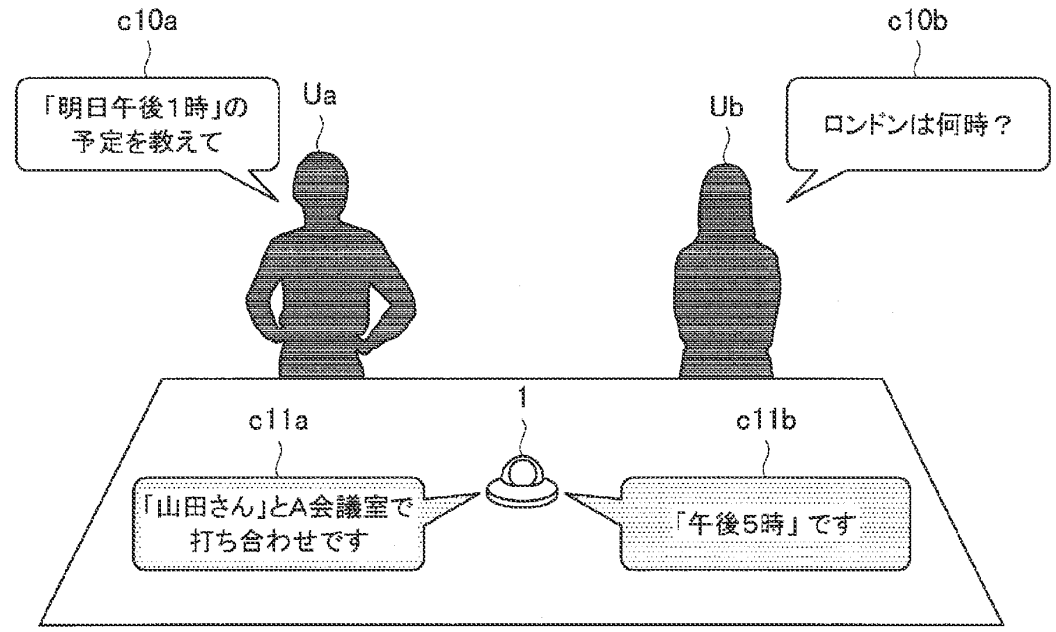
を含む、情報処理方法。

[請求項20] コンピュータに、

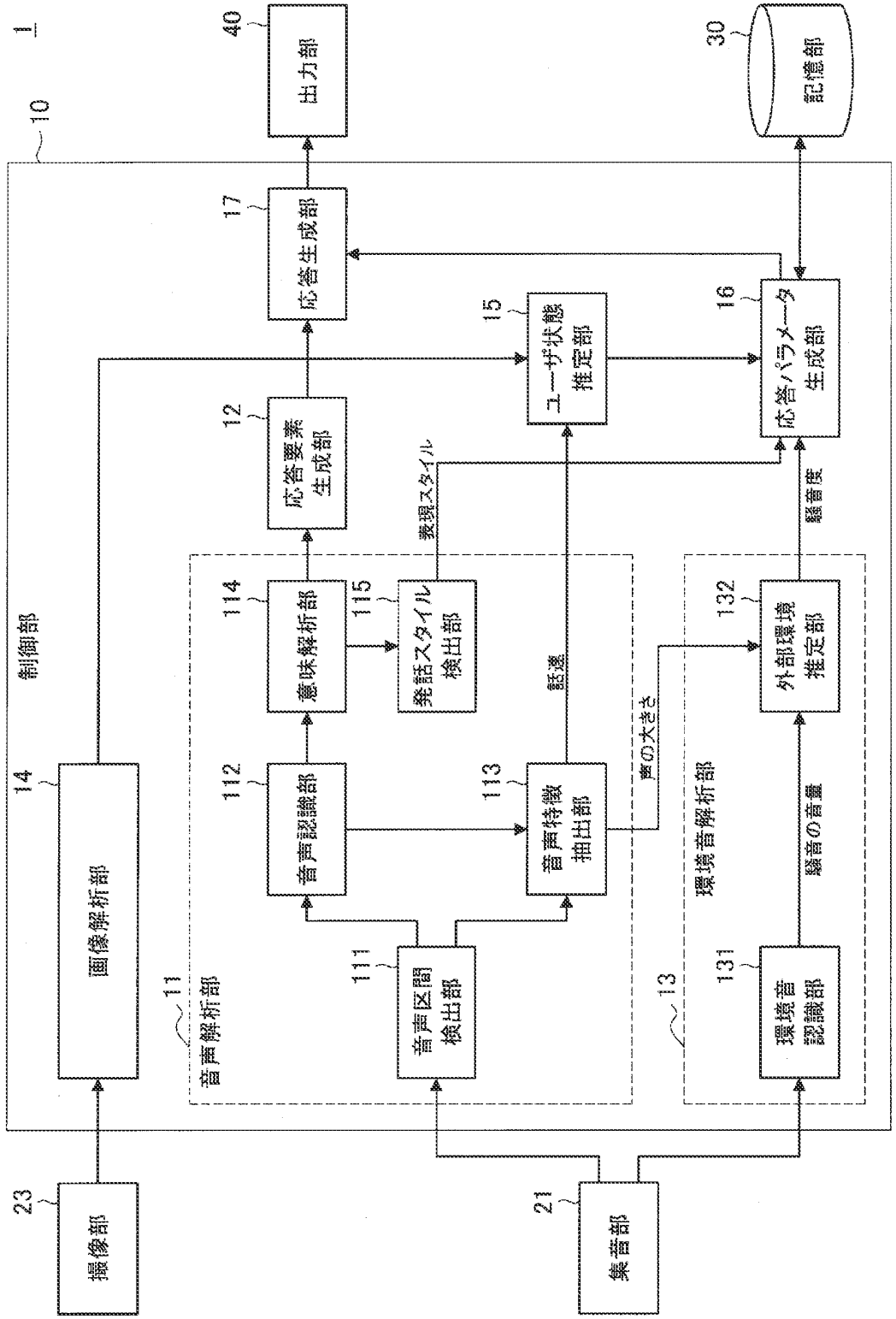
取得したユーザの発話状態に関する情報に応じて、前記ユーザの発話に対する応答の出力を制御すること、

を実行させる、プログラム。

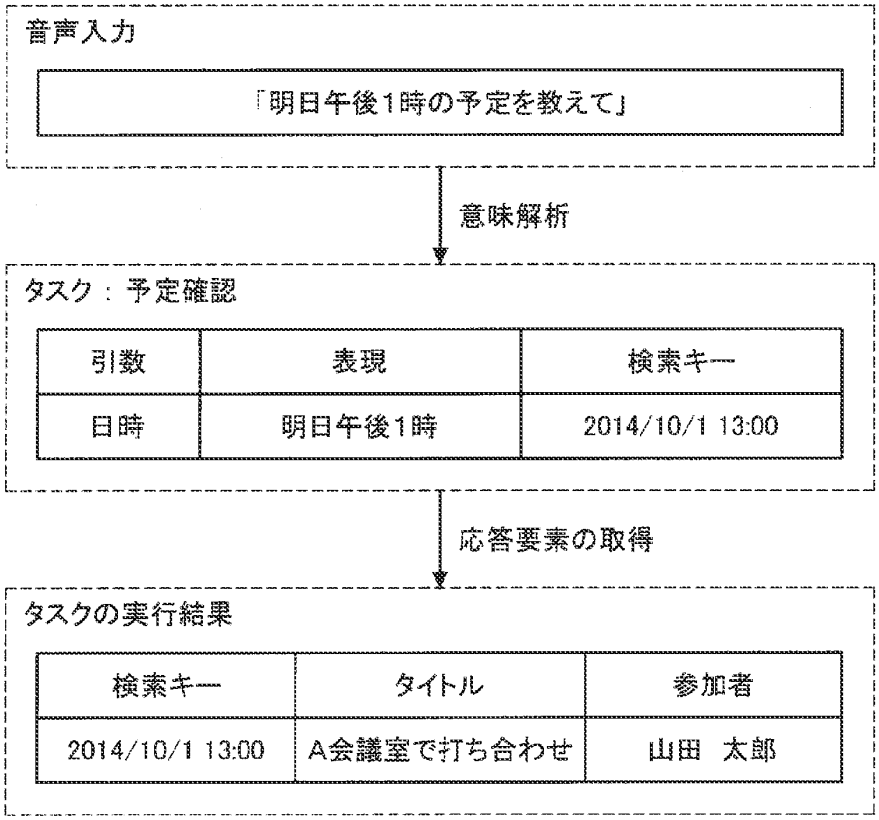
[図1]


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
14
画像解析部
112
音声認識部
113
音声特徴抽出部
騒音の音量
111
音声区間検出部
131
環境音認識部
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

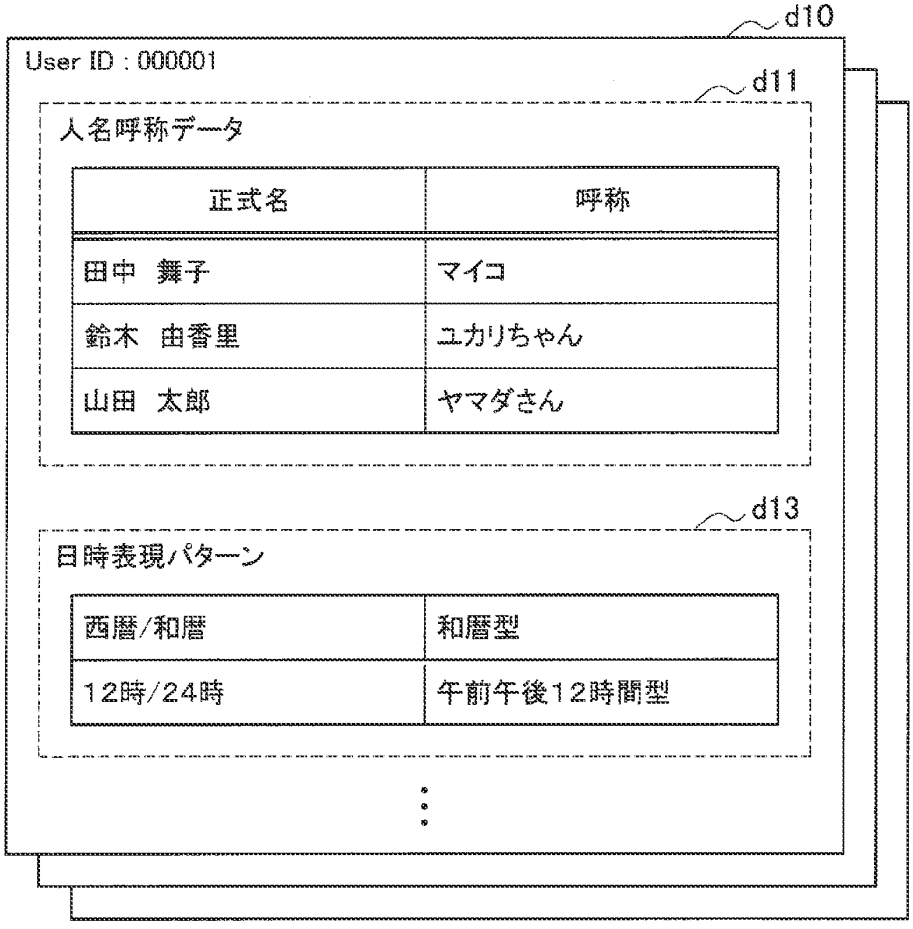
[図5]

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

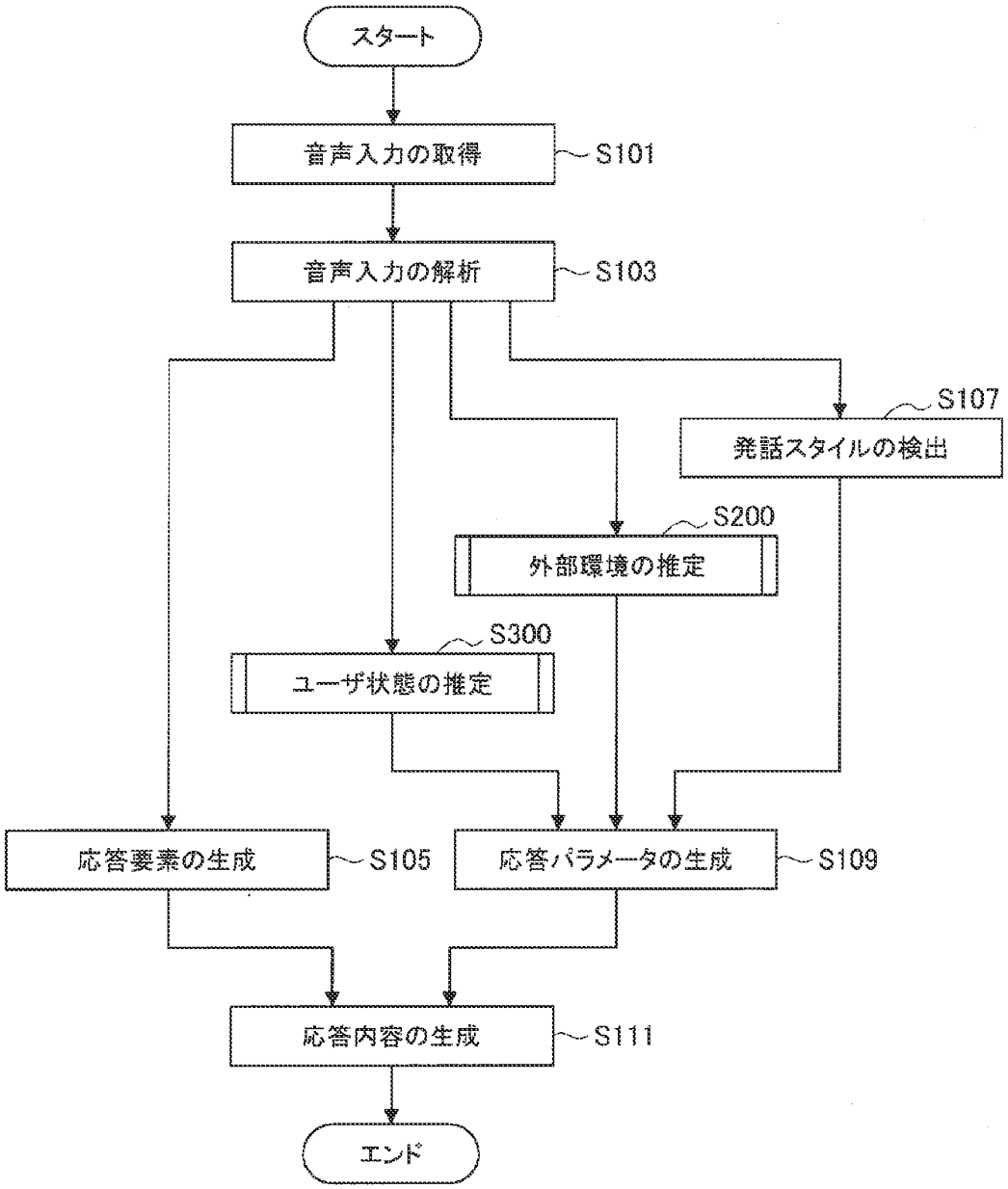
[図6]

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

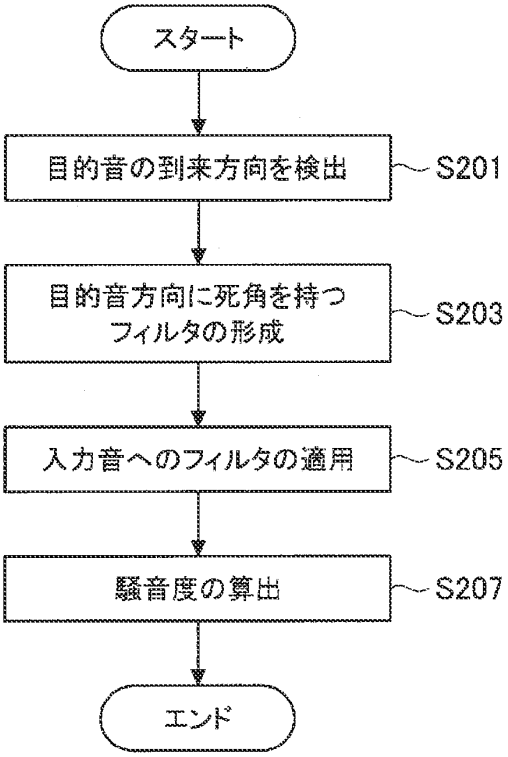
[図7]



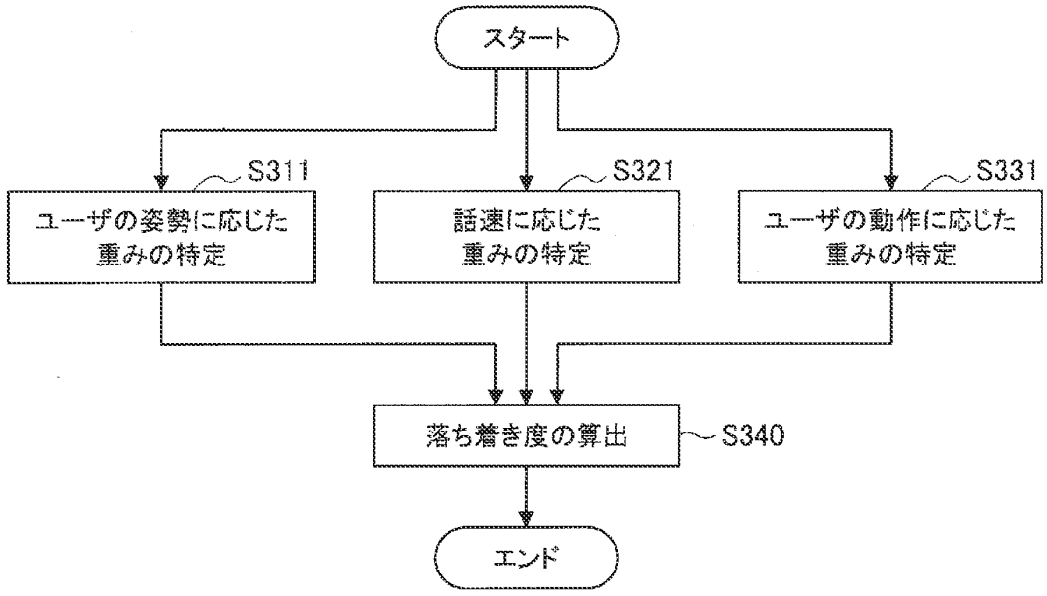
[図8]


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

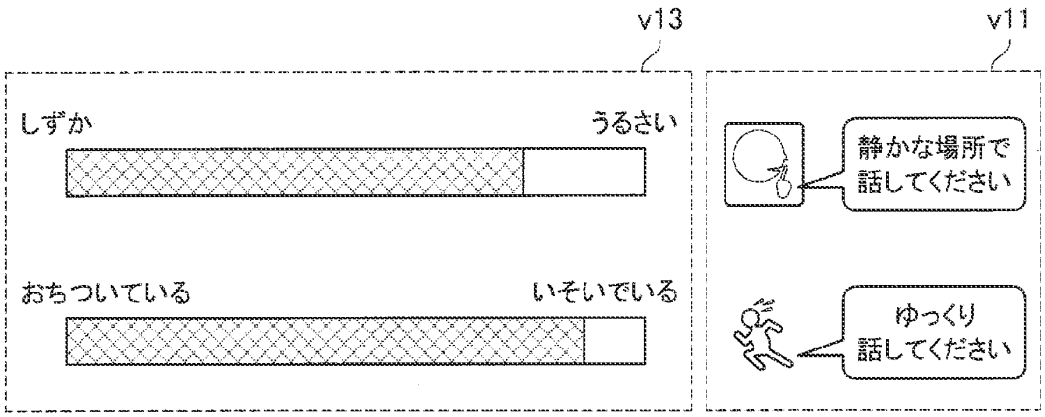
[図9]


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

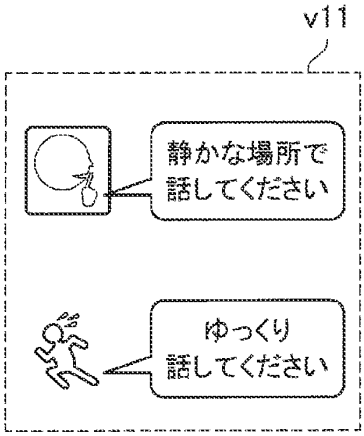
[図10]


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

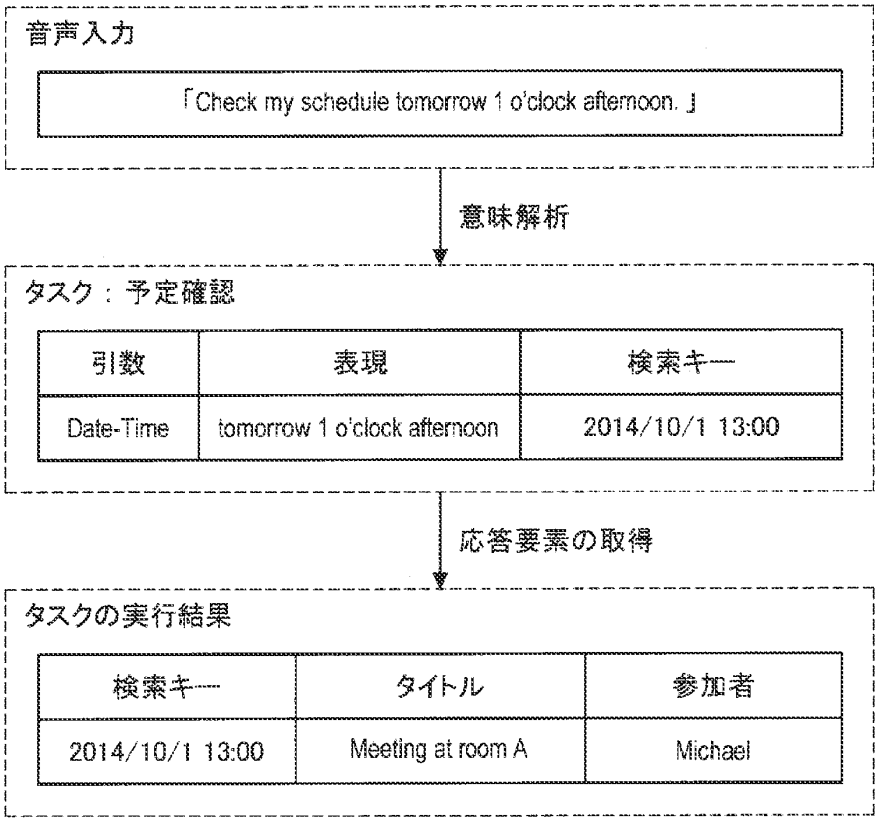
[図11]


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

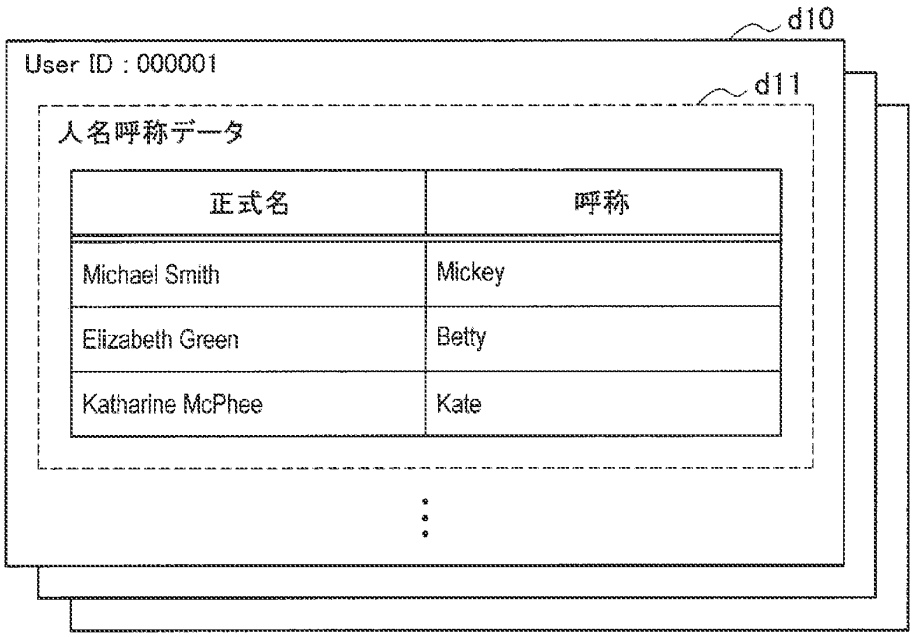
[図12]


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

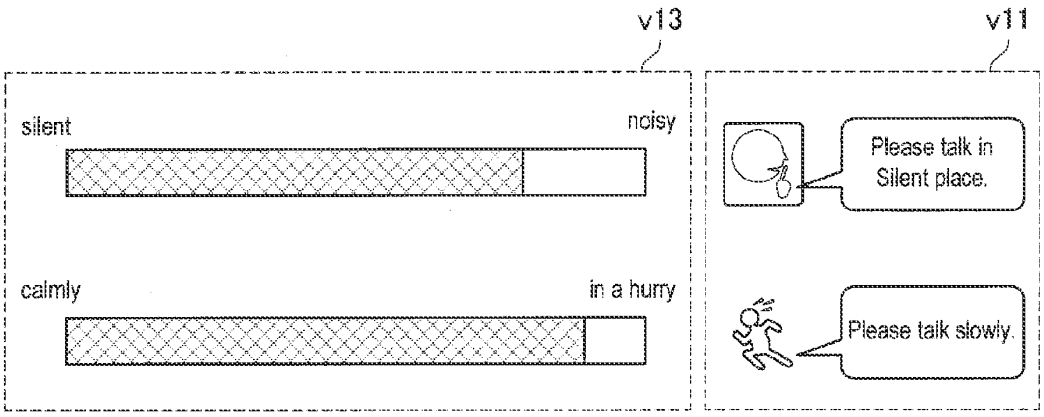
[図13]


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

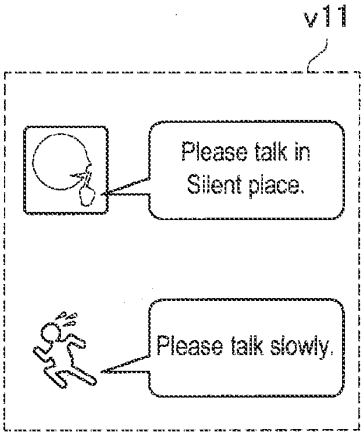
[図14]


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

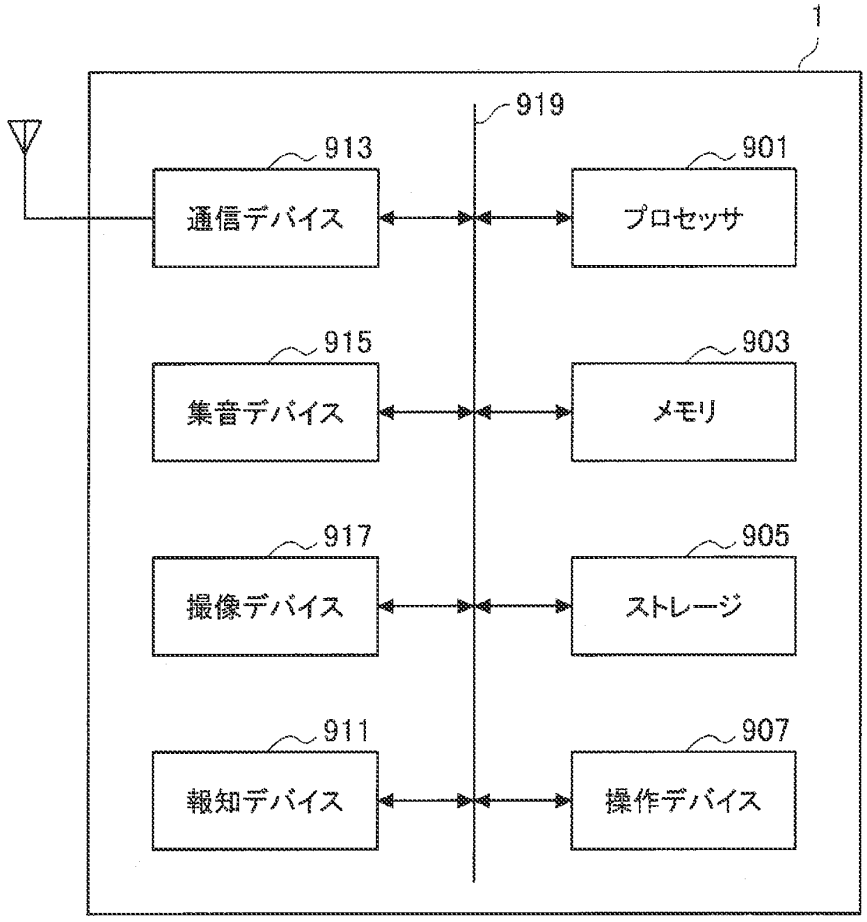
[図15]


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	国際調査報告の発送日
25．12．2015	12．01．2016

国際調査機関の名称及びあて先	特許庁審査官（権限のある職員）	5E	4190
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	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 Acknowledgement Receipt	
EFS ID:	43224661
Application Number:	16290983
International Application Number:	
Confirmation Number:	5210
Title of Invention:	VOICE-CONTENT CONTROL DEVICE, VOICE-CONTENT CONTROL METHOD, AND NON-TRANSITORY STORAGE MEDIUM
First Named Inventor/Applicant Name:	Tatsumi Naganuma
Customer Number:	23623
Filer:	Gregory Turocy/Michelle Folger
Filer Authorized By:	Gregory Turocy
Attorney Docket Number:	SAJVP171US
Receipt Date:	12-JUL-2021
Filing Date:	04-MAR-2019
Time Stamp:	15:39:26
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	no

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Information Disclosure Statement (IDS) Form (SB08)	updated_IDS.pdf	612026 0fd50704b6a76ebcaffcc0f9fded4e3b10cb739f	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	WO2016136062.pdf	8605919 5c59dba91f81e250c02a611cbd8ae2d4e27061ee	no	71
Warnings:					
Information:					
			Total Files Size (in bytes):	9217945	

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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.

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

APPLICATION NO.	ISSUE DATE	PATENT NO.	ATTORNEY DOCKET NO.	CONFIRMATION NO.
16/290,983	07/20/2021	11069337	SAJVP171US	5210

23623 7590 06/30/2021

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 108 day(s). Any patent to issue from the above-identified application will include an indication of the adjustment on the front page.

If a Continued Prosecution Application (CPA) was filed in the above-identified application, the filing date that determines Patent Term Adjustment is the filing date of the most recent CPA.

Applicant will be able to obtain more detailed information by accessing the Patent Application Information Retrieval (PAIR) WEB site (http://pair.uspto.gov).

Any questions regarding the Patent Term Extension or Adjustment determination should be directed to the Office of Patent Legal Administration at (571)-272-7702. Questions relating to issue and publication fee payments should be directed to the Application Assistance Unit (AAU) of the Office of Data Management (ODM) at (571)-272-4200.

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

Tatsumi Naganuma, Yokohama-shi, JAPAN;
JVC KENWOOD Corporation, Yokohama-shi, JAPAN;

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

Issue Fee Transmittal Form

Application Number	Filing Date	First Named Inventor	Atty. Docket No.	Confirmation No.
16290983	04-Mar-2019	Tatsumi Naganuma	SAJVP171US	5210

TITLE OF INVENTION :

VOICE-CONTENT CONTROL DEVICE, VOICE-CONTENT CONTROL METHOD, AND NON-TRANSITORY STORAGE MEDIUM

Entity Status	Application Type	Art Unit	Class - Subclass	EXAMINER
Regular Undiscounted	Utility under 35 USC 111(a)	2656	275000	LINDA WONG

Issue Fee Due	Publication Due	Total Fee(s) Due	Date Due	Prev. Paid Fee
$1200	$0	$1200	22-Jun-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
JVC KENWOOD 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**	06-16-2021
Name	Gregory Turocy	**Registration Number**	36952

Electronic Patent Application Fee Transmittal

Application Number:	16290983
Filing Date:	04-Mar-2019
Title of Invention:	VOICE-CONTENT CONTROL DEVICE, VOICE-CONTENT CONTROL METHOD, AND NON-TRANSITORY STORAGE MEDIUM
First Named Inventor/Applicant Name:	Tatsumi Naganuma
Filer:	Gregory Turocy/Rebecca Veri
Attorney Docket Number:	SAJVP171US

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:	43004024
Application Number:	16290983
International Application Number:	
Confirmation Number:	5210
Title of Invention:	VOICE-CONTENT CONTROL DEVICE, VOICE-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:	SAJVP171US
Receipt Date:	16-JUN-2021
Filing Date:	04-MAR-2019
Time Stamp:	14:35:31
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	E20216FE35273646
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	46260 45a95425bdf22ae087998fb88fbd594f9a499d60	no	2
Warnings:					
Information:					
2	Fee Worksheet (SB06)	fee-info.pdf	32160 57e9e7cc36e093d93b18f915098b72c5e051b73	no	2
Warnings:					
Information:					
		Total Files Size (in bytes):	78420		

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
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Alexandria, Virginia 22313-1450
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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
16/290,983	03/04/2019	Tatsumi Naganuma	SAJVP171US	5210

23623 7590 04/12/2021
AMIN, TUROCY & WATSON, LLP
200 Park Avenue
Suite 300
Beachwood, OH 44122

EXAMINER	
WONG, LINDA	

ART UNIT	PAPER NUMBER
2656	

NOTIFICATION DATE	DELIVERY MODE
04/12/2021	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

UNITED STATES DEPARTMENT OF COMMERCE
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APPLICATION NO./ CONTROL NO.	FILING DATE	FIRST NAMED INVENTOR/ PATENT IN REEXAMINATION	ATTORNEY DOCKET NO.
16/290,983	03/04/2019	Naganuma, Tatsumi	SAJVP171US

	EXAMINER	
AMIN, TUROCY & WATSON, LLP **200 Park Avenue Suite 300** **Beachwood, OH 44122**	LINDA WONG	
	ART UNIT	**PAPER**
	2656	20210402a

DATE MAILED: _____

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

Commissioner for Patents

Search notes conducted for QPIDs filed with ids.	
/LINDA WONG/ Primary Examiner, Art Unit 2656	

PTO-90C (Rev.04-03)

EAST Search History

EAST Search History (Prior Art)

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
L1	9	("20060205342" | "20130072112" | "20130072113" | "20140077875" | "20180027471" | "20200204249" | "20200412519" | "4799062" | "7480486").PN.	US-PGPUB; USPAT	AND	OFF	2021/04/02 13:44

EAST Search History (Interference)

<This search history is empty>

4/2/2021 2:14:54 PM

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.
16/290,983	03/04/2019	Tatsumi Naganuma	SAJVP171US	5210

23623 7590 04/07/2021
AMIN, TUROCY & WATSON, LLP
200 Park Avenue
Suite 300
Beachwood, OH 44122

EXAMINER	
WONG, LINDA	

ART UNIT	PAPER NUMBER
2656	

NOTIFICATION DATE	DELIVERY MODE
04/07/2021	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

Notice of Allowability	Application No. 16/290,983	Applicant(s) Naganuma, Tatsumi	
	Examiner LINDA WONG	Art Unit 2656	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 RCE filed 3/9/2021.
   ☐ 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 1-3 and 5-6 . 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 _____.

/LINDA WONG/
Primary Examiner, Art Unit 2656

Notice of Pre-AIA or AIA Status

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

Note: This corrected notice of allowance is being sent to correct the status of claim 4.

Continued Examination Under 37 CFR 1.114

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 3/9/2021 has been entered.

Reasons for Allowance

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

The application recites variations of an invention as follows:

Regarding claim 1:

A voice-content control device, comprising:

a proximity sensor configured to calculate a distance between a user and the voice-content control device;

a voice classifying unit configured to analyze a voice spoken by a user and acquired by a voice acquiring unit to classify the voice as either one of a

first voice or a second voice based on the distance between the user and the voice-content control device;

a process executing unit configured to analyze the voice acquired by the voice acquiring unit to execute processing required by the user;

a voice-content generating unit configured to generate, based on content of the processing executed by the process executing unit, output sentence that is text data for a voice to be output to the user; and

an output controller configured to adjust a sound volume of voice data obtained by converting the output sentence thereinto, wherein the voice-content generating unit is further configured to generate a first output sentence as the output sentence when the acquired voice has been classified as the first voice, and

generate a second output sentence in which information is omitted as compared to the first output sentence as the output sentence when the acquired voice has been classified as the second voice,

wherein the output controller is further configured to adjust the sound volume of voice data such that the sound volume of voice data obtained by converting the first output sentence thereinto differs from the sound volume of the voice data obtained by converting the second output sentence thereinto.

Regarding claim 5:

A voice-content control method, comprising:

calculating a distance between a user and a voice-content control device;

acquiring a voice spoken by a user;

analyzing the acquired voice to classify the acquired voice as either one of a first voice and a second voice based on the distance between the user and the voice-content control device;

analyzing the acquired voice to execute processing intended by the user;

generating, based on content of the executed processing, output sentence that is text data for a voice to be output to the user; and

adjusting a sound volume of voice data obtained by converting the output sentence thereinto, wherein at the generating,

a first output sentence is generated as the output sentence when the acquired voice has been classified as the first voice, and

a second output sentence is generated as the output sentence in which a part of information included in the first output sentence is omitted when the acquired voice has been classified as the second voice, wherein

at adjusting the sound volume of voice data, further adjusting the sound volume of voice data such that the sound volume of voice data obtained by converting the first output sentence thereinto differs from the sound volume of voice data obtained by converting the second output sentence thereinto.

Regarding claim 6:

A non-transitory storage medium that stores a voice-content control program that causes a computer to execute:

calculating a distance between a user and a voice-content control device;

acquiring a voice spoken by a user;

analyzing the acquired voice to classify the acquired voice as either one of a first voice and a second voice based on the distance between the user and the voice-content control device;

analyzing the acquired voice to execute processing intended by the user; generating, based on content of the executed processing, output sentence that is text data for a voice to be output to the user; and

adjusting a sound volume of voice data obtained by converting the output sentence thereinto, wherein at the generating,

a first output sentence is generated as the output sentence when the acquired voice has been classified as the first voice, and

a second output sentence is generated as the output sentence in which a part of information included in the first output sentence is omitted when the acquired voice has been classified as the second voice, wherein

at adjusting the sound volume of voice data, further adjusting the sound volume of voice data such that the sound volume of voice data obtained by converting the first output sentence thereinto differs from the sound volume of voice data obtained by converting the second output sentence thereinto.

The highlighted portions indicate the significant portions in combination with all the recited limitations as claimed. Prior art, alone or in combination, fails to disclose the invention as a whole, more specifically, the highlighted portion and its connections.

The following prior art references disclose inventions similar in scope and field of invention to the applicant's recited limitations, but fails disclose the recited limitations as stated above:

US Publication No.: 20130325471 discloses classification observation or data point in training data to a cluster by identifying the least distance cluster center for the respective observation.

US 20190139541 discloses a smart speaker system comprising natural language classification to determine whether the smart speaker device should respond to the detected speech.

US Publication No: 20160379638 discloses a system matching text to speech to a quality of an input spoken utterance. The system may consider non-audio data and non-audio features when determining a quality of the speech, wherein non-audio data may include proximity of the user to the device. The incoming speech is classified as having one or more qualities. The response to the input spoken utterance depends on the specific speech qualitities. For example, a response to whispering can be "please do not whisper, I did not understand". (paragraph 65)

US Publication No.: 20170160813 discloses classify the sound, language and/or acoustic features from the inputs. To classify the vocal features of the inputs, SVMs and/ other modeling techniques such as Euclidean distance may be used. (paragraph 274)

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to LINDA WONG whose telephone number is (571)272-6044. The examiner can normally be reached on 9-5.

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

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Bhavesh Mehta can be reached on (571) 272-7453. 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.

/LINDA WONG/
Primary Examiner, Art Unit 2656

Notice of References Cited	Application/Control No. 16/290,983	Applicant(s)/Patent Under Reexamination Naganuma, Tatsumi	
	Examiner LINDA WONG	Art Unit 2656	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-20130325471-A1	12-2013	Rachevsky; Leonid	G06N20/00	704/244
*	B	US-20190139541-A1	05-2019	Andersen; John J.	G10L15/16	1/1
*	C	US-20160379638-A1	12-2016	Basye; Kenneth John	G10L15/18	704/235
*	D	US-20170160813-A1	06-2017	Divakaran; Ajay	G06K9/00221	1/1
	E					
	F					
	G					
	H					
	I					
	J					
	K					
	L					
	M					

FOREIGN PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Country	Name	CPC Classification
	N					
	O					
	P					
	Q					
	R					
	S					
	T					

NON-PATENT DOCUMENTS

*		Include as applicable: Author, Title Date, Publisher, Edition or Volume, Pertinent Pages)
	U	
	V	
	W	
	X	

*A copy of this reference is not being furnished with this Office action. (See MPEP § 707.05(a).)
Dates in MM-YYYY format are publication dates. Classifications may be US or foreign.

Index of Claims	Application/Control No.	Applicant(s)/Patent Under Reexamination
	16/290,983	Naganuma, Tatsumi
	Examiner	Art Unit
	LINDA WONG	2656

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

CLAIMS

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

CLAIM		DATE								
Final	Original	08/16/2020	12/05/2020	03/13/2021						
	1	✓	✓	=						
	2	✓	✓	=						
	3	✓	✓	=						
	4	✓	✓	-						
	5	✓	✓	=						
	6	✓	✓	=						

Issue Classification	Application/Control No.	Applicant(s)/Patent Under Reexamination
	16/290,983	Naganuma, Tatsumi
	Examiner	Art Unit
	LINDA WONG	2656

CPC						
Symbol					Type	Version
G10L	/	13	/	08	F	2013-01-01
G10L	/	15	/	1807	I	2013-01-01
G10L	/	17	/	26	I	2013-01-01
G10L	/	15	/	22	I	2013-01-01
G06F	/	3	/	167	I	2013-01-01
G10L	/	15	/	16	I	2013-01-01
G10L	/	15	/	18	I	2013-01-01
G10L	/	15	/	08	I	2013-01-01
G10L	/	2015	/	228	A	2013-01-01
G10L	/	2015	/	227	A	2013-01-01
G10L	/	25	/	51	A	2013-01-01
G10L	/	15	/	183	A	2013-01-01

CPC Combination Sets								
Symbol					Type	Set	Ranking	Version
	/		/					

NONE		Total Claims Allowed:	
(Assistant Examiner)	(Date)	6	
/LINDA WONG/ Primary Examiner, Art Unit 2656	02 April 2021	O.G. Print Claim(s)	O.G. Print Figure
(Primary Examiner)	(Date)	1	2

U.S. Patent and Trademark Office — Part of Paper No.: 20210402

Issue Classification	Application/Control No.	Applicant(s)/Patent Under Reexamination
	16/290,983	Naganuma, Tatsumi
	Examiner	Art Unit
	LINDA WONG	2656

INTERNATIONAL CLASSIFICATION				
CLAIMED				
G10L13/08	/	13	/	08
G10L17/26	/	17	/	26
G10L15/22	/	15	/	22
G06F3/16	/	3	/	16
G10L25/51	/	25	/	51
G10L15/08	/	15	/	08

NON-CLAIMED				
G10L15/18	/	15	/	18
G10L15/16	/	15	/	16
G10L15/183	/	15	/	183

US ORIGINAL CLASSIFICATION	
CLASS	SUBCLASS

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

NONE		Total Claims Allowed:	
(Assistant Examiner)	(Date)	6	
/LINDA WONG/ Primary Examiner, Art Unit 2656	02 April 2021	O.G. Print Claim(s)	O.G. Print Figure
(Primary Examiner)	(Date)	1	2

Issue Classification	Application/Control No.	Applicant(s)/Patent Under Reexamination
	16/290,983	Naganuma, Tatsumi
	Examiner	Art Unit
	LINDA WONG	2656

☑ 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														
	2														
	3														
-	4														
	5														
	6														

NONE		Total Claims Allowed:	
(Assistant Examiner)	(Date)	6	
/LINDA WONG/ Primary Examiner, Art Unit 2656	02 April 2021	O.G. Print Claim(s)	O.G. Print Figure
(Primary Examiner)	(Date)	1	2

U.S. Patent and Trademark Office — Part of Paper No.: 20210402

Search Notes	Application/Control No.	Applicant(s)/Patent Under Reexamination
	16/290,983	Naganuma, Tatsumi
	Examiner	Art Unit
	LINDA WONG	2656

CPC - Searched*		
Symbol	Date	Examiner
G06N3/08,G06N20/00,G06N3/02,G10L15/22,G10L15/16,G10L15/1815,G10L2015/223,G10L2015/227,G10L15/24,G06F16/90332,G06F40/205,G06F40/30,G06F16/285,G06F3/167,G06F16/3344,G06F40/268,G06F40/284,G06F40/289,G06F16/3329,G06F16/337,G06F40/00,G06F40/56	03/13/2021	LW

CPC Combination Sets - Searched*		
Symbol	Date	Examiner

US Classification - Searched*			
Class	Subclass	Date	Examiner

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

Search Notes		
Search Notes	Date	Examiner
East, inventor's name, ip.com search	08/16/2020	LW
East: text search and considered previously submitted references	12/05/2020	LW
Performed text search in all east databases, ip.com, scholar.google, dialog	03/13/2021	LW
Checked global dossier for all patent family information	03/13/2021	LW
Text limited assignee or application name search	03/13/2021	LW

Search Notes	Application/Control No.	Applicant(s)/Patent Under Reexamination
	16/290,983	Naganuma, Tatsumi
	Examiner	Art Unit
	LINDA WONG	2656

Interference Search			
US Class/CPC Symbol	US Subclass/CPC Group	Date	Examiner
	text serach for claimed subject matter in all east interference databases	03/13/2021	LW

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

Courtesy Reminder for
Application Serial No: 16/290,983

Attorney Docket No: SAJVP171US
Customer Number: 23623
Date of Electronic Notification: 03/22/2021

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
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NOTICE OF ALLOWANCE AND FEE(S) DUE

23623 7590 03/22/2021
AMIN, TUROCY & WATSON, LLP
200 Park Avenue
Suite 300
Beachwood, OH 44122

EXAMINER	
WONG, LINDA	
ART UNIT	PAPER NUMBER
2656	

DATE MAILED: 03/22/2021

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
16/290,983	03/04/2019	Tatsumi Naganuma	SAJVP171US	5210

TITLE OF INVENTION: VOICE-CONTENT CONTROL DEVICE, VOICE-CONTENT CONTROL METHOD, AND NON-TRANSITORY STORAGE MEDIUM

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	06/22/2021

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 03/22/2021

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.
16/290,983	03/04/2019	Tatsumi Naganuma	SAJVP171US	5210

TITLE OF INVENTION: VOICE-CONTENT CONTROL DEVICE, VOICE-CONTENT CONTROL METHOD, AND NON-TRANSITORY STORAGE MEDIUM

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	06/22/2021

EXAMINER	ART UNIT	CLASS-SUBCLASS
WONG, LINDA	2656	704-275000

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
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www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
16/290,983	03/04/2019	Tatsumi Naganuma	SAJVP171US	5210

23623 7590 03/22/2021

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

EXAMINER	
WONG, LINDA	
ART UNIT	PAPER NUMBER
2656	

DATE MAILED: 03/22/2021

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. 16/290,983	Applicant(s) Naganuma, Tatsumi	
	Examiner LINDA WONG	Art Unit 2656	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 RCE filed 3/9/2021.
   ☐ 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 1-6 . 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 _____.

/LINDA WONG/
Primary Examiner, Art Unit 2656

Notice of Pre-AIA or AIA Status

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

Continued Examination Under 37 CFR 1.114

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 3/9/2021 has been entered.

Reasons for Allowance

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

The application recites variations of an invention as follows:

Regarding claim 1:

A voice-content control device, comprising:

a proximity sensor configured to calculate a distance between a user and the voice-content control device;

a voice classifying unit configured to analyze a voice spoken by a user and acquired by a voice acquiring unit to classify the voice as either one of a first voice or a second voice based on the distance between the user and the voice-content control device;

a process executing unit configured to analyze the voice acquired by the voice acquiring unit to execute processing required by the user;

a voice-content generating unit configured to generate, based on content of the processing executed by the process executing unit, output sentence that is text data for a voice to be output to the user; and

an output controller configured to adjust a sound volume of voice data obtained by converting the output sentence thereinto, wherein the voice-content generating unit is further configured to generate a first output sentence as the output sentence when the acquired voice has been classified as the first voice, and

generate a second output sentence in which information is omitted as compared to the first output sentence as the output sentence when the acquired voice has been classified as the second voice,

wherein the output controller is further configured to adjust the sound volume of voice data such that the sound volume of voice data obtained by converting the first output sentence thereinto differs from the sound volume of the voice data obtained by converting the second output sentence thereinto.

Regarding claim 5:

A voice-content control method, comprising:

calculating a distance between a user and a voice-content control device;

acquiring a voice spoken by a user;

analyzing the acquired voice to classify the acquired voice as either one of a first voice and a second voice based on the distance between the user and the voice-content control device;

analyzing the acquired voice to execute processing intended by the user;

generating, based on content of the executed processing, output sentence that is text data for a voice to be output to the user; and

adjusting a sound volume of voice data obtained by converting the output sentence thereinto, wherein at the generating,

a first output sentence is generated as the output sentence when the acquired voice has been classified as the first voice, and

a second output sentence is generated as the output sentence in which a part of information included in the first output sentence is omitted when the acquired voice has been classified as the second voice, wherein

at adjusting the sound volume of voice data, further adjusting the sound volume of voice data such that the sound volume of voice data obtained by converting the first output sentence thereinto differs from the sound volume of voice data obtained by converting the second output sentence thereinto.

Regarding claim 6:

A non-transitory storage medium that stores a voice-content control program that causes a computer to execute:

calculating a distance between a user and a voice-content control device;

acquiring a voice spoken by a user;

analyzing the acquired voice to classify the acquired voice as either one of a first voice and a second voice based on the distance between the user and the voice-content control device;

analyzing the acquired voice to execute processing intended by the user; generating, based on content of the executed processing, output sentence that is text data for a voice to be output to the user; and

adjusting a sound volume of voice data obtained by converting the output sentence thereinto, wherein at the generating,

a first output sentence is generated as the output sentence when the acquired voice has been classified as the first voice, and

a second output sentence is generated as the output sentence in which a part of information included in the first output sentence is omitted when the acquired voice has been classified as the second voice, wherein

at adjusting the sound volume of voice data, further adjusting the sound volume of voice data such that the sound volume of voice data obtained by converting the first output sentence thereinto differs from the sound volume of voice data obtained by converting the second output sentence thereinto.

The highlighted portions indicate the significant portions in combination with all the recited limitations as claimed. Prior art, alone or in combination, fails to disclose the invention as a whole, more specifically, the highlighted portion and its connections.

The following prior art references disclose inventions similar in scope and field of invention to the applicant's recited limitations, but fails disclose the recited limitations as stated above:

US Publication No.: 20130325471 discloses classification observation or data point in training data to a cluster by identifying the least distance cluster center for the respective observation.

US 20190139541 discloses a smart speaker system comprising natural language classification to determine whether the smart speaker device should respond to the detected speech.

US Publication No: 20160379638 discloses a system matching text to speech to a quality of an input spoken utterance. The system may consider non-audio data and non-audio features when determining a quality of the speech, wherein non-audio data may include proximity of the user to the device. The incoming speech is classified as having one or more qualities. The response to the input spoken utterance depends on the specific speech qualitities. For example, a response to whispering can be “please do not whisper, I did not understand”. (paragraph 65)

US Publication No.: 20170160813 discloses classify the sound, language and/or acoustic features from the inputs. To classify the vocal features of the inputs, SVMs and/ other modeling techniques such as Euclidean distance may be used. (paragraph 274)

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled “Comments on Statement of Reasons for Allowance.”

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to LINDA WONG whose telephone number is (571)272-6044. The examiner can normally be reached on 9-5.

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

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Bhavesh Mehta can be reached on (571) 272-7453. 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.

/LINDA WONG/
Primary Examiner, Art Unit 2656

Notice of References Cited	Application/Control No. 16/290,983	Applicant(s)/Patent Under Reexamination Naganuma, Tatsumi	
	Examiner LINDA WONG	Art Unit 2656	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-20130325471-A1	12-2013	Rachevsky; Leonid	G06N20/00	704/244
*	B	US-20190139541-A1	05-2019	Andersen; John J.	G10L15/16	1/1
*	C	US-20160379638-A1	12-2016	Basye; Kenneth John	G10L15/18	704/235
*	D	US-20170160813-A1	06-2017	Divakaran; Ajay	G06K9/00221	1/1
	E					
	F					
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	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
	16/290,983	Naganuma, Tatsumi
	Examiner	Art Unit
	LINDA WONG	2656

CPC - Searched*		
Symbol	**Date**	**Examiner**
G06N3/08,G06N20/00,G06N3/02,G10L15/22,G10L15/16,G10L15/1815,G10L2015/223,G10L2015/227,G10L15/24,G06F16/90332,G06F40/205,G06F40/30,G06F16/285,G06F3/167,G06F16/3344,G06F40/268,G06F40/284,G06F40/289,G06F16/3329,G06F16/337,G06F40/00,G06F40/56	03/13/2021	LW

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

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

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

Search Notes		
Search Notes	**Date**	**Examiner**
East, inventor's name, ip.com search	08/16/2020	LW
East: text search and considered previously submitted references	12/05/2020	LW
Performed text search in all east databases, ip.com, scholar.google, dialog	03/13/2021	LW
Checked global dossier for all patent family information	03/13/2021	LW
Text limited assignee or application name search	03/13/2021	LW

Search Notes	Application/Control No.	Applicant(s)/Patent Under Reexamination
	16/290,983	Naganuma, Tatsumi
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Interference Search			
US Class/CPC Symbol	US Subclass/CPC Group	Date	Examiner
	text serach for claimed subject matter in all east interference databases	03/13/2021	LW

Issue Classification	Application/Control No.	Applicant(s)/Patent Under Reexamination
	16/290,983	Naganuma, Tatsumi
	Examiner	Art Unit
	LINDA WONG	2656

CPC							
Symbol						Type	Version
G10L	/	13	/	08		F	2013-01-01
G10L	/	15	/	1807		I	2013-01-01
G10L	/	17	/	26		I	2013-01-01
G10L	/	15	/	22		I	2013-01-01
G06F	/	3	/	167		I	2013-01-01
G10L	/	15	/	16		I	2013-01-01
G10L	/	15	/	18		I	2013-01-01
G10L	/	15	/	08		I	2013-01-01
G10L	/	2015	/	228		A	2013-01-01
G10L	/	2015	/	227		A	2013-01-01
G10L	/	25	/	51		A	2013-01-01
G10L	/	15	/	183		A	2013-01-01

CPC Combination Sets							
Symbol					Type	Set	Ranking	Version
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NONE		Total Claims Allowed:	
(Assistant Examiner)	(Date)	6	
/LINDA WONG/ Primary Examiner, Art Unit 2656	13 March 2021	O.G. Print Claim(s)	O.G. Print Figure
(Primary Examiner)	(Date)	1	2

U.S. Patent and Trademark Office — Part of Paper No.: 20210313

Issue Classification	Application/Control No.	Applicant(s)/Patent Under Reexamination
	16/290,983	Naganuma, Tatsumi
	Examiner	Art Unit
	LINDA WONG	2656

INTERNATIONAL CLASSIFICATION				
CLAIMED				
G10L13/08	/	13	/	08
G10L17/26	/	17	/	26
G10L15/22	/	15	/	22
G06F3/16	/	3	/	16
G10L25/51	/	25	/	51
G10L15/08	/	15	/	08

NON-CLAIMED				
G10L15/18	/	15	/	18
G10L15/16	/	15	/	16
G10L15/183	/	15	/	183

US ORIGINAL CLASSIFICATION	
CLASS	SUBCLASS

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

NONE		Total Claims Allowed:	
(Assistant Examiner)	(Date)	6	
/LINDA WONG/ Primary Examiner, Art Unit 2656	13 March 2021	O.G. Print Claim(s)	O.G. Print Figure
(Primary Examiner)	(Date)	1	2

U.S. Patent and Trademark Office

Part of Paper No.: 20210313

Issue Classification	Application/Control No.	Applicant(s)/Patent Under Reexamination
	16/290,983	Naganuma, Tatsumi
	Examiner	Art Unit
	LINDA WONG	2656

☑ 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														
	2														
	3														
	4														
	5														
	6														

NONE		Total Claims Allowed:	
(Assistant Examiner)	(Date)	6	
/LINDA WONG/ Primary Examiner, Art Unit 2656	13 March 2021	O.G. Print Claim(s)	O.G. Print Figure
(Primary Examiner)	(Date)	1	2

U.S. Patent and Trademark Office Part of Paper No.: 20210313

Index of Claims	Application/Control No.	Applicant(s)/Patent Under Reexamination
	16/290,983	Naganuma, Tatsumi
	Examiner	**Art Unit**
	LINDA WONG	2656

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

CLAIMS

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

CLAIM		DATE								
Final	Original	08/16/2020	12/05/2020	03/13/2021						
	1	✓	✓	=						
	2	✓	✓	=						
	3	✓	✓	=						
	4	✓	✓	=						
	5	✓	✓	=						
	6	✓	✓	=						

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Search Strategy from Dialog

March 13 2021 22:38

Search Strategy

Databases: ABI/INFORM® Professional Advanced, Abstracts in New Technology & Engineering, AdisInsight: Drugs, AdisInsight: Trials, Adis Pharmacoeconomics & Outcomes News, AGRICOLA, AGRIS, Allied & Complementary Medicine™, Analytical Abstracts, APA PsycInfo®, Aqualine, Aquatic Science & Fisheries Abstracts (ASFA), Australian Education Index, BIOSIS® Toxicology, BIOSIS Previews®, British Library Inside Conferences, British Nursing Index, Business & Industry, CAB ABSTRACTS, Chemical Business Newsbase, Chemical Engineering & Biotechnology Abstracts, Chemical Safety Newsbase, Civil Engineering Abstracts, Current Contents® Search, Derwent Drug File, Derwent Drug Registry, DH-DATA: Health Administration, Medical Toxicology & Environmental Health, DIOGENES® FDA Regulatory Updates, Drug Information Fulltext, Earthquake Engineering Abstracts, EconLit, Ei Compendex®, Ei EnCompassLIT, Embase®, EMCare®, ERIC, ESPICOM Pharmaceutical & Medical Device News, FDAnews, FLUIDEX (Fluid Engineering Abstracts), Foodline®: MARKET, Foodline®: PRODUCT, Foodline®: SCIENCE, FSTA®, Gale Group Computer Database™, Gale Group Health Periodicals Database, Gale Group New Product Announcements / Plus®, Gale Group Newsletter Database™, Gale Group PharmaBiomed Business Journals, Gale Group PROMT®, Gale Group Trade & Industry Database™, GEOBASE, GeoRef, Global Health, HSELINE: Health and Safety, ICONDA - International Construction Database, IMS Company Profiles, IMS New Product Focus, IMS Pharma Trademarks, IMS R&D Focus, IMS R&D Focus Drug News, Inspec®, International Pharmaceutical Abstracts, Jane's Defense & Aerospace News, King's Fund, KOSMET: Cosmetic Science, Lancet Titles, Material Safety Datasheets -OHS™, Mechanical & Transportation Engineering Abstracts, MEDLINE®, Meteorological & Geoastrophysical Abstracts, Morressier Life Science Conference Abstracts and Posters, New England Journal of Medicine, Northern Light Life Sciences Conference Abstracts, NTIS: National Technical Information Service, Oceanic Abstracts, PAIS International, Paperbase, PAPERCHEM, ProQuest Advanced Tech & Aerospace Professional, ProQuest Biological & Health Science Professional, ProQuest Dissertations and Theses Professional, ProQuest Environmental Science Professional, ProQuest Materials Research Professional, ProQuest Newsstand Professional, ProQuest Technology Research Professional, Prous Science Daily Essentials, Prous Science Drug Data Report, Prous Science Drugs Of The Future™, Registry of Toxic Effects of Chemical Substances (RTECS®), SciSearch®: a Cited Reference Science Database, Social SciSearch®, ToxFile®, Transport Research International Documentation, TULSA™ (Petroleum Abstracts), UBM Computer Full Text, Weldasearch®, Zoological Record

Set#	Searched for	Results
S1	((proximity or closeness or location or distance)) AND ((home near/2 entertainment or virtual near/3 agent or virtual near/3 assistant or personal near/3 assistant or alexa or cortana or bixby or siri or google near/3 assistant or chatbot or personal near/3 agent)) AND ((speaker or voice or utterance$2 or utter$4) near/4 (recognition or recogni$5 or verification or verif$8))	10494*
S2	((proximity or closeness or location or distance)) AND ((home near/2 entertainment or virtual near/3 agent or virtual near/3 assistant or personal near/3 assistant or alexa or cortana or bixby or siri or google near/3 assistant or chatbot or personal near/3 agent)) AND ((speaker or voice or utterance$2 or utter$4) near/4 (recognition or recogni$5 or verification or verif$8))	10494*
S3	((proximity or closeness or location or distance)) AND ((home near/2 entertainment or virtual near/3 agent or virtual near/3	6386*

	assistant or personal near/3 assistant or alexa or cortana or bixby or siri or google near/3 assistant or chatbot or personal near/3 agent)) AND ((speaker or voice or utterance$2 or utter$4) near/4 (recognition or recogni$5 or verification or verif$8)) AND ((classif$8 or categori$8))	
S4	((proximity or closeness or location or distance)) near/10 ((home near/2 entertainment or virtual near/3 agent or virtual near/3 assistant or personal near/3 assistant or alexa or cortana or bixby or siri or google near/3 assistant or chatbot or personal near/3 agent)) near/20 ((classif$8 or categori$8)) AND ((speaker or voice or utterance$2 or utter$4) near/4 (recognition or recogni$5 or verification or verif$8))	4°
S5	((proximity or closeness or location or distance)) near/10 ((home near/2 entertainment or virtual near/3 agent or virtual near/3 assistant or personal near/3 assistant or alexa or cortana or bixby or siri or google near/3 assistant or chatbot or personal near/3 agent)) near/20 ((classif$8 or categori$8 or group$8))	414°
S6	((proximity or closeness or location or distance)) AND ((home near/2 entertainment or virtual near/3 agent or virtual near/3 assistant or personal near/3 assistant or alexa or cortana or bixby or siri or google near/3 assistant or chatbot or personal near/3 agent)) AND ((speaker or voice or utterance$2 or utter$4) near/4 (recognition or recogni$5 or verification or verif$8)) AND ((classif$8 or categori$8)) AND ((asr or speech near/3 recognition))	1960°

* Duplicates are removed from the search, but included in the result count.

° Duplicates are removed from the search and from the result count.

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BIB DATA SHEET

CONFIRMATION NO. 5210

SERIAL NUMBER	FILING or 371(c) DATE	CLASS	GROUP ART UNIT	ATTORNEY DOCKET NO.
16/290,983	03/04/2019 RULE	704	2656	SAJVP171US

APPLICANTS
JVC KENWOOD Corporation, Yokohama-shi, JAPAN;

INVENTORS
Tatsumi Naganuma, Yokohama-shi, JAPAN;

**** CONTINUING DATA ***************************

**** FOREIGN APPLICATIONS ***************************
JAPAN 2018-039754 03/06/2018

**** IF REQUIRED, FOREIGN FILING LICENSE GRANTED ****
03/19/2019

Foreign Priority claimed ☑ Yes ☐ No 35 USC 119(a-d) conditions met ☑ Yes ☐ No Verified and Acknowledged /LINDA WONG/ Examiner's Signature	☐ Met after Allowance Initials	STATE OR COUNTRY	SHEETS DRAWINGS	TOTAL CLAIMS	INDEPENDENT CLAIMS
		JAPAN	6	6	3

ADDRESS

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

TITLE

VOICE-CONTENT CONTROL DEVICE, VOICE-CONTENT CONTROL METHOD, AND NON-TRANSITORY STORAGE MEDIUM

FILING FEE RECEIVED		
1720	FEES: Authority has been given in Paper No._____ to charge/credit DEPOSIT ACCOUNT No._____ for following:	☐ All Fees ☐ 1.16 Fees (Filing) ☐ 1.17 Fees (Processing Ext. of time) ☐ 1.18 Fees (Issue) ☐ Other _____ ☐ Credit

BIB (Rev. 05/07).

EAST Search History

EAST Search History (Prior Art)

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
L2	2	@ad<="20180306" (proximity or closeness or distance or location) adj3 sensor$2 same (home adj2 entertainment or virtual adj3 agent or virtual adj3 assistant or personal adj3 assistant or alexa or cortana or bixby or siri or google adj3 assistant or chatbot or personal adj3 agent) same (user$2 or person$2 or client$2 or people$2 or patient$2 or speaker$2) (closeness or distance or proximity) same (classify$4 or classification or categori$8) same (speaker$2 or voice$2 or utterance$2 or utter$4) (home adj2 entertainment or virtual adj3 agent or virtual adj3 assistant or personal adj3 assistant or alexa or cortana or bixby or siri or google adj3 assistant or chatbot or personal adj3 agent)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO	AND	OFF	2021/03/13 20:31
L3	2	@ad<="20180306" (proximity or closeness or distance or location) adj3 sensor$2 same (home adj2 entertainment or virtual adj3 agent or virtual adj3 assistant or personal adj3 assistant or alexa or cortana or bixby or siri or google adj3 assistant or chatbot or personal adj3 agent) same (user$2 or person$2 or client$2 or people$2 or patient$2 or speaker$2) (closeness or distance or proximity) same (classify$4 or classification or categori$8) same (speaker$2 or voice$2 or utterance$2 or utter$4)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO	AND	OFF	2021/03/13 20:31
L4	3	@ad<="20180306" (proximity or closeness or distance or location) adj3 sensor$2 same (home adj2 entertainment or virtual adj3 agent or virtual adj3 assistant or personal adj3 assistant or alexa or cortana or bixby or siri or google adj3 assistant or chatbot or personal adj3 agent) same (user$2 or person$2 or client$2 or people$2 or patient$2 or speaker$2) (closeness or distance$2 or proximity or location$2) same (classify$4 or classification or categori$8) same (speaker$2 or voice$2 or utterance$2 or utter$4)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO	AND	OFF	2021/03/13 20:35
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		alexa or cortana or bixby) proximity same (classify$4 or classification or categori$8)	USOCR; FPRS; EPO; JPO			
L7	355	@ad<="20180306" (home adj2 entertainment or virtual adj3 agent or virtual adj3 assistant or personal adj3 assistant or alexa or cortana or bixby) proximity same (classify$4 or classification or categori$8) same (voice$2 or voice adj3 command$2 or utterance$2 or utter$4 or speaker or speech or audio)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO	AND	OFF	2021/03/13 21:18
L8	48	7 AND ((G06N3/08 OR G06N20/00 OR G06N3/02 OR G10L15/22 OR G10L15/16 OR G10L15/1815 OR G10L2015/223 OR G10L2015/227 OR G10L15/24 OR G06F16/90332 OR G06F40/205 OR G06F40/30 OR G06F16/285 OR G06F3/167 OR G06F16/3344 OR G06F40/268 OR G06F40/284 OR G06F40/289 OR G06F16/3329 OR G06F16/337 OR G06F40/00 OR G06F40/56).CPC.)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO	AND	OFF	2021/03/13 21:18
L9	643	@ad<="20180306" device same (proximity or closeness or distance) adj3 sensor$2 (closeness or distance or proximity) same (classify$4 or classification or categori$8) same (speaker$2 or voice$2 or utterance$2 or utter$4 or client$2 or male or female or voice adj3 command$2 or person$2 or doctor$2 or people$2 or human$2)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO	AND	OFF	2021/03/13 21:25
L10	61	L9 AND ((G06N3/08 OR G06N20/00 OR G06N3/02 OR G10L15/22 OR G10L15/16 OR G10L15/1815 OR G10L2015/223 OR G10L2015/227 OR G10L15/24 OR G06F16/90332 OR G06F40/205 OR G06F40/30 OR G06F16/285 OR G06F3/167 OR G06F16/3344 OR G06F40/268 OR G06F40/284 OR G06F40/289 OR G06F16/3329 OR G06F16/337 OR G06F40/00 OR G06F40/56).CPC.)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO	AND	OFF	2021/03/13 21:25
L11	445	@ad<="20180306" (home adj2 entertainment or virtual adj3 agent or virtual adj3 assistant or personal adj3 assistant or alexa or cortana or bixby) (closeness or distance or proximity) same (classify$4 or classification or categori$8) (classify$4 or classification or categori$8) with (semantic$2 or tone$2 or emotion$2 or context) same (voice or audio or speech or utterance$2 or utter$4)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO	AND	OFF	2021/03/13 21:25

L12	78	L11 AND ((G06N3/08 OR G06N20/00 OR G06N3/02 OR G10L15/22 OR G10L15/16 OR G10L15/1815 OR G10L2015/223 OR G10L2015/227 OR G10L15/24 OR G06F16/90332 OR G06F40/205 OR G06F40/30 OR G06F16/285 OR G06F3/167 OR G06F16/3344 OR G06F40/268 OR G06F40/284 OR G06F40/289 OR G06F16/3329 OR G06F16/337 OR G06F40/00 OR G06F40/56).CPC.)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO	AND	OFF	2021/03/13 21:25
L13	36	(jvc-kenwwod-corporation).as. or (naganuma-tatsumi).in.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO	AND	OFF	2021/03/13 21:48
L14	0	13 (proximity).clm.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO	AND	OFF	2021/03/13 21:48
L15	2	13 (classif$8).clm.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO	AND	OFF	2021/03/13 21:48
S1	3	(("20190130900") or ("20190266999")).PN.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO	OR	OFF	2021/03/13 18:22
S3	139	@ad<="20180306" (home adj2 entertainment or virtual adj3 agent or virtual adj3 assistant or personal adj3 assistant or alexa or cortana or bixby) proximity same (classify$4 or classification or categori$8) (classify$4 or classification or categori$8) with (semantic$2 or tone$2 or emotion$2 or context) same (voice or audio or speech or command or utterance$2 or utter$4)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO	AND	OFF	2021/03/13 18:30
S4	136	@ad<="20180306" (home adj2 entertainment or virtual adj3 agent or virtual adj3 assistant or personal adj3 assistant or alexa or cortana or bixby) proximity same (classify$4 or classification or categori$8) (classify$4 or classification or categori$8) with (semantic$2 or tone$2 or emotion$2 or	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO	AND	OFF	2021/03/13 18:34

		context) same (voice or audio or speech or utterance$2 or utter$4)				
S6	445	@ad<="20180306" (home adj2 entertainment or virtual adj3 agent or virtual adj3 assistant or personal adj3 assistant or alexa or cortana or bixby) (closeness or distance or proximity) same (classify$4 or classification or categori$8) (classify$4 or classification or categori$8) with (semantic$2 or tone$2 or emotion$2 or context) same (voice or audio or speech or utterance$2 or utter$4)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO	AND	OFF	2021/03/13 18:37
S7	57	@ad<="20180306" (home adj2 entertainment or virtual adj3 agent or virtual adj3 assistant or personal adj3 assistant or alexa or cortana or bixby) (closenss or distance or proximity) same (classify$4 or classification or categori$8) (classify$4 or classification or categori$8) with (semantic$2 or tone$2 or emotion$2 or context) same (multiple or plurality or second) adj3 (voice or audio or speech or utterance$2 or utter$4 or user$2 or client$2 or person$2)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO	AND	OFF	2021/03/13 18:41
S8	6	@ad<="20180306" (home adj2 entertainment or virtual adj3 agent or virtual adj3 assistant or personal adj3 assistant or alexa or cortana or bixby) (closenss or distance or proximity) same (classify$4 or classification or categori$8) (classify$4 or classification or categori$8) with (semantic$2 or tone$2 or emotion$2 or context) same (multiple or plurality or second) adj3 (voice or audio or speech or utterance$2 or utter$4 or user$2 or client$2 or person$2) (proximity or closeness or distance) adj3 sensor$2	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO	AND	OFF	2021/03/13 18:43
S9	1	@ad<="20180306" (home adj2 entertainment or virtual adj3 agent or virtual adj3 assistant or personal adj3 assistant or alexa or cortana or bixby) same (proximity or closeness or distance) adj3 sensor$2 (closenss or distance or proximity) same (classify$4 or classification or categori$8) same (semantic$2 or tone$2 or emotion$2 or context) same (multiple or plurality or second) adj3 (voice or audio or speech or utterance$2 or utter$4 or user$2 or client$2 or person$2)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO	AND	OFF	2021/03/13 18:45
S10	2	@ad<="20180306" (home adj2 entertainment or virtual adj3 agent or virtual adj3 assistant or personal adj3 assistant or alexa or cortana or bixby) same (proximity or	US-PGPUB; USPAT; USOCR;	AND	OFF	2021/03/13 18:46

		closeness or distance) adj3 sensor$2 (closenss or distance or proximity) same (classify$4 or classification or categori$8) same (semantic$2 or tone$2 or emotion$2 or context)	FPRS; EPO; JPO			
S12	2	@ad<="20180306" (home adj2 entertainment or virtual adj3 agent or virtual adj3 assistant or personal adj3 assistant or alexa or cortana or bixby or siri or google adj3 assistant or chatbot or personal adj3 agent) same (proximity or closeness or distance) adj3 sensor$2 (closeness or distance or proximity) same (classify$4 or classification or categori$8) same (semantic$2 or tone$2 or emotion$2 or context)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO	AND	OFF	2021/03/13 18:48
S13	2	@ad<="20180306" (home adj2 entertainment or virtual adj3 agent or virtual adj3 assistant or personal adj3 assistant or alexa or cortana or bixby) same (proximity or closeness or distance) adj3 sensor$2 (closeness or distance or proximity) same (classify$4 or classification or categori$8) same (semantic$2 or tone$2 or emotion$2 or context)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO	AND	OFF	2021/03/13 18:48
S14	1	@ad<="20180306" (home adj2 entertainment or virtual adj3 agent or virtual adj3 assistant or personal adj3 assistant or alexa or cortana or bixby) same (proximity or closeness or distance) adj3 sensor$2 (closeness or distance or proximity) same (classify$4 or classification or categori$8) same (semantic$2 or tone$2 or emotion$2 or context) same (multiple or plurality or second) adj3 (voice or audio or speech or utterance$2 or utter$4 or user$2 or client$2 or person$2)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO	AND	OFF	2021/03/13 18:48
S15	0	@ad<="20180306" (home adj2 entertainment or virtual adj3 agent or virtual adj3 assistant or personal adj3 assistant or alexa or cortana or bixby or siri or google adj3 assistant or chatbot or personal adj3 agent) same (proximity or closeness or distance) adj3 sensor$2 (closeness or distance or proximity) same (classify$4 or classification or categori$8) same (multiple or second or plurality) adj3 (speaker$2 or voice$2 or utterance$2 or utter$4 or client$2 or male or female or voice adj3 command$2)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO	AND	OFF	2021/03/13 18:51
S16	1	@ad<="20180306" (home adj2 entertainment or virtual adj3 agent or virtual	US-PGPUB;	AND	OFF	2021/03/13 18:51

		adj3 assistant or personal adj3 assistant or alexa or cortana or bixby or siri or google adj3 assistant or chatbot or personal adj3 agent) same (proximity or closeness or distance) adj3 sensor$2 (closeness or distance or proximity) same (classify$4 or classification or categori$8) same (multiple or second or plurality) adj3 (speaker$2 or voice$2 or utterance$2 or utter$4 or client$2 or male or female or voice adj3 command$2 or person$2 or doctor$2 or people$2 or human$2)	USPAT; USOCR; FPRS; EPO; JPO			
S17	20	@ad<="20180306" device same (proximity or closeness or distance) adj3 sensor$2 (closeness or distance or proximity) same (classify$4 or classification or categori$8) same (multiple or second or plurality) adj3 (speaker$2 or voice$2 or utterance$2 or utter$4 or client$2 or male or female or voice adj3 command$2 or person$2 or doctor$2 or people$2 or human$2)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO	AND	OFF	2021/03/13 18:52
S18	643	@ad<="20180306" device same (proximity or closeness or distance) adj3 sensor$2 (closeness or distance or proximity) same (classify$4 or classification or categori$8) same (speaker$2 or voice$2 or utterance$2 or utter$4 or client$2 or male or female or voice adj3 command$2 or person$2 or doctor$2 or people$2 or human$2)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO	AND	OFF	2021/03/13 19:11
S19	306	@ad<="20180306" device same (proximity or closeness or distance) adj3 sensor$2 (closeness or distance or proximity) same (classify$4 or classification or categori$8) same (speaker$2 or voice$2 or utterance$2 or utter$4 or client$2 or male or female or voice adj3 command$2 or person$2 or doctor$2 or people$2 or human$2) (home adj2 entertainment or virtual adj3 agent or virtual adj3 assistant or personal adj3 assistant or alexa or cortana or bixby or siri or google adj3 assistant or chatbot or personal adj3 agent)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO	AND	OFF	2021/03/13 19:12
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		bixby or siri or google adj3 assistant or chatbot or personal adj3 agent)				
S21	54	@ad<="20180306" device same (proximity or closeness or distance) adj3 sensor$2 (closeness or distance or proximity) same (classify$4 or classification or categori$8) same (speaker$2 or voice$2 or utterance$2 or utter$4) (home adj2 entertainment or virtual adj3 agent or virtual adj3 assistant or personal adj3 assistant or alexa or cortana or bixby or siri or google adj3 assistant or chatbot or personal adj3 agent)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO	AND	OFF	2021/03/13 19:13

EAST Search History (Interference)

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L19	0	((distance$2 or proximity or closeness or location) same (classif$8 or categor$8 or group$4) same (voice or audio or speech or utterance$2 or utter$4 or user$2 or client$2 or person$2) same sentence$2 same volume).clm.	US-PGPUB; USPAT	AND	OFF	2021/03/13 21:52
L21	35	((distance$2 or proximity or closeness or location) same (classif$8 or categor$8 or group$4) same (voice or audio or speech or utterance$2 or utter$4 or user$2 or client$2 or person$2 or doctor$2 or patient$2 or human$2 or person$2 or people$2) same volume same content$2).clm.	US-PGPUB; USPAT	AND	OFF	2021/03/13 21:53
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		or person$2 or doctor$2 or patient$2 or human$2 or person$2 or people$2) same volume same content$2 same text).clm.				
L24	14	((distance$2 or proximity or closeness or location) with (classif$8 or categor$8 or group$4) same (voice or audio or speech or utterance$2 or utter$4 or user$2 or client$2 or person$2) same sentence$2 same text).clm.	US-PGPUB; USPAT	AND	OFF	2021/03/13 21:54
L25	0	((distance$2 or proximity or closeness or location) with (classif$8 or categor$8 or group$4) same (voice or audio or speech or utterance$2 or utter$4 or user$2 or client$2 or person$2) same sentence$2 same text same volume).clm.	US-PGPUB; USPAT	AND	OFF	2021/03/13 21:54
L26	15	16 (19 or 25 or 21 or 24 or 23 or 22)	US-PGPUB; USPAT	AND	OFF	2021/03/13 22:02

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Web Search History

date, time	web site	search string
3/13/2021 8:50:56 PM	Google Scholar	(proximity or location or closeness or distance) (classification or classifier or classifies or categorizes or category) (voice or speaker or utterance or utterances)
3/13/2021 8:59:44 PM	Google Scholar	(proximity or location or closeness or distance) (classification or classifier or classifies or categories or category) (voice or speaker or utterance or utterances)
3/13/2021 9:00:23 PM	Google Scholar	(proximity or location or closeness or distance) (classification or classifier or classifies or categories or category) speaker (recognition or verification)
3/13/2021 9:01:10 PM	Google Scholar	(proximity or location or closeness or distance) (classification or classifier or classifies or classified or categories or category) speaker (recognition or verification)

PTO/SB/06 (09-11)
Approved for use through 1/31/2014. OMB 0651-0032
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PATENT APPLICATION FEE DETERMINATION RECORD Substitute for Form PTO-875	Application or Docket Number 16/290,983	Filing Date 03/04/2019	☐ 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	03/09/2021	CLAIMS REMAINING AFTER AMENDMENT		HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA		RATE ($)	ADDITIONAL FEE ($)
	Total (37 CFR 1.16(i))	* 5	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".	/MONICA D FRANCIS/
*** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 3, enter "3".	
The "Highest Number Previously Paid For" (Total or Independent) is the highest number found in the appropriate box in column 1.	

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

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

PTO/SB/30EFS (07-14)
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REQUEST FOR CONTINUED EXAMINATION(RCE)TRANSMITTAL
(Submitted Only via EFS-Web)

Application Number	16/290,983	Filing Date	2019-03-04	Docket Number (if applicable)	SAJVP171US	Art Unit	2656
First Named Inventor	Tatsumi Naganuma, et al.			Examiner Name	Linda Wong		

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)
Approved for use through 07/31/2016. OMB 0651-0031
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

Signature of Registered U.S. Patent Practitioner			
Signature	/Greg Turocy/	Date (YYYY-MM-DD)	2021-03-09
Name	Gregory Turocy	Registration Number	36952

This collection of information is required by 37 CFR 1.114. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450.

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

Privacy Act Statement

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

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

1. The information on this form will be treated confidentially to the extent allowed under the Freedom of Information Act (5 U.S.C. 552) and the Privacy Act (5 U.S.C. 552a). Records from this system of records may be disclosed to the Department of Justice to determine whether the Freedom of Information Act requires disclosure of these 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 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:	16290983				
Filing Date:	04-Mar-2019				
Title of Invention:	VOICE-CONTENT CONTROL DEVICE, VOICE-CONTENT CONTROL METHOD, AND NON-TRANSITORY STORAGE MEDIUM				
First Named Inventor/Applicant Name:	Tatsumi Naganuma				
Filer:	Gregory Turocy/Bailey Zugan Rayl				
Attorney Docket Number:	SAJVP171US				
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:	42131943
Application Number:	16290983
International Application Number:	
Confirmation Number:	5210
Title of Invention:	VOICE-CONTENT CONTROL DEVICE, VOICE-CONTENT CONTROL METHOD, AND NON-TRANSITORY STORAGE MEDIUM
First Named Inventor/Applicant Name:	Tatsumi Naganuma
Customer Number:	23623
Filer:	Gregory Turocy/Bailey Zugan Rayl
Filer Authorized By:	Gregory Turocy
Attorney Docket Number:	SAJVP171US
Receipt Date:	09-MAR-2021
Filing Date:	04-MAR-2019
Time Stamp:	16:14:53
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	E202139G15080831
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	Request for Continued Examination (RCE)	RCE.pdf	1349892 4e55d38fb02a330e57437555a4005fa06b490843	no	3
Warnings:					
Information:					
2	Amendment Submitted/Entered with Filing of CPA/RCE	SUBMISSION171.pdf	45594 9b9d27dcfec77c08f4810502f59185a30f655872	no	7
Warnings:					
Information:					
3	Fee Worksheet (SB06)	fee-info.pdf	30624 fdc8a1af09a73ba23adaad4f75082f7a95e82d17	no	2
Warnings:					
Information:					
		Total Files Size (in bytes):	1426110		

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.

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: March 9, 2021 /Bailey Zugan Rayl/
Bailey Zugan Rayl

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re patent application of:			
Inventor(s):	Tatsumi Naganuma, *et al.*	Examiner:	Linda Wong
Serial No:	16/290,983	Art Unit:	2656
Filing Date:	March 4, 2019	Conf. No:	5210

Title: VOICE-CONTENT CONTROL DEVICE, VOICE-CONTENT CONTROL METHOD, AND NON-TRANSITORY STORAGE MEDIUM

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

RCE SUBMISSION

Examiner Wong:

This paper is filed in response to the Final Office Action dated December 10, 2020. Kindly enter the following amendments. An RCE form is attached hereto.

AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions of claims in the application:

Listing of Claims:

1. (Currently Amended) A voice-content control device, comprising:

a proximity sensor configured to calculate a distance between a user and the voice-content control device;

a voice classifying unit configured to analyze a voice spoken by a user and acquired by a voice acquiring unit to classify the voice as either one of a first voice or a second voice based on the distance between the user and the voice-content control device;

a process executing unit configured to analyze the voice acquired by the voice acquiring unit to execute processing required by the user;

a voice-content generating unit configured to generate, based on content of the processing executed by the process executing unit, output sentence that is text data for a voice to be output to the user; and

an output controller configured to adjust a sound volume of voice data obtained by converting the output sentence thereinto, wherein

the voice-content generating unit is further configured to

generate a first output sentence as the output sentence when the acquired voice has been classified as the first voice, and

generate a second output sentence in which information is omitted as compared to the first output sentence as the output sentence when the acquired voice has been classified as the second voice, wherein

the output controller is further configured to adjust the sound volume of voice data such that the sound volume of voice data obtained by converting the first output sentence thereinto differs from the sound volume of the voice data obtained by converting the second output sentence thereinto.

2. (Original) The voice-content control device according to claim 1, wherein the process executing unit comprises:

an intention analyzing unit configured to extract intention information indicating an intention of the user based on the voice acquired by the voice acquiring unit; and

an acquisition content information acquiring unit configured to acquire acquisition content information which is notified to the user based on the extracted intention information, and

the voice-content generating unit is further configured to generate the text data including the acquisition content information as the output sentence.

3. (Original) The voice-content control device according to claim 1, wherein, on generating the second sentence, the voice-content generating unit is further configured to omit a part of information included in the voice spoken by the user.

4. (Cancelled)

5. (Currently Amended) A voice-content control method, comprising:

calculating a distance between a user and a voice-content control device;

acquiring a voice spoken by a user;

analyzing the acquired voice to classify the acquired voice as either one of a first voice and a second voice based on the distance between the user and the voice-content control device;

analyzing the acquired voice to execute processing intended by the user;

generating, based on content of the executed processing, output sentence that is text data for a voice to be output to the user; and

adjusting a sound volume of voice data obtained by converting the output sentence thereinto, wherein

at the generating,

a first output sentence is generated as the output sentence when the acquired voice has been classified as the first voice, and

a second output sentence is generated as the output sentence in which a part of information included in the first output sentence is omitted when the acquired voice has been classified as the second voice, wherein

at adjusting the sound volume of voice data, further adjusting the sound volume of voice data such that the sound volume of voice data obtained by converting the first output sentence thereinto differs from the sound volume of voice data obtained by converting the second output sentence thereinto.

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

calculating a distance between a user and a voice-content control device;

acquiring a voice spoken by a user;

analyzing the acquired voice to classify the acquired voice as either one of a first voice and a second voice based on the distance between the user and the voice-content control device;

analyzing the acquired voice to execute processing intended by the user;

generating, based on content of the executed processing, output sentence that is text data for a voice to be output to the user; and

adjusting a sound volume of voice data obtained by converting the output sentence thereinto, wherein

at the generating,

a first output sentence is generated as the output sentence when the acquired voice has been classified as the first voice, and

a second output sentence is generated as the output sentence in which a part of information included in the first output sentence is omitted when the acquired voice has been classified as the second voice, wherein

at adjusting the sound volume of voice data, further adjusting the sound volume of voice data such that the sound volume of voice data obtained by converting the first output sentence thereinto differs from the sound volume of voice data obtained by converting the second output sentence thereinto.

REMARKS

Claims 1-3 and 5-6 are pending in the subject application upon entry of the amendments. A listing of the claims can be found on pages 2-4 of the Reply. Favorable reconsideration is respectfully requested in view of the amendments and following comments.

The Amendments

Claims 1 and 5-6 are amended to disclaim the cited art. Claim 4 is cancelled without prejudice. No new matter is added with such amendments. Support for such amendments can be found in the present Specification at least in paragraphs [0039]-[0040] and [0075].

First Obviousness Rejection

Claims 1 and 3-6 stand rejected under AIA 35 U.S.C. § 103(a) over Tsai et al. (US Patent Application Publication No. 20190130900 – hereafter "Tsai") in view of Chandrasekaran et al. (US Patent Application Publication No. 20190266999 – hereafter "Chandrasekaran"). Withdrawal of this rejection is respectfully requested for at least the following reasons.

As amended, independent claim 1 recites in part *a proximity sensor configured to calculate a distance between a user and the voice-content control device* and *a voice classifying unit configured to analyze a voice spoken by a user and acquired by a voice acquiring unit to classify the voice as either one of a first voice or a second voice based on the distance between the user and the voice-content control device*. Neither Tsai nor Chandrasekaran discloses or suggests such features.

Tsai merely teaches a voice interactive device that includes a semantic analyzing module, a tone analyzing module, a speaker classification determining module, a dialogue sentence database, and a dialogue sentence generating module. (Abstract). The semantic analyzing module is configured to analyze a semantic meaning of a sentence spoken by a speaker, the tone analyzing module is configured to analyze a tone of the sentence, the speaker classification determining module is configured to determine that the speaker belongs to one of a plurality of speaker classification types

according to the semantic meaning and the tone, the dialogue database stores a plurality of relationships between speaker classifications and response sentences, and the dialogue sentence generating module is configured to generate a response sentence corresponding to the speaker classification. (Abstract). **Nowhere does Tsai mention identifying a speaker classification type based on a distance between the speaker and the voice interactive device**. **Indeed, Tsai does not mention computing a distance between the speaker and the voice interactive device at all**.

Chandrasekaran does not cure this deficiency. Chandrasekaran merely discloses a personal virtual assistant system that takes existing inputs and processes them to understand a user's personality or intent through analysis of features such as user's tone, language use, vocal volume, facial expressions, and context from device use and surroundings. (Abstract). **Nowhere does Chandrasekaran mention classifying a voice based on a distance between the user and the personal virtual assistant system**. **Indeed, Chandrasekaran does not mention computing a distance between the user and the personal virtual assistant system at all**.

For at least these reasons, neither Tsai nor Chandrasekaran discloses or suggests *a proximity sensor configured to calculate a distance between a user and the voice-content control device* and *a voice classifying unit configured to analyze a voice spoken by a user and acquired by a voice acquiring unit to classify the voice as either one of a first voice or a second voice based on the distance between the user and the voice-content control device*. Thus, independent claim 1 is not obvious over the combination of Tsai and Chandrasekaran, and may be patentable for other reasons. Withdrawal of this rejection is respectfully requested.

Since independent claims 5 and 6 are amended similarly to independent claim 1, independent claims 5 and 6 are likewise not obvious over the combination of Tsai and Chandrasekaran, and may be patentable for other reasons. Withdrawal of this rejection is respectfully requested.

Since claim 3 depends from independent claim 1, it is likewise not obvious over the combination of Tsai and Chandrasekaran, and may be patentable for other reasons. Withdrawal of this rejection is respectfully requested.

Since claim 4 is cancelled by the herein amendments, the rejection of claim 4 is rendered moot.

Second Obviousness Rejection

Claim 2 stands rejected under AIA 35 U.S.C. § 103(a) over Tsai, in view of Chandrasekaran, in further view of Nandy et al. (US Patent Application Publication No. 20190180740 – hereafter "Nandy"). Withdrawal of this rejection is respectfully requested for at least the following reasons.

Nandy merely teaches techniques for implementing voice-enabled devices in vehicle environments to facilitate voice interaction with vehicle computing devices. (Abstract). **Nowhere does Nandy mention classifying a voice based on a distance between a user and a voice-content control device**. **Indeed, Nandy does not mention computing a distance between a user and a voice-content control device at all**. Accordingly, claim 2 is not obvious over the combination of Tsai, Chandrasekaran, and Nandy, and may be patentable for other reasons. Withdrawal of this rejection is respectfully 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 [SAJVP171US].

Should the Examiner believe a telephone interview would be helpful to expedite favorable prosecution, the Examiner is invited to contact assignee'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

UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
16/290,983	03/04/2019	Tatsumi Naganuma	SAJVP171US	5210

23623 7590 12/10/2020
AMIN, TUROCY & WATSON, LLP
200 Park Avenue
Suite 300
Beachwood, OH 44122

EXAMINER	
WONG, LINDA	

ART UNIT	PAPER NUMBER
2656	

NOTIFICATION DATE	DELIVERY MODE
12/10/2020	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.** 16/290,983	**Applicant(s)** Naganuma, Tatsumi	
	Examiner LINDA WONG	**Art Unit** 2656	**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 11/19/2020.

☐ 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) 1-6 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) 1-6 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: _____.

Notice of Pre-AIA or AIA Status

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

DETAILED ACTION

Response to Arguments

Applicant's arguments, see Applicant's Remarks, filed 11/19/2020, with respect to the rejection(s) of claim(s) 1-6 under 35 USC 102 have been fully considered and are persuasive. Therefore, the rejection has been withdrawn. However, upon further consideration, a new ground(s) of rejection is made in view of Tsai et al (US Publication No.: 20190130900) in view of (US Publication No.: 20190266999).

Claim Rejections - 35 USC § 103

In the event the determination of the status of the application as subject to AIA 35 U.S.C. 102 and 103 (or as subject to pre-AIA 35 U.S.C. 102 and 103) is incorrect, any correction of the statutory basis for the rejection will not be considered a new ground of rejection if the prior art relied upon, and the rationale supporting the rejection, would be the same under either status.

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.

Claim(s) 1,3-6 is/are rejected under 35 U.S.C. 103 as being unpatentable over Tsai et al (US Publication No.: 20190130900) in view of Chandrasekaran et al (US Publication No.: 20190266999).

Claim 1, Tsai et al discloses

a voice classifying unit configured to (Such limitation invokes 35 USC 112f, hence incorporates the apparatus as defined in the specification. Paragraph 15 discloses the apparatus as a central processor (CPU). Paragraph 15 of Tsai et al discloses the apparatus of a voice interactive device as a general purpose processor, wherein a CPU is a type of general purpose processor. Fig. 1, label 130 as the voice classifying unit.) analyze a voice spoken by a user (Fig. 1b, label W1 as the voice or audio input by a speaker. (Paragraph 18)) and acquired by a voice acquiring unit (Fig. 1b, label 105) to classifying the voice as either one of a first voice or a second voice (Paragraph 19 discloses the speaker classification determining module classifies the speaking sentence W1 (input voice) to classification type based on tone of the voice input and the semantic meaning of the voice input. Paragraph 35 discloses examples of the voice input W1 classified in different classifications.);

a process executing unit configured to (Such limitation invokes 35 USC 112f, hence incorporates the apparatus as defined in the specification. Paragraph 15 discloses the apparatus as a CPU. Paragraph 15 of Tsai et al discloses the apparatus as a general purpose processor, wherein CPU is a type of general purpose processor. Fig. 1b, label 110,120) analyze the voice acquired by the voice acquiring unit to execute processing required by the user (Fig. 1b, label 110,120 analyzes the voice input, label W1, to determine the semantic meaning and tone.); and

a voice content generating unit configured to (Such limitation invokes 35 USC 112f, hence incorporates the apparatus as defined in the specification. Paragraph 15 discloses the apparatus as a CPU. Paragraph 15 of Tsai et al discloses the apparatus as a general purpose processor, wherein CPU is a type of general purpose processor. Fig. 1b, label 140,150) generate, based on content of the processing executed by the process executing unit, output sentence that is text data for a voice to be output to the user (Fig. 1b, label 140,150 generates a response based on the output from label 130, which is dependent on the output from labels 110,120.); and

an output controller configured to generates a voice response to the user (Fig. 1a,1b, label voice generator.),

wherein the voice content generating unit is further configured to generate a first output sentence as the output sentence when the acquired voice has been classified as the first voice (Fig. 1b, label 130,140 generates a sentence output based on the classification of the voice input, W1. Paragraph 35 discloses based on the classification, the response sentence is generated.), and

generate a second output sentence in which information is omitted as compared to the first output sentence as the output sentence when the acquired voice has been classified as the second voice (paragraph 35 discloses a first response sentence S1 is generated according to the classification of the speaker. For example, when the speaker belongs to the "tired state" classification, the response sentence S1 is "Get up early tomorrow! I suggests you could take a nap, you need to set an alarm clock?". A second response sentence is generated and outputted when the voice input is classified in a different state. For example, when W1 is classified into "sick state", the second response sentence is "It is recommended that you lie down. Do you need my help with contacting

your relatives or health care workers or providing you with medical information?". Due to the different classification, the response sentence will omit information that is not relevant to the classification. For example, in the example above, the second response sentence for "sick state" classification does not include nap or setting an alarm.).

Tsai et al discloses the voice content generating unit (Paragraph 15 discloses the apparatus as a CPU. Paragraph 15 of Tsai et al discloses the apparatus as a general purpose processor, wherein CPU is a type of general purpose processor. Fig. 1b, label 140,150) generating an output sentence according to the classification of multiple voices (paragraph 35, Fig. 1b, label 130,140), and an output controller configured to generates a voice response to the user (Fig. 1a,1b, label voice generator.), but fails to disclose an output controller configured to adjust a sound volume of voice data obtained by converting the output sentence thereto and the output controller is further configured to adjust the sound volume of voice data such that the sound volume of voice data obtained by converting the first output sentence thereinto differs from the sound volume of the voice data obtained by converting the second output sentence thereinto.

Chandrasekaran et al discloses a virtual assistant (Fig. 1, label PVA) comprising an output controller (Fig. 4, label 26,28) configured to adjust a sound volume of voice data obtained by converting the output sentence thereto (Paragraph 126 discloses generating a response to the user input according to the emotional state of the user. The output response from the virtual assistant is adjusted according to the language, volume and tone selected according to the emotional state of the user.) and the output controller is further configured to adjust the sound volume of voice data such that the sound volume of voice data obtained by converting the first output sentence thereinto differs from the sound volume of the voice data obtained by converting the second output

sentence thereinto (paragraph 126 discloses generating a response to a user's voice input as shown in Fig. 1. The response is outputted according to the volume, language, and tone of the user. This indicates a response is outputted according to one emotional state will differ from a response outputted according to another emotional state of the user since responses are outputted according to the volume, language and tone of the user.).

Tsai et al disclose a voice generator configured to generate and output a response to a voice input according to the classification of the speaker (paragraph 35, Fig. 1a,1b) and Chandrasekaran et al discloses an output generator configured to output a response according to the volume, language and tone of the user. (paragraph 126, Fig. 1) It would be obvious to one skilled in the art before the effective filing date of the application to modify Tsai et al's voice generator by incorporating outputting a response according to the volume, language and tone of the user as disclosed by Chandrasekaran et al so to show empathy during an engagement between a user and a virtual assistant. in order to increase user satisfaction, engage interactions, and increase usage of the virtual assistant. (paragraph 2)

Claim 3, Tsai et al discloses on generating the second sentence, the voice-content generating unit is further configured to omit a part of information included in the voice spoken by the user. (paragraph 35 discloses a second response sentence is generated and outputted when the voice input is classified in a different state. For example, when W1 is classified into "sick state", the second response sentence is "It is recommended that you lie down. Do you need my help with contacting your relatives or health care workers or providing you with medical information?". Due to the different classification, the response sentence will omit information that is not relevant to the classification. In

the example above, the second response sentence for “sick state” classification does not include information included in the voice spoken by the user, such as “tired”.)

Claim 4, Tsai et al discloses when the voice spoken by the user is a whispered voice, the voice classifying unit is further configured to classify the voice as the second voice (Paragraph 19 discloses classification of W1 is based on the tone and semantic meaning. Table 1 (paragraph 24) shows the output from tone analyzing module, wherein the volume is used to determine classification in the speaker classification determining module 130.).

Claim 5, Tsai et al discloses

acquired a voice spoken by a user (Fig. 1b, label 105);

analyzing the acquired voice (Fig. 1b, label W1 as the voice or audio input by a speaker. (Paragraph 18)) to classify the acquired voice as either one of a first voice or a second voice (Fig. 1b, label 130, Paragraph 19 discloses the speaker classification determining module classifies the speaking sentence W1 (input voice) to classification type based on tone of the voice input and the semantic meaning of the voice input. Paragraph 35 discloses examples of the voice input W1 classified in different classifications.);

analyzing the acquired voice to execute processing required by the user (Fig. 1b, label 110,120 analyzes the voice input, label W1, to determine the semantic meaning and tone.); and

generating, based on content of the executed processing, output sentence that is text data for a voice to be output to the user (Fig. 1b, label 140,150 generates a response based on the output from label 130, which is dependent on the output from labels 110,120.),

wherein at the generating, a first output sentence is generated as the output sentence when the acquired voice has been classified as the first voice (Fig. 1b, label 130,140 generates a sentence output based on the classification of the voice input, W1. Paragraph 35 discloses based on the classification, the response sentence is generated.), and

a second output sentence is generated as the output sentence in which a part of information included in the first output sentence is omitted when the acquired voice has been classified as the second voice (paragraph 35 discloses a first response sentence S1 is generated according to the classification of the speaker. For example, when the speaker belongs to the "tired state" classification, the response sentence S1 is "Get up early tomorrow! I suggests you could take a nap, you need to set an alarm clock?". A second response sentence is generated and outputted when the voice input is classified in a different state. For example, when W1 is classified into "sick state", the second response sentence is "It is recommended that you lie down. Do you need my help with contacting your relatives or health care workers or providing you with medical information?". Due to the different classification, the response sentence will omit information that is not relevant to the classification. For example, in the example above, the second response sentence for "sick state" classification does not include nap or setting an alarm.).

Tsai et al discloses generating an output sentence according to the classification of multiple voices (paragraph 35, Fig. 1b, label 130,140), and an output controller configured to generates a voice response to the user (Fig. 1a,1b, label voice generator.), but fails to disclose adjusting a sound volume of voice data obtained by converting the output sentence thereto and at adjusting the sound volume of voice data, further

adjusting the sound volume of voice data such that the sound volume of voice data obtained by converting the first output sentence thereinto differs from the sound volume of voice data obtained by converting the second output sentence thereinto.

Chandrasekaran et al discloses a virtual assistant (Fig. 1, label PVA) comprising an output controller (Fig. 4, label 26,28) configured to adjust a sound volume of voice data obtained by converting the output sentence thereto (Paragraph 64-65 discloses the virtual assistant provides an output from the audio/visual output device that augment the tone, language and volume of the assistant's response based on the evaluated mood of the user. Paragraph 126 discloses generating a response to the user input according to the emotional state of the user. The output response from the virtual assistant is adjusted according to the language, volume and tone selected according to the emotional state of the user.) and at adjusting the sound volume of voice data, further adjusting the sound volume of voice data such that the sound volume of voice data obtained by converting the first output sentence thereinto differs from the sound volume of voice data obtained by converting the second output sentence thereinto (Paragraph 64-65 discloses the virtual assistant provides an output from the audio/visual output device that augment the tone, language and volume of the assistant's response based on the evaluated mood of the user. Paragraph 126 discloses generating a response to a user's voice input as shown in Fig. 1. The response is outputted according to the volume, language, and tone of the user. This indicates a response is outputted according to one emotional state will differ from a response outputted according to another emotional state of the user since responses are outputted according to the volume, language and tone of the user.).

Tsai et al disclose a voice generator configured to generate and output a response to a voice input according to the classification of the speaker (paragraph 35, Fig. 1a,1b) and Chandrasekaran et al discloses an output generator configured to output a response according to the volume, language and tone of the user. (paragraph 64-65,126, Fig. 1) It would be obvious to one skilled in the art before the effective filing date of the application to modify Tsai et al's voice generator by incorporating outputting a response according to the volume, language and tone of the user as disclosed by Chandrasekaran et al so to show empathy during an engagement between a user and a virtual assistant in order to increase user satisfaction, engage interactions, and increase usage of the virtual assistant. (paragraph 2)

Claim 6, Tsai et al discloses

acquired a voice spoken by a user (Fig. 1b, label 105);

analyzing the acquired voice (Fig. 1b, label W1 as the voice or audio input by a speaker. (Paragraph 18)) to classify the acquired voice as either one of a first voice or a second voice (Fig. 1b, label 130, Paragraph 19 discloses the speaker classification determining module classifies the speaking sentence W1 (input voice) to classification type based on tone of the voice input and the semantic meaning of the voice input. Paragraph 35 discloses examples of the voice input W1 classified in different classifications.);

analyzing the acquired voice to execute processing required by the user (Fig. 1b, label 110,120 analyzes the voice input, label W1, to determine the semantic meaning and tone.); and

generating, based on content of the executed processing, output sentence that is text data for a voice to be output to the user (Fig. 1b, label 140,150 generates a response

based on the output from label 130, which is dependent on the output from labels 110,120.),

wherein at the generating, a first output sentence is generated as the output sentence when the acquired voice has been classified as the first voice (Fig. 1b, label 130,140 generates a sentence output based on the classification of the voice input, W1. Paragraph 35 discloses based on the classification, the response sentence is generated.), and

a second output sentence is generated as the output sentence in which a part of information included in the first output sentence is omitted when the acquired voice has been classified as the second voice (paragraph 35 discloses a first response sentence S1 is generated according to the classification of the speaker. For example, when the speaker belongs to the "tired state" classification, the response sentence S1 is "Get up early tomorrow! I suggests you could take a nap, you need to set an alarm clock?". A second response sentence is generated and outputted when the voice input is classified in a different state. For example, when W1 is classified into "sick state", the second response sentence is "It is recommended that you lie down. Do you need my help with contacting your relatives or health care workers or providing you with medical information?". Due to the different classification, the response sentence will omit information that is not relevant to the classification. For example, in the example above, the second response sentence for "sick state" classification does not include nap or setting an alarm.).

Tsai et al discloses generating an output sentence according to the classification of multiple voices (paragraph 35, Fig. 1b, label 130,140), and an output controller configured to generates a voice response to the user (Fig. 1a,1b, label voice generator.),

but fails to disclose adjusting a sound volume of voice data obtained by converting the output sentence thereto and at adjusting the sound volume of voice data, further adjusting the sound volume of voice data such that the sound volume of voice data obtained by converting the first output sentence thereinto differs from the sound volume of voice data obtained by converting the second output sentence thereinto.

Chandrasekaran et al discloses a virtual assistant (Fig. 1, label PVA) comprising an output controller (Fig. 4, label 26,28) configured to adjust a sound volume of voice data obtained by converting the output sentence thereto (Paragraph 64-65 discloses the virtual assistant provides an output from the audio/visual output device that augment the tone, language and volume of the assistant's response based on the evaluated mood of the user. Paragraph 126 discloses generating a response to the user input according to the emotional state of the user. The output response from the virtual assistant is adjusted according to the language, volume and tone selected according to the emotional state of the user.) and at adjusting the sound volume of voice data, further adjusting the sound volume of voice data such that the sound volume of voice data obtained by converting the first output sentence thereinto differs from the sound volume of voice data obtained by converting the second output sentence thereinto (Paragraph 64-65 discloses the virtual assistant provides an output from the audio/visual output device that augment the tone, language and volume of the assistant's response based on the evaluated mood of the user. Paragraph 126 discloses generating a response to a user's voice input as shown in Fig. 1. The response is outputted according to the volume, language, and tone of the user. This indicates a response is outputted according to one emotional state will differ from a response

outputted according to another emotional state of the user since responses are outputted according to the volume, language and tone of the user.).

Tsai et al disclose a voice generator configured to generate and output a response to a voice input according to the classification of the speaker (paragraph 35, Fig. 1a,1b) and Chandrasekaran et al discloses an output generator configured to output a response according to the volume, language and tone of the user. (paragraph 64-65,126, Fig. 1) It would be obvious to one skilled in the art before the effective filing date of the application to modify Tsai et al's voice generator by incorporating outputting a response according to the volume, language and tone of the user as disclosed by Chandrasekaran et al so to show empathy during an engagement between a user and a virtual assistant in order to increase user satisfaction, engage interactions, and increase usage of the virtual assistant. (paragraph 2)

Claim 2 is/are rejected under pre-AIA 35 U.S.C. 103(a) as being unpatentable over Tsai et al (US Publication No.: 20190130900) in view of Chandrasekaran et al (US Publication No.: 20190266999), further in view of Nandy et al (US Publication No. : 20190180740).

Claim 2, Tsai et al discloses the processing executing unit (Fig. 1b, label 110,120) and the voice generating unit (Such limitation invokes 35 USC 112f, hence incorporates the apparatus as defined in the specification. Paragraph 15 discloses the apparatus as a CPU. Paragraph 15 of Tsai et al discloses the apparatus as a general purpose processor, wherein CPU is a type of general purpose processor. Fig. 1b, label 140,150) but fails to disclose the processing executing unit comprises:

an intention analyzing unit configured to extract intention information indicating an intention of the user based on the voice acquiring by the voice acquiring unit; and

an acquisition content information acquiring unit configured to acquire acquisition content information which is notified to the user based on the extracted intention information, and

the voice content generating unit is further configured to generate the text data including the acquisition content information as the output sentence.

Nandy et al discloses a processing executing unit (Such limitation invokes 35 USC 112f, hence incorporates the apparatus as defined in the specification. Paragraph 15 discloses the apparatus as a CPU. Fig. 7a, label 128,702) comprises:

an intention analyzing unit configured to (Such limitation invokes 35 USC 112f, hence incorporates the apparatus as defined in the specification. Paragraph 15 discloses the apparatus as a CPU. Fig. 7a, label 754,702) extract intention information indicating an intention of the user based on the voice acquiring by the voice acquiring unit (Paragraph 34,145 discloses label 216 identifies the intent of the caller's utterance.); and

an acquisition content information acquiring unit configured to (Such limitation invokes 35 USC 112f, hence incorporates the apparatus as defined in the specification. Paragraph 15 discloses the apparatus as a CPU. Fig. 7a, label 754,702,128.) acquire acquisition content information which is notified to the user based on the extracted intention information (Paragraph 145 discloses label 742 generates the command based on the intent and/or additional content. The response output notifies the user that the command is performed which indicates the content information such as the user request is "please hang up my phone call" (paragraph 143), the response is "we have hung up your phone call" (paragraph 145).), and

the voice content generating unit is further configured to (Such limitation invokes 35 USC 112f, hence incorporates the apparatus as defined in the specification. Paragraph 15 discloses the apparatus as a CPU. Paragraph 15 of Tsai et al discloses the apparatus as a general purpose processor, wherein CPU is a type of general purpose processor. Fig. 7a, label 754, Fig. 7b, label 744) generate the text data including the acquisition content information as the output sentence (Paragraph 145 discloses label 742 generates text to speech output for the user's request. The response output notifies the user that the command is performed which indicates the content information such as the user request is "please hang up my phone call" (paragraph 143), the response is "we have hung up your phone call" (paragraph 145).).

Tsai e tal discloses speech recognition using semantic analysis (Fig. 1b) and Nandy et al discloses performing speech recognition with semantic analysis using a NLU and command processor as shown in Fig. 7a,7b, hence it would be obvious to one skilled in the art before the effective filing date of the application to modify Tsai et al's semantic analysis or processing executing unit by performing semantic analysis as disclosed by Nandy et al so to improve the user's experience by providing clear communication in response to a user's utterance or request and clearly understanding the user's utterance or request so to correctly and clearly perform the user's utterance or request.

Pertinent Prior art

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

Huang et al (US Publication No.: 20190164554): paragraph 32 discloses output speech with appropriate sentiment, tone, volume, etc.

Gelfenbeyn et al (US Publication No.: 20170110129): Paragraph 92 discloses setting emotional characteristics to a corresponding response to be delivered to the user. The emotional characteristics may be related to tone, voice, volume or other parameters.

Shin (US Publication No.: 20170083281): Paragraph 37 discloses a response to the voice input is adjusted or determined according to the volume of the user input.

Conclusion

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

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

Any inquiry concerning this communication or earlier communications from the examiner should be directed to LINDA WONG whose telephone number is (571)272-6044. The examiner can normally be reached on 9-5.

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

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

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Bhavesh Mehta can be reached on (571) 272-7453. 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.

/LINDA WONG/
Primary Examiner, Art Unit 2656

Notice of References Cited	Application/Control No. 16/290,983	Applicant(s)/Patent Under Reexamination Naganuma, Tatsumi	
	Examiner LINDA WONG	Art Unit 2656	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-20190130900-A1	05-2019	Tsai; Cheng-Hung	G10L15/22	1/1
*	B	US-20190180740-A1	06-2019	Nandy; Dibyendu	G10L15/30	1/1
*	C	US-20190266999-A1	08-2019	Chandrasekaran; Nirupama	G09B5/00	1/1
*	D	US-20190164554-A1	05-2019	HUANG; Ching-Ling	G06F16/3329	1/1
*	E	US-20170110129-A1	04-2017	Gelfenbeyn; Ilya Gennadyevich	G06F3/167	1/1
*	F	US-20170083281-A1	03-2017	SHIN; Sang Min	G10L13/033	1/1
	G					
	H					
	I					
	J					
	K					
	L					
	M					

FOREIGN PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Country	Name	CPC Classification
	N					
	O					
	P					
	Q					
	R					
	S					
	T					

NON-PATENT DOCUMENTS

*		Include as applicable: Author, Title Date, Publisher, Edition or Volume, Pertinent Pages)
	U	
	V	
	W	
	X	

*A copy of this reference is not being furnished with this Office action. (See MPEP § 707.05(a).)
Dates in MM-YYYY format are publication dates. Classifications may be US or foreign.

Search Notes	Application/Control No.	Applicant(s)/Patent Under Reexamination
	16/290,983	Naganuma, Tatsumi
	Examiner	Art Unit
	LINDA WONG	2656

CPC - Searched*		
Symbol	Date	Examiner

CPC Combination Sets - Searched*		
Symbol	Date	Examiner

US Classification - Searched*			
Class	Subclass	Date	Examiner

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

Search Notes		
Search Notes	Date	Examiner
East, inventor's name, ip.com search	08/16/2020	LW
East: text search and considered previously submitted references	12/05/2020	LW

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

Index of Claims	Application/Control No.	Applicant(s)/Patent Under Reexamination
	16/290,983	Naganuma, Tatsumi
	Examiner	**Art Unit**
	LINDA WONG	2656

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

CLAIMS

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

CLAIM		DATE								
Final	Original	08/16/2020	12/05/2020							
	1	✓	✓							
	2	✓	✓							
	3	✓	✓							
	4	✓	✓							
	5	✓	✓							
	6	✓	✓							

EAST Search History

EAST Search History (Prior Art)

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
L2	4	"53773885".FMID.	US-PGPUB; USPAT; FPRS; JPO	AND	OFF	2020/12/05 11:49
S1	2	("20190130900").PN.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO	OR	OFF	2020/12/04 20:45
S2	4,572	@ad<="20180306" (adjust$4 or adapt$4 or alter$4 or increas$4 or decreas$4 or decrement$4 or lower$4 or increment$4 or higher$2) with (volume) same (speaker) same (voice or speech or utter$4 or utterance$2)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO	AND	OFF	2020/12/04 20:50
S3	4,572	@ad<="20180306" (adjust$4 or adapt$4 or alter$4 or increas$4 or decreas$4 or decrement$4 or lower$4 or increment$4 or higher$2) with (volume) same (speaker) same (voice or speech or utter$4 or utterance$2) (voice or speech or utter$4 or utterance$4) same (tone or pitch or volume)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO	AND	OFF	2020/12/04 20:53
S4	28	@ad<="20180306" (adjust$4 or adapt$4 or alter$4 or increas$4 or decreas$4 or decrement$4 or lower$4 or increment$4 or higher$2) with (volume) same (speaker) same (voice or speech or utter$4 or utterance$2) (voice or speech or utter$4 or utterance$4) same (volume) same (tone) same emotion$2	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO	AND	OFF	2020/12/04 20:53
S5	21	@ad<="20180306" (adjust$4 or adapt$4 or alter$4 or increas$4 or decreas$4 or decrement$4 or lower$4 or increment$4 or higher$2) with (volume) same (response or action) same (voice or speech or utter$4 or utterance$2) (voice or speech or utter$4 or utterance$4) same (volume) same (tone) same emotion$2	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO	AND	OFF	2020/12/04 20:55
S6	146	@ad<="20180306" (volume or whisper) same (response or action) same (voice or speech or utter$4 or utterance$2) (voice or	US-PGPUB; USPAT; USOCR;	AND	OFF	2020/12/05 09:51

		speech or utter$4 or utterance$4) same (volume) same (tone) same emotion$2	FPRS; EPO; JPO			

12/5/2020 12:00:34 PM
C:\Users\lwong\Documents\EAST\Workspaces\16290983_2.wsp

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: November 19, 2020 /Bailey Zugan Rayl/
Bailey Zugan Rayl

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re patent application of:			
Inventor(s):	Tatsumi Naganuma	Examiner:	Linda Wong
Serial No:	16/290,983	Art Unit:	2656
Filing Date:	March 4, 2019	Conf. No:	5210

Title: VOICE-CONTENT CONTROL DEVICE, VOICE-CONTENT CONTROL METHOD, AND NON-TRANSITORY STORAGE MEDIUM

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

REPLY TO OFFICE ACTION

Dear Examiner Wong:

This paper is filed in response to the Office Action dated August 20, 2020. Kindly enter the following amendments.

Electronic Acknowledgement Receipt	
EFS ID:	41168368
Application Number:	16290983
International Application Number:	
Confirmation Number:	5210
Title of Invention:	VOICE-CONTENT CONTROL DEVICE, VOICE-CONTENT CONTROL METHOD, AND NON-TRANSITORY STORAGE MEDIUM
First Named Inventor/Applicant Name:	Tatsumi Naganuma
Customer Number:	23623
Filer:	Gregory Turocy/Bailey Zugan Rayl
Filer Authorized By:	Gregory Turocy
Attorney Docket Number:	SAJVP171US
Receipt Date:	19-NOV-2020
Filing Date:	04-MAR-2019
Time Stamp:	12:25:30
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		REPLY171.pdf	43609 d3fb485284 3a533525ff7e38ee640c0a5575f010	yes	7

	Multipart Description/PDF files in .zip description		
	Document Description	**Start**	**End**
	Applicant Arguments/Remarks Made in an Amendment	5	7
	Claims	2	4
	Amendment/Req. Reconsideration-After Non-Final Reject	1	1
Warnings:			
Information:			
	Total Files Size (in bytes):	43609	

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

New Applications Under 35 U.S.C. 111
If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.
National Stage of an International Application under 35 U.S.C. 371
If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.
New International Application Filed with the USPTO as a Receiving Office
If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

REMARKS

Claims 1-6 are pending in the subject application upon entry of the amendments. A listing of the claims can be found on pages 2-4 of the Reply. Favorable reconsideration is respectfully requested in view of the amendments and following comments.

The Amendments

Claims 1, 5, and 6 are amended to disclaim the cited art. No new matter is added with such amendments. Support for such amendments can be found in the present Specification at least in paragraphs [0061] and [0075].

Novelty Rejection

Claims 1 and 3-6 stand rejected under AIA 35 U.S.C. § 102(a)(2) over Tsai et al. (US Patent Application Publication No. 2019/0130900 – hereafter "Tsai"). Withdrawal of this rejection is respectfully requested for at least the following reasons.

To anticipate a claim, a single reference must disclose each and every element of the claim. As explained below, Tsai fails to disclose each and every element of the subject claims.

As amended, independent claim 1 recites *the output controller is further configured to adjust the sound volume of voice data such that the sound volume of voice data obtained by converting the first output sentence thereinto differs from the sound volume of the voice data obtained by converting the second output sentence thereinto*. Tsai makes no mention of such features whatsoever.

Tsai teaches a voice interactive device that includes a semantic analyzing module, a tone analyzing module, a speaker classification determining module, a dialogue sentence database, and a voice generator, which analyzes the semantic meaning of a spoken sentence from a speaker and generates a spoken response sentence as a result. (Abstract). **Importantly, Tsai does not mention altering the volume between different spoken response sentences**. Indeed, only paragraphs [0021]-[0025] of Tsai even mention the word "volume" at all, and such paragraphs

merely state that Tsai can analyze the volume of a speaker's voice in order to infer an emotion of the speaker.

As explained at least in paragraph [0004] of the present Specification, a problem that plagues conventional voice processing devices is that "the output voice may be heard by a person who is not the user of the voice processing device and is around the voice processing device." "For example, if a person around the voice processing device is asleep, the output voice may be an annoyance to the person." "Therefore, on outputting the voice to the user, influence of the output voice to people other than the user is desired to be suppressed, and content of the output voice to the user is desired to be made adequately understandable." As explained at least in paragraphs [0061] and [0075] of the present Specification, the claimed invention can address this problem by differently adjusting the volume of different output sentences. **Because Tsai does not even hint at differently adjusting the volumes of different output sentences, Tsai cannot achieve this benefit**.

For at least these reasons, Tsai fails to teach *the output controller is further configured to adjust the sound volume of voice data such that the sound volume of voice data obtained by converting the first output sentence thereinto differs from the sound volume of the voice data obtained by converting the second output sentence thereinto*. Therefore, independent claim 1 is not anticipated by Tsai, and may be patentable for other reasons. Withdrawal of this rejection is respectfully requested.

Since claims 3-4 depend from independent claim 1, they are likewise not anticipated by Tsai, and may be patentable for other reasons. Withdrawal of this rejection is respectfully requested.

As amended, independent claims 5-6 each recite some version of *at adjusting the sound volume of voice data, further adjusting the sound volume of voice data such that the sound volume of voice data obtained by converting the first output sentence thereinto differs from the sound volume of voice data obtained by converting the second output sentence thereinto*. As explained above, Tsai is silent as to such features. Thus, independent claims 5-6 are not anticipated by Tsai, and may be patentable for other reasons. Withdrawal of this rejection is respectfully requested.

Obviousness Rejection

Claim 2 stands rejected under AIA 35 U.S.C. § 103(a) over Tsai in view of Nandy et al. (US Patent Application Publication No. 2019/0180740 – hereafter "Nandy"). Withdrawal of this rejection is respectfully requested for at least the following reasons.

Claim 2 depends from independent claim 1, and Nandy does not cure the deficiencies of Tsai with respect to independent claim 1. Nandy teaches techniques for implementing voice-enabled devices in vehicle environments to facilitate voice interaction with vehicle computing devices. (Abstract). Nandy makes no mention whatsoever of *the output controller is further configured to adjust the sound volume of voice data such that the sound volume of voice data obtained by converting the first output sentence thereinto differs from the sound volume of the voice data obtained by converting the second output sentence thereinto*. Thus, claim 2 is not obvious over Tsai and Nandy, and may be patentable for other reasons. Withdrawal of this rejection is respectfully 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 [SAJVP171US].

Should the Examiner believe a telephone interview would be helpful to expedite favorable prosecution, the Examiner is invited to contact assignee'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

AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions of claims in the application:

Listing of Claims:

1. (Currently Amended) A voice-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 classify the voice as either one of a first voice or a second voice;

a process executing unit configured to analyze the voice acquired by the voice acquiring unit to execute processing required by the user; ~~and~~

a voice-content generating unit configured to generate, based on content of the processing executed by the process executing unit, output sentence that is text data for a voice to be output to the user; and

an output controller configured to adjust a sound volume of voice data obtained by converting the output sentence thereinto, wherein

the voice-content generating unit is further configured to

generate a first output sentence as the output sentence when the acquired voice has been classified as the first voice, and

generate a second output sentence in which information is omitted as compared to the first output sentence as the output sentence when the acquired voice has been classified as the second voice, wherein

the output controller is further configured to adjust the sound volume of voice data such that the sound volume of voice data obtained by converting the first output sentence thereinto differs from the sound volume of the voice data obtained by converting the second output sentence thereinto.

2. (Original) The voice-content control device according to claim 1, wherein the process executing unit comprises:

an intention analyzing unit configured to extract intention information indicating an intention of the user based on the voice acquired by the voice acquiring unit; and

an acquisition content information acquiring unit configured to acquire acquisition content information which is notified to the user based on the extracted intention information, and

the voice-content generating unit is further configured to generate the text data including the acquisition content information as the output sentence.

3. (Original) The voice-content control device according to claim 1, wherein, on generating the second sentence, the voice-content generating unit is further configured to omit a part of information included in the voice spoken by the user.

4. (Original) The voice-content control device according to claim 1, wherein, when the voice spoken by the user is a whispered voice, the voice classifying unit is further configured to classify the voice as the second voice.

5. (Currently Amended) A voice-content control method, comprising:

acquiring a voice spoken by a user;

analyzing the acquired voice to classify the acquired voice as either one of a first voice and a second voice;

analyzing the acquired voice to execute processing intended by the user; ~~and~~

generating, based on content of the executed processing, output sentence that is text data for a voice to be output to the user; and

adjusting a sound volume of voice data obtained by converting the output sentence thereinto, wherein

at the generating,

a first output sentence is generated as the output sentence when the acquired voice has been classified as the first voice, and

a second output sentence is generated as the output sentence in which a part of information included in the first output sentence is omitted when the acquired voice has been classified as the second voice, wherein

at adjusting the sound volume of voice data, further adjusting the sound volume of voice data such that the sound volume of voice data obtained by converting the first output sentence thereinto differs from the sound volume of voice data obtained by converting the second output sentence thereinto.

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

acquiring a voice spoken by a user;

analyzing the acquired voice to classify the acquired voice as either one of a first voice and a second voice;

analyzing the acquired voice to execute processing intended by the user; ~~and~~

generating, based on content of the executed processing, output sentence that is text data for a voice to be output to the user; and

adjusting a sound volume of voice data obtained by converting the output sentence thereinto, wherein

at the generating,

a first output sentence is generated as the output sentence when the acquired voice has been classified as the first voice, and

a second output sentence is generated as the output sentence in which a part of information included in the first output sentence is omitted when the acquired voice has been classified as the second voice, wherein

at adjusting the sound volume of voice data, further adjusting the sound volume of voice data such that the sound volume of voice data obtained by converting the first output sentence thereinto differs from the sound volume of voice data obtained by converting the second output sentence thereinto.

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 16/290,983	Filing Date 03/04/2019	☐ 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	11/19/2020	CLAIMS REMAINING AFTER AMENDMENT		HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA		RATE ($)	ADDITIONAL FEE ($)
	Total (37 CFR 1.16(i))	* 6	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".	/CHANTAE S DESSAU/
*** 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.
16/290,983	03/04/2019	Tatsumi Naganuma	SAJVP171US	5210

23623 7590 08/20/2020
AMIN, TUROCY & WATSON, LLP
200 Park Avenue
Suite 300
Beachwood, OH 44122

EXAMINER	
WONG, LINDA	

ART UNIT	PAPER NUMBER
2656	

NOTIFICATION DATE	DELIVERY MODE
08/20/2020	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.** 16/290,983	**Applicant(s)** Naganuma, Tatsumi	
	Examiner LINDA WONG	**Art Unit** 2656	**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 3/4/2019.

☐ 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) 1-6 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) 1-6 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 3/4/2019 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: _____.

Notice of Pre-AIA or AIA Status

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

DETAILED ACTION

Drawings

The drawings were received on 3/4/2019. These drawings are accepted.

Claim Rejections - 35 USC § 102

In the event the determination of the status of the application as subject to AIA 35 U.S.C. 102 and 103 (or as subject to pre-AIA 35 U.S.C. 102 and 103) is incorrect, any correction of the statutory basis for the rejection will not be considered a new ground of rejection if the prior art relied upon, and the rationale supporting the rejection, would be the same under either status.

The following is a quotation of the appropriate paragraphs of pre-AIA 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
> (a)(2) the claimed invention was described in a patent issued under section 151, or in an application for patent published or deemed published under section 122(b), in which the patent or application, as the case may be, names another inventor and was effectively filed before the effective filing date of the claimed invention.

Claim(s) 1,3-6 is/are rejected under 35 U.S.C. 102a2 as being anticipated by Tsai et al (US Publication No.: 20190130900).

Claim 1, Tsai et al discloses

a voice classifying unit configured to (Such limitation invokes 35 USC 112f, hence incorporates the apparatus as defined in the specification. Paragraph 15 discloses the

apparatus as a central processor (CPU). Paragraph 15 of Tsai et al discloses the apparatus of a voice interactive device as a general purpose processor, wherein a CPU is a type of general purpose processor. Fig. 1, label 130 as the voice classifying unit.) analyze a voice spoken by a user (Fig. 1b, label W1 as the voice or audio input by a speaker. (Paragraph 18)) and acquired by a voice acquiring unit (Fig. 1b, label 105) to classifying the voice as either one of a first voice or a second voice (Paragraph 19 discloses the speaker classification determining module classifies the speaking sentence W1 (input voice) to classification type based on tone of the voice input and the semantic meaning of the voice input. Paragraph 35 discloses examples of the voice input W1 classified in different classifications.);

a process executing unit configured to (Such limitation invokes 35 USC 112f, hence incorporates the apparatus as defined in the specification. Paragraph 15 discloses the apparatus as a CPU. Paragraph 15 of Tsai et al discloses the apparatus as a general purpose processor, wherein CPU is a type of general purpose processor. Fig. 1b, label 110,120) analyze the voice acquired by the voice acquiring unit to execute processing required by the user (Fig. 1b, label 110,120 analyzes the voice input, label W1, to determine the semantic meaning and tone.); and

a voice content generating unit configured to (Such limitation invokes 35 USC 112f, hence incorporates the apparatus as defined in the specification. Paragraph 15 discloses the apparatus as a CPU. Paragraph 15 of Tsai et al discloses the apparatus as a general purpose processor, wherein CPU is a type of general purpose processor. Fig. 1b, label 140,150) generate, based on content of the processing executed by the process executing unit, output sentence that is text data for a voice to be output to the user (Fig.

1b, label 140,150 generates a response based on the output from label 130, which is dependent on the output from labels 110,120.),

wherein the voice content generating unit is further configured to generate a first output sentence as the output sentence when the acquired voice has been classified as the first voice (Fig. 1b, label 130,140 generates a sentence output based on the classification of the voice input, W1. Paragraph 35 discloses based on the classification, the response sentence is generated.), and

generate a second output sentence in which information is omitted as compared to the first output sentence as the output sentence when the acquired voice has been classified as the second voice (paragraph 35 discloses a first response sentence S1 is generated according to the classification of the speaker. For example, when the speaker belongs to the "tired state" classification, the response sentence S1 is "Get up early tomorrow! I suggests you could take a nap, you need to set an alarm clock?". A second response sentence is generated and outputted when the voice input is classified in a different state. For example, when W1 is classified into "sick state", the second response sentence is "It is recommended that you lie down. Do you need my help with contacting your relatives or health care workers or providing you with medical information?". Due to the different classification, the response sentence will omit information that is not relevant to the classification. For example, in the example above, the second response sentence for "sick state" classification does not include nap or setting an alarm.).

Claim 3, Tsai et al discloses on generating the second sentence, the voice-content generating unit is further configured to omit a part of information included in the voice spoken by the user. (paragraph 35 discloses a second response sentence is generated and outputted when the voice input is classified in a different state. For example, when

W1 is classified into “sick state”, the second response sentence is “It is recommended that you lie down. Do you need my help with contacting your relatives or health care workers or providing you with medical information?”. Due to the different classification, the response sentence will omit information that is not relevant to the classification. In the example above, the second response sentence for “sick state” classification does not include information included in the voice spoken by the user, such as “tired”.)

Claim 4, Tsai et al discloses when the voice spoken by the user is a whispered voice, the voice classifying unit is further configured to classify the voice as the second voice (Paragraph 19 discloses classification of W1 is based on the tone and semantic meaning. Table 1 (paragraph 24) shows the output from tone analyzing module, wherein the volume is used to determine classification in the speaker classification determining module 130.).

Claim 5, Tsai et al discloses

acquired a voice spoken by a user (Fig. 1b, label 105);

analyzing the acquired voice (Fig. 1b, label W1 as the voice or audio input by a speaker. (Paragraph 18)) to classify the acquired voice as either one of a first voice or a second voice (Fig. 1b, label 130, Paragraph 19 discloses the speaker classification determining module classifies the speaking sentence W1 (input voice) to classification type based on tone of the voice input and the semantic meaning of the voice input. Paragraph 35 discloses examples of the voice input W1 classified in different classifications.);

analyzing the acquired voice to execute processing required by the user (Fig. 1b, label 110,120 analyzes the voice input, label W1, to determine the semantic meaning and tone.); and

generating, based on content of the executed processing, output sentence that is text data for a voice to be output to the user (Fig. 1b, label 140,150 generates a response based on the output from label 130, which is dependent on the output from labels 110,120.),

wherein at the generating, a first output sentence is generated as the output sentence when the acquired voice has been classified as the first voice (Fig. 1b, label 130,140 generates a sentence output based on the classification of the voice input, W1. Paragraph 35 discloses based on the classification, the response sentence is generated.), and

a second output sentence is generated as the output sentence in which a part of information included in the first output sentence is omitted when the acquired voice has been classified as the second voice (paragraph 35 discloses a first response sentence S1 is generated according to the classification of the speaker. For example, when the speaker belongs to the "tired state" classification, the response sentence S1 is "Get up early tomorrow! I suggests you could take a nap, you need to set an alarm clock?". A second response sentence is generated and outputted when the voice input is classified in a different state. For example, when W1 is classified into "sick state", the second response sentence is "It is recommended that you lie down. Do you need my help with contacting your relatives or health care workers or providing you with medical information?". Due to the different classification, the response sentence will omit information that is not relevant to the classification. For example, in the example above, the second response sentence for "sick state" classification does not include nap or setting an alarm.).

Claim 6, Tsai et al discloses

acquired a voice spoken by a user (Fig. 1b, label 105);

analyzing the acquired voice (Fig. 1b, label W1 as the voice or audio input by a speaker. (Paragraph 18)) to classify the acquired voice as either one of a first voice or a second voice (Fig. 1b, label 130, Paragraph 19 discloses the speaker classification determining module classifies the speaking sentence W1 (input voice) to classification type based on tone of the voice input and the semantic meaning of the voice input. Paragraph 35 discloses examples of the voice input W1 classified in different classifications.);

analyzing the acquired voice to execute processing required by the user (Fig. 1b, label 110,120 analyzes the voice input, label W1, to determine the semantic meaning and tone.); and

generating, based on content of the executed processing, output sentence that is text data for a voice to be output to the user (Fig. 1b, label 140,150 generates a response based on the output from label 130, which is dependent on the output from labels 110,120.),

wherein at the generating, a first output sentence is generated as the output sentence when the acquired voice has been classified as the first voice (Fig. 1b, label 130,140 generates a sentence output based on the classification of the voice input, W1. Paragraph 35 discloses based on the classification, the response sentence is generated.), and

a second output sentence is generated as the output sentence in which a part of information included in the first output sentence is omitted when the acquired voice has been classified as the second voice (paragraph 35 discloses a first response sentence S1

is generated according to the classification of the speaker. For example, when the speaker belongs to the "tired state" classification, the response sentence S1 is "Get up early tomorrow! I suggests you could take a nap, you need to set an alarm clock?". A second response sentence is generated and outputted when the voice input is classified in a different state. For example, when W1 is classified into "sick state", the second response sentence is "It is recommended that you lie down. Do you need my help with contacting your relatives or health care workers or providing you with medical information?". Due to the different classification, the response sentence will omit information that is not relevant to the classification. For example, in the example above, the second response sentence for "sick state" classification does not include nap or setting an alarm.).

Claim Rejections - 35 USC § 103

In the event the determination of the status of the application as subject to AIA 35 U.S.C. 102 and 103 (or as subject to pre-AIA 35 U.S.C. 102 and 103) is incorrect, any correction of the statutory basis for the rejection will not be considered a new ground of rejection if the prior art relied upon, and the rationale supporting the rejection, would be the same under either status.

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

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

Claim 2 is/are rejected under pre-AIA 35 U.S.C. 103(a) as being unpatentable over Tsai et al (US Publication No.: 20190130900) in view of Nandy et al (US Publication No. : 20190180740).

Claim 2, Tsai et al discloses the processing executing unit (Fig. 1b, label 110,120) and the voice generating unit (Such limitation invokes 35 USC 112f, hence incorporates the apparatus as defined in the specification. Paragraph 15 discloses the apparatus as a CPU. Paragraph 15 of Tsai et al discloses the apparatus as a general purpose processor, wherein CPU is a type of general purpose processor. Fig. 1b, label 140,150) but fails to disclose the processing executing unit comprises:

an intention analyzing unit configured to extract intention information indicating an intention of the user based on the voice acquiring by the voice acquiring unit; and

an acquisition content information acquiring unit configured to acquire acquisition content information which is notified to the user based on the extracted intention information, and

the voice content generating unit is further configured to generate the text data including the acquisition content information as the output sentence.

Nandy et al discloses a processing executing unit (Such limitation invokes 35 USC 112f, hence incorporates the apparatus as defined in the specification. Paragraph 15 discloses the apparatus as a CPU. Fig. 7a, label 128,702) comprises:

an intention analyzing unit configured to (Such limitation invokes 35 USC 112f, hence incorporates the apparatus as defined in the specification. Paragraph 15 discloses the apparatus as a CPU. Fig. 7a, label 754,702) extract intention information indicating an intention of the user based on the voice acquiring by the voice acquiring unit (Paragraph 34,145 discloses label 216 identifies the intent of the caller's utterance.); and

an acquisition content information acquiring unit configured to (Such limitation invokes 35 USC 112f, hence incorporates the apparatus as defined in the specification. Paragraph 15 discloses the apparatus as a CPU. Fig. 7a, label 754,702,128.) acquire acquisition content information which is notified to the user based on the extracted intention information (Paragraph 145 discloses label 742 generates the command based on the intent and/or additional content. The response output notifies the user that the command is performed which indicates the content information such as the user request is “please hang up my phone call” (paragraph 143), the response is “we have hung up your phone call” (paragraph 145).), and

the voice content generating unit is further configured to (Such limitation invokes 35 USC 112f, hence incorporates the apparatus as defined in the specification. Paragraph 15 discloses the apparatus as a CPU. Paragraph 15 of Tsai et al discloses the apparatus as a general purpose processor, wherein CPU is a type of general purpose processor. Fig. 7a, label 754, Fig. 7b, label 744) generate the text data including the acquisition content information as the output sentence (Paragraph 145 discloses label 742 generates text to speech output for the user’s request. The response output notifies the user that the command is performed which indicates the content information such as the user request is “please hang up my phone call” (paragraph 143), the response is “we have hung up your phone call” (paragraph 145).).

Tsai e tal discloses speech recognition using semantic analysis (Fig. 1b) and Nandy et al discloses performing speech recognition with semantic analysis using a NLU and command processor as shown in Fig. 7a,7b, hence it would be obvious to one skilled in the art before the effective filing date of the application to modify Tsai et al’s semantic analysis or processing executing unit by performing semantic analysis as disclosed by

Nandy et al so to improve the user's experience by providing clear communication in response to a user's utterance or request and clearly understanding the user's utterance or request so to correctly and clearly perform the user's utterance or request.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to LINDA WONG whose telephone number is (571)272-6044. The examiner can normally be reached on 9-5.

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

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Bhavesh Mehta can be reached on (571) 272-7453. 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.

/LINDA WONG/
Primary Examiner, Art Unit 2656

Notice of References Cited	Application/Control No. 16/290,983	Applicant(s)/Patent Under Reexamination Naganuma, Tatsumi	
	Examiner LINDA WONG	Art Unit 2656	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-20190130900-A1	05-2019	Tsai; Cheng-Hung	G10L15/22	1/1
*	B	US-20190180740-A1	06-2019	Nandy; Dibyendu	G10L15/30	1/1
	C					
	D					
	E					
	F					
	G					
	H					
	I					
	J					
	K					
	L					
	M					

FOREIGN PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Country	Name	CPC Classification
	N					
	O					
	P					
	Q					
	R					
	S					
	T					

NON-PATENT DOCUMENTS

*		Include as applicable: Author, Title Date, Publisher, Edition or Volume, Pertinent Pages)
	U	
	V	
	W	
	X	

*A copy of this reference is not being furnished with this Office action. (See MPEP § 707.05(a).)
Dates in MM-YYYY format are publication dates. Classifications may be US or foreign.

Index of Claims	Application/Control No.	Applicant(s)/Patent Under Reexamination
	16/290,983	Naganuma, Tatsumi
	Examiner	**Art Unit**
	LINDA WONG	2656

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

CLAIMS										
☐ Claims renumbered in the same order as presented by applicant					☐ CPA		☐ T.D.		☐ R.1.47	
CLAIM		**DATE**								
Final	Original	08/16/2020								
	1	✓								
	2	✓								
	3	✓								
	4	✓								
	5	✓								
	6	✓								

Search Notes	Application/Control No.	Applicant(s)/Patent Under Reexamination
	16/290,983	Naganuma, Tatsumi
	Examiner	Art Unit
	LINDA WONG	2656

CPC - Searched*		
Symbol	Date	Examiner

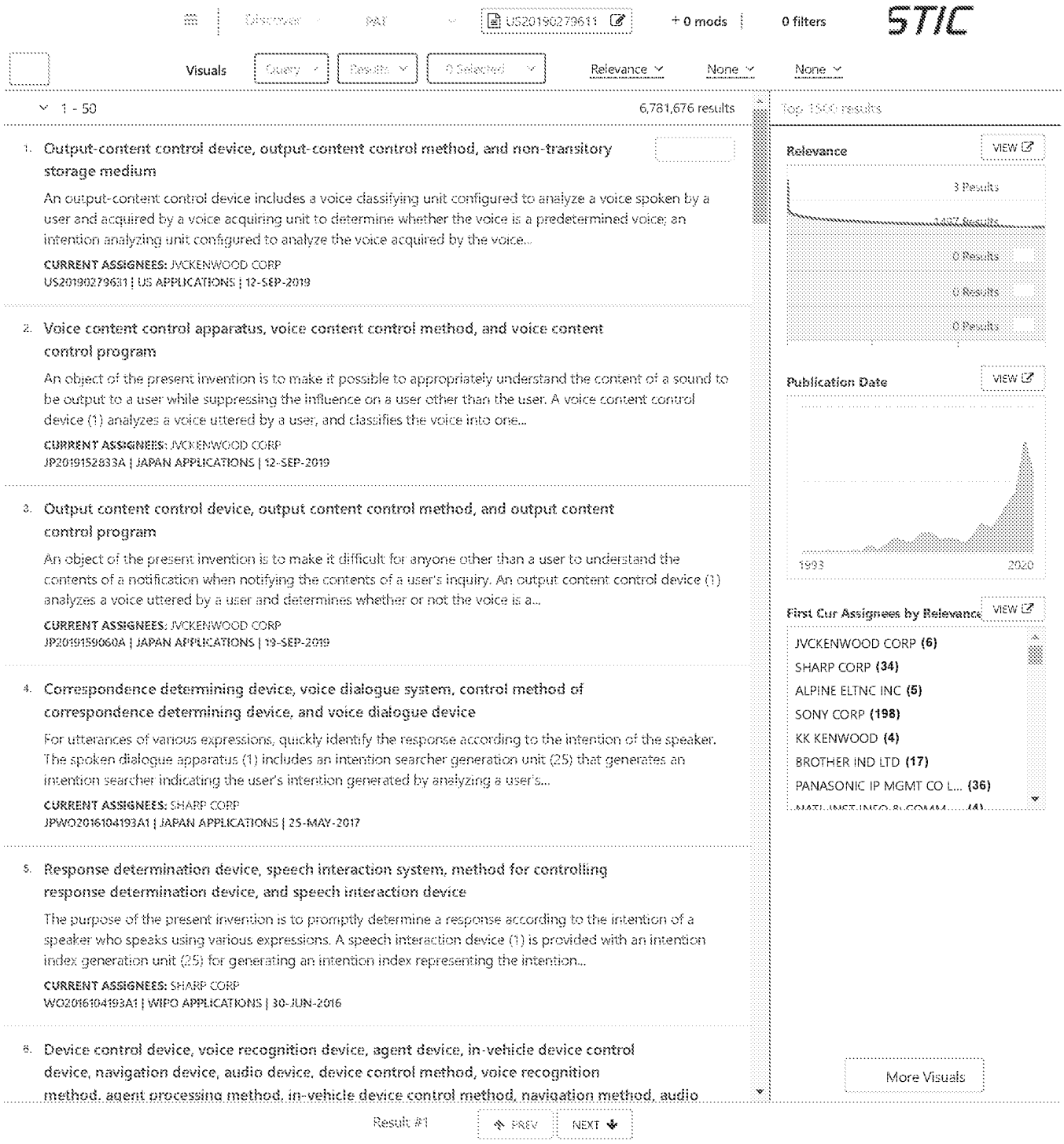
CPC Combination Sets - Searched*		
Symbol	Date	Examiner

US Classification - Searched*			
Class	Subclass	Date	Examiner

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

Search Notes		
Search Notes	Date	Examiner
East, inventor's name, ip.com search	08/16/2020	LW

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


Discover
PAT
US20190279611
+ 0 mods
0 filters
STIC
Visuals
Query
Results
0 Selected
Relevance
None
None
1 - 50
6,781,676 results
Top 1500 results
1. Output-content control device, output-content control method, and non-transitory storage medium
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...
CURRENT ASSIGNEES: JVCKENWOOD CORP
US201902796311 | US APPLICATIONS | 12-SEP-2019
2. Voice content control apparatus, voice content control method, and voice content control program
An object of the present invention is to make it possible to appropriately understand the content of a sound to be output to a user while suppressing the influence on a user other than the user. A voice content control device (1) analyzes a voice uttered by a user, and classifies the voice into one...
CURRENT ASSIGNEES: JVCKENWOOD CORP
JP2019152833A | JAPAN APPLICATIONS | 12-SEP-2019
3. Output content control device, output content control method, and output content control program
An object of the present invention is to make it difficult for anyone other than a user to understand the contents of a notification when notifying the contents of a user's inquiry. An output content control device (1) analyzes a voice uttered by a user and determines whether or not the voice is a...
CURRENT ASSIGNEES: JVCKENWOOD CORP
JP2019159060A | JAPAN APPLICATIONS | 19-SEP-2019
4. Correspondence determining device, voice dialogue system, control method of correspondence determining device, and voice dialogue device
For utterances of various expressions, quickly identify the response according to the intention of the speaker. The spoken dialogue apparatus (1) includes an intention searcher generation unit (25) that generates an intention searcher indicating the user's intention generated by analyzing a user's...
CURRENT ASSIGNEES: SHARP CORP
JPWO2016104193A1 | JAPAN APPLICATIONS | 25-MAY-2017
5. Response determination device, speech interaction system, method for controlling response determination device, and speech interaction device
The purpose of the present invention is to promptly determine a response according to the intention of a speaker who speaks using various expressions. A speech interaction device (1) is provided with an intention index generation unit (25) for generating an intention index representing the intention...
CURRENT ASSIGNEES: SHARP CORP
WO2016104193A1 | WIPO APPLICATIONS | 30-JUN-2016
6. Device control device, voice recognition device, agent device, in-vehicle device control device, navigation device, audio device, device control method, voice recognition method, agent processing method, in-vehicle device control method, navigation method, audio
Relevance
VIEW
3 Results
1,497 Results
0 Results
0 Results
0 Results
Publication Date
VIEW
1993
2020
First Cur Assignees by Relevance
VIEW
JVCKENWOOD CORP (6)
SHARP CORP (34)
ALPINE ELTNC INC (5)
SONY CORP (198)
KK KENWOOD (4)
BROTHER IND LTD (17)
PANASONIC IP MGMT CO L... (36)
More Visuals
Result #1
PREV
NEXT

EAST Search History

EAST Search History (Prior Art)

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
L1	1	("9070366").PN.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO	OR	OFF	2020/08/16 14:53
L2	0	"20190130900".pn. natural adj langauge	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO	AND	OFF	2020/08/16 14:57
L3	0	"20190130900".pn. natural adj language	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO	AND	OFF	2020/08/16 14:57
L4	183	@ad<="20180306" (natural adj language or nlu) semantic$2 same intent$5 intent$5 same (characteristic$2 or parameter$2 or content$4) with (utterance$2 or utter$4 or command or voice adj3 command$2)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO	AND	OFF	2020/08/16 15:37
L5	19	@ad<="20180306" (natural adj language or nlu) semantic$2 same intent$5 intent$5 same (characteristic$2 or parameter$2 or content$4) with (utterance$2 or utter$4 or command or voice adj3 command$2) same text same response$2	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO	AND	OFF	2020/08/16 15:39
L6	1,105	(jvc-kenwood-corporation).as. or (naganuma-tatsumi).in.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO	AND	OFF	2020/08/16 17:22
L7	1	6 ((multiple or plurality or second) adj2 voice same (sentence or text)).clm.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO	AND	OFF	2020/08/16 17:23

L8	5	6 ((multiple or plurality or second) adj2 voice).clm.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO	AND	OFF	2020/08/16 17:23
S1	2	("5852804").PN.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO	OR	OFF	2020/08/04 10:36
S2	2,018	@ad<="20180306" (multiple or plurality or second) adj3 (voice$2 or command$2 or request$2 or utterance$2 or utter$4 or task$2 or question$2 or quer$4) with (multiple or plurality or second) adj3 (user$2 or person$2 or client$2 or human$2) (plurality or multiple or second) with (text or sentence$2 or paragraph$2 or response$2 or answer$2) with (omit$4 or remov$4 or limit$4 or "not included")	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO	AND	OFF	2020/08/04 11:29
S3	36	@ad<="20180306" (multiple or plurality or second) adj3 (voice$2 or command$2 or request$2 or utterance$2 or utter$4 or task$2 or question$2 or quer$4) with (multiple or plurality or second) adj3 (user$2 or person$2 or client$2 or human$2) (intention$2) same attribut$3 (multiple or plurality or second) adj3 (response$2 or output$2 or answer$2)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO	AND	OFF	2020/08/04 11:31
S4	943	@ad<="20180306" (multiple or plurality or second) adj3 (voice$2 or command$2 or request$2 or utterance$2 or utter$4 or task$2 or question$2 or quer$4) with (multiple or plurality or second) adj3 (user$2 or person$2 or client$2 or human$2) (plurality or multiple or second) with (text or sentence$2 or paragraph$2 or response$2 or answer$2) with (omit$4 or remov$4 or limit$4 or "not included") (intention$2 or meaning$2 or semantic$2) (attribute$2 or characteristic$2)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO	AND	OFF	2020/08/04 11:31
S5	13,431	@ad<="20180306" (plurality or multiple or second) adj3 (text or sentence$2 or paragraph$2 or response$2 or answer$2) with (multiple or plurality or second) adj2 user$2	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO	AND	OFF	2020/08/04 12:14

S6	1,187	@ad<="20180306" (plurality or multiple or second) adj3 (text or sentence$2 or paragraph$2 or response$2 or answer$2) with (multiple or plurality or second) adj2 user$2 (omit$4 or remov$4 or limit$4 or "not included") with (plurality or multiple or second) with (text or sentence$2 or paragraph$2 or response$2 or answer$2)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO	AND	OFF	2020/08/04 12:16
S7	31	@ad<="20180306" (plurality or multiple or second) adj3 (text or sentence$2 or paragraph$2 or response$2 or answer$2) with (multiple or plurality or second) adj2 user$2 (omit$4 or remov$4 or limit$4 or "not included") with (intention$2 or semantic$2 or meaning$4 or motivat$4 or detail$2) with (plurality or multiple or second) with (text or sentence$2 or paragraph$2 or response$2 or answer$2)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO	AND	OFF	2020/08/04 12:18
S8	4,183	@ad<="20180306" (classify$4 or classification$2) with (second or multiple or plurality) adj3 (voice or user$2)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO	AND	OFF	2020/08/04 13:04
S9	6,081	@ad<="20180306" (classify$4 or classification$2) with (second or multiple or plurality) adj3 (voice or user$2 or sound or audio or person$2 or client$2)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO	AND	OFF	2020/08/04 13:04
S10	6,081	@ad<="20180306" (classify$4 or classification$2) with (second or multiple or plurality) adj3 (voice or user$2 or sound or audio or person$2 or client$2)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO	AND	OFF	2020/08/04 13:12
S11	106	@ad<="20180306" (classify$4 or classification$2) with (second or multiple or plurality) adj3 (voice or sound or audio or utterance$2 or utter$4 or request$4 or question$2 or quer$4) (semantic$2 or intention$2 or meaning$4) same (response$2 or repl$4 or output$2 or action$2 or task$2 or command$2) with (text or sentence or paragraph or word$2)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO	AND	OFF	2020/08/04 14:36
S12	1	@ad<="20180306" (classify$4 or classification$2) with (second or multiple or plurality) adj3 (voice or sound or audio or utterance$2 or utter$4 or request$4 or	US-PGPUB; USPAT; USOCR;	AND	OFF	2020/08/04 15:52

		question$2 or quer$4) same (echo or whisper)	FPRS; EPO; JPO			
S13	2,431	@ad<="20180306" (classify$4 or classification$2) with (voice or sound or audio or utterance$2 or utter$4 or request$4 or question$2 or quer$4) with (type or scheme or mode or quality) (add$4 or combin$4 or includ$4 or append$4 or generat$4) with (intention$2 or meaning$2 or semantic$2 or desire$2)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO	AND	OFF	2020/08/04 16:17
S14	348	@ad<="20180306" (classify$4 or classification$2) with (voice or sound or audio or utterance$2 or utter$4 or request$4 or question$2 or quer$4) with (type or scheme or mode or quality) (add$4 or combin$4 or includ$4 or append$4 or generat$4) with (intention$2 or meaning$2 or semantic$2 or desire$2) with (response$2 or answer$2 or output$2)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO	AND	OFF	2020/08/04 16:20
S15	22,400	@ad<="20180306" (speech adj3 recognit$4 or asr or speech adj3 text) (classify$4 or classification or categori$8) same (response$2 or output$2 or text or sentence or paragraph$2 or answer$2)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO	AND	OFF	2020/08/05 13:20
S16	3,650	@ad<="20180306" (speech adj3 recognit$4 or asr or speech adj3 text) (classify$4 or classification or categori$8) same (response$2 or output$2 or answer$3) with (text or sentence or paragraph$2 or answer$2)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO	AND	OFF	2020/08/05 13:20
S17	22,765	@ad<="20180306" (speech adj3 recognit$4 or asr or speech adj3 text) (classify$4 or classification or categori$8) with$4 (response$2 or output$2 or answer$3) with (text or sentence or paragraph$2 or answer$2)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO	AND	OFF	2020/08/05 13:22
S18	1,720	@ad<="20180306" (speech adj3 recognit$4 or asr or speech adj3 text) (classify$4 or classification or categori$8) with (response$2 or output$2 or answer$3) with (text or sentence or paragraph$2 or answer$2)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO	AND	OFF	2020/08/05 13:22
S19	48	@ad<="20180306" (speech adj3 recognit$4 or asr or speech adj3 text) emotion$4 with (classify$4 or classification or categori$8) with (response$2 or output$2 or answer$3) with (text or sentence or paragraph$2 or answer$2)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO	AND	OFF	2020/08/05 13:27

S20	35	@ad<="20180306" (speech adj3 recognit$4 or asr or speech adj3 text) emotion$4 with (classify$4 or classification or categori$8) with (response$2 or output$2 or answer$3) with (text or sentence or paragraph$2 or answer$2) (response$2 or output$2 or answer$3) with (omit$4 or "leaving out" or remov$4 or replac$4 or reduc$4 or lesser or smaller or shorten or short$4 or remov$4 or limit$4 or "not included")	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO	AND	OFF	2020/08/05 13:32
S21	135	@ad<="20180306" (speech adj3 recognit$4 or asr or speech adj3 text) emotion$4 with (classify$4 or classification or categori$8) same5 (response$2 or output$2 or answer$3) with (omit$4 or "leaving out" or remov$4 or replac$4 or reduc$4 or lesser or smaller or shorten or short$4 or remov$4 or limit$4 or "not included")	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO	AND	OFF	2020/08/05 14:51
S22	5,826	@ad<="20180306" (speech adj3 recognit$4 or asr or speech adj3 text) (classify$4 or classification or categori$8) same5 (response$2 or output$2 or answer$3) with (omit$4 or "leaving out" or remov$4 or replac$4 or reduc$4 or lesser or smaller or shorten or short$4 or remov$4 or limit$4 or "not included")	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO	AND	OFF	2020/08/05 14:51
S23	256	@ad<="20180306" (speech adj3 recognit$4 or asr or speech adj3 text) emotion$4 with (classify$4 or classification or categori$8) same5 (response$2 or output$2 or answer$3) with (add$4 or combin$4 or includ$4 or additional) with (characteristic$2 or semantic$2 or meaning$2 or emotion$2 or attribute$2 or date or time or information or location)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO	AND	OFF	2020/08/05 15:04
S24	7,500	@ad<="20180306" (speech adj3 recognit$4 or asr or speech adj3 text) (classify$4 or classification or categori$8) with (voice or utterance or utter$4 or speech or audio or question$2 or quer$4 or command$2 or request$2) (response$2 or output$2 or answer$3) with (add$4 or combin$4 or includ$4 or additional) with (characteristic$2 or semantic$2 or meaning$2 or emotion$2 or attribute$2 or date or time or information or location)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO	AND	OFF	2020/08/05 15:47
S26	1,584	@ad<="20180306" (speech adj3 recognit$4 or asr or speech adj3 text) (classify$4 or classification or categori$8)	US-PGPUB; USPAT;	AND	OFF	2020/08/05 15:50

		with (voice or utterance or utter$5 or audio or question$2 or quer$4 or command$2 or request$2) (response$2 or output$2 or answer$3) with (add$4 or combin$4 or includ$4 or additional) with (characteristic$2 or semantic$2 or meaning$2 or emotion$2 or attribute$2)	USOCR; FPRS; EPO; JPO			
S27	175	@ad<="20180306" (speech adj3 recognit$4 or asr or speech adj3 text) (classify$4 or classification or categori$8) with (voice or utterance or utter$5 or audio or question$2 or quer$4 or command$2 or request$2) same (response$2 or output$2 or answer$3) with (add$4 or combin$4 or includ$4 or additional) with (characteristic$2 or semantic$2 or meaning$2 or emotion$2 or attribute$2)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO	AND	OFF	2020/08/05 15:52
S28	79	@ad<="20180306" (speech adj3 recognit$4 or asr or speech adj3 text) (classify$4 or classification or categori$8) with (voice or audio or utterance or utter$4) same (response$2 or output$2 or answer$3) with (add$4 or combin$4 or includ$4 or additional) with (characteristic$2 or semantic$2 or meaning$2 or emotion$2 or attribute$2)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO	AND	OFF	2020/08/05 15:58
S29	10	(wong-linda).xp. speech	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO	AND	OFF	2020/08/05 17:41
S30	15	(wong-linda).xp. (G06F$/$ or G10L$/$).cpc.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO	AND	OFF	2020/08/05 17:42
S31	1,058	@ad<="20180306" (speech adj3 recognit$4 or asr or speech adj3 text) (text or sentence or paragraph) with (response$2 or output$2 or answer$3) with (add$4 or combin$4 or includ$4 or additional) with (characteristic$2 or semantic$2 or meaning$2 or emotion$2 or attribute$2)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO	AND	OFF	2020/08/05 17:47
S32	625	@ad<="20180306" (speech adj3 recognit$4 or asr or speech adj3 text) (text or sentence or paragraph) near5	US-PGPUB; USPAT;	AND	OFF	2020/08/05 17:48

		(response$2 or output$2 or answer$3) with (add$4 or combin$4 or includ$4 or additional) with (characteristic$2 or semantic$2 or meaning$2 or emotion$2 or attribute$2)	USOCR; FPRS; EPO; JPO			
S33	11	@ad<="20180306" (speech adj3 recognit$4 or asr or speech adj3 text) (text or sentence or paragraph) near5 (response$2 or output$2 or answer$3) with (omit$4 or eliminat$4) with (characteristic$2 or semantic$2 or meaning$2 or emotion$2 or attribute$2)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO	AND	OFF	2020/08/06 10:29
S34	2	@ad<="20180306" (classif$4 or categori$8 or type or scheme or mode or classification$4) with voice (text or sentence or paragraph) near5 (response$2 or output$2 or answer$3) with (omit$4 or eliminat$4) with (characteristic$2 or semantic$2 or meaning$2 or emotion$2 or attribute$2)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO	AND	OFF	2020/08/06 11:39
S35	11	@ad<="20180306" (classif$4 or categori$8 or type or scheme or mode or classification$4) with (utter$4 or utterance$2 or speech or command or voice or request$4 or queries or query or question$2) (text or sentence or paragraph) near5 (response$2 or output$2 or answer$3) with (omit$4 or eliminat$4) with (characteristic$2 or semantic$2 or meaning$2 or emotion$2 or attribute$2)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO	AND	OFF	2020/08/06 11:43
S36	3,915	@ad<="20180306" (utter$4 or utterance$2 or speech or command or voice or request$4 or queries or query or question$2) with (strength or signal adj3 noise or power or energy or higher or lower or whisper or greater or lesser or volume or echo) (multiple or plurality or second) with (text or sentence or paragraph) near5 (response$2 or output$2 or answer$3)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO	AND	OFF	2020/08/06 11:59
S37	1,048	@ad<="20180306" (utter$4 or utterance$2 or speech or command or voice or request$4 or queries or query or question$2) with (strength or signal adj3 noise or power or energy or higher or lower or whisper or greater or lesser or volume or echo) (multiple or plurality or second) adj4 (text or sentence or paragraph) near5 (response$2 or output$2 or answer$3)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO	AND	OFF	2020/08/06 12:03

S38	133	@ad<="20180306" (utter$4 or utterance$2 or speech or command or voice or request$4 or queries or query or question$2) with (strength or signal adj3 noise or power or energy or higher or lower or whisper or greater or lesser or volume or echo) same (multiple or plurality or second or select$4) adj4 (text or sentence or paragraph) near5 (response$2 or output$2 or answer$3)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO	AND	OFF	2020/08/06 12:03
S39	1,775	@ad<="20180306" (multiple or plurality or second) adj3 (user$2 or person$2) same (command or utterance$2 or utter$4 or audio or voice) same (output$4 or response$2) with (text or paragraph$2 or sentence$2 or written or writ$4)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO	AND	OFF	2020/08/06 14:40
S40	1,850	@ad<="20180306" (multiple or plurality or second) adj3 (user$2 or person$2) same (command or utterance$2 or utter$4 or audio or voice) same (output$4 or response$2 or answer$2) with (text or paragraph$2 or sentence$2 or written or writ$4)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO	AND	OFF	2020/08/06 14:41
S41	1,032	@ad<="20180306" (multiple or plurality or second) adj3 (user$2 or person$2) with (command or utterance$2 or utter$4 or audio or voice) same (output$4 or response$2 or answer$2) with (text or paragraph$2 or sentence$2 or written or writ$4)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO	AND	OFF	2020/08/06 14:45
S42	285	@ad<="20180306" (multiple or plurality or second) adj3 (user$2 or person$2) same (plurality or multiple or second) adj3 (command or utterance$2 or utter$4 or audio or voice) same (output$4 or response$2 or answer$2) with (text or paragraph$2 or sentence$2 or written or writ$4)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO	AND	OFF	2020/08/06 15:44
S43	25,010	@ad<="20180306" (multiple or plurality or second) adj3 (user$2 or person$2) same (command or utterance$2 or utter$4 or audio or voice) (chat adj3 bot or chat adj3 group or virtual adj assistant or va or conversation$4 or chat adj3 message or chat or personal adj assistant)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO	AND	OFF	2020/08/06 16:18
S44	13,401	@ad<="20180306" (multiple or plurality or second) adj3 (user$2 or person$2) with (command or utterance$2 or utter$4 or audio or voice) (chat adj3 bot or chat adj3 group or virtual adj assistant or va or	US-PGPUB; USPAT; USOCR;	AND	OFF	2020/08/06 16:19

		conversation$4 or chat adj3 message or chat or personal adj assistant)	FPRS; EPO; JPO			
S45	6,280	@ad<="20180306" (multiple or plurality or second) adj3 (user$2 or person$2) with (command or utterance$2 or utter$4 or audio or voice) (chat adj3 bot or chat adj3 group or virtual adj assistant or va or conversation$4 or chat adj3 message or chat or personal adj assistant) (G10L$/$ or G06F$/$).cpc.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO	AND	OFF	2020/08/06 16:19
S46	2,329	@ad<="20180306" (multiple or plurality or second) adj3 (user$2 or person$2) with (multiple or plurality or second) adj4 (command or utterance$2 or utter$4 or audio or voice) (chat adj3 bot or chat adj3 group or virtual adj assistant or va or conversation$4 or chat adj3 message or chat or personal adj assistant) (G10L$/$ or G06F$/$).cpc.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO	AND	OFF	2020/08/06 16:22
S47	518	@ad<="20180306" (multiple or plurality or second) adj3 (user$2 or person$2) with (multiple or plurality or second) adj4 (command or utterance$2 or utter$4 or audio or voice) with input$2 (chat adj3 bot or chat adj3 group or virtual adj assistant or va or conversation$4 or chat adj3 message or chat or personal adj assistant) (G10L$/$ or G06F$/$).cpc.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO	AND	OFF	2020/08/06 16:22
S48	120	@ad<="20180306" (multiple or plurality or second) adj3 (user$2 or person$2) with (multiple or plurality or second) adj4 (voice or audio or speech) with (command or utterance$2 or utter$4 or request$2 or question$2 or quer$4) with input$2 (chat adj3 bot or chat adj3 group or virtual adj assistant or va or conversation$4 or chat adj3 message or chat or personal adj assistant) (G10L$/$ or G06F$/$).cpc.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO	AND	OFF	2020/08/06 16:30
S49	441	@ad<="20180306" (multiple or plurality or second) adj3 (user$2 or person$2) with (multiple or plurality or second) adj4 (voice or audio or speech) with (command or utterance$2 or utter$4 or request$2 or question$2 or quer$4) (chat adj3 bot or chat adj3 group or virtual adj assistant or va or conversation$4 or chat adj3 message or chat or personal adj assistant) (G10L$/$ or G06F$/$).cpc.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO	AND	OFF	2020/08/06 16:30
S50	280	@ad<="20180306" (multiple or plurality or second) adj3 (user$2 or person$2) with	US-PGPUB;	AND	OFF	2020/08/06 16:34

		(multiple or plurality or second) adj4 (voice or audio or speech) with (command or utterance$2 or utter$4 or request$2 or question$2 or quer$4) (chat adj3 bot or chat adj3 group or virtual adj assistant or va or conversation$4 or chat adj3 message or chat or personal adj assistant) (G10L$/$ or G06F$/$).cpc. (intention$2 or semantic$2 or meaning$2 or intent$2)	USPAT; USOCR; FPRS; EPO; JPO			
S51	57	@ad<="20180306" (multiple or plurality or second) adj3 (user$2 or person$2) with (multiple or plurality or second) adj4 (voice or audio or speech) with (question$2 or quer$4) (chat adj3 bot or chat adj3 group or virtual adj assistant or va or conversation$4 or chat adj3 message or chat or personal adj assistant) (G10L$/$ or G06F$/$).cpc. (intention$2 or semantic$2 or meaning$2 or intent$2)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO	AND	OFF	2020/08/06 16:50
S52	22	@ad<="20180306" (multiple or plurality or second) adj3 (user$2 or person$2) with (multiple or plurality or second) adj4 (voice or audio or speech) with (question$2 or quer$4) (G10L$/$ or G06F$/$).cpc. (intention$2 or semantic$2 or meaning$2 or intent$2) with (answer$2 or response$2)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO	AND	OFF	2020/08/06 16:51
S53	2	@ad<="20180306" (differentiate or difference$2 or category or classify$4 or classification) with (multiple or plurality or second) adj3 (user$2 or person$2) with (voice or audio or speech) with (question$2 or quer$4) (G10L$/$ or G06F$/$).cpc. (intention$2 or semantic$2 or meaning$2 or intent$2) with (answer$2 or response$2)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO	AND	OFF	2020/08/06 18:37
S54	59	@ad<="20180306" (multiple or plurality or second) adj3 (user$2 or person$2) with (voice or audio or speech) with (question$2 or quer$4) (G10L$/$ or G06F$/$).cpc. (intention$2 or semantic$2 or meaning$2 or intent$2) with (answer$2 or response$2)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO	AND	OFF	2020/08/06 18:38
S55	99	@ad<="20180306" (multiple or plurality or second) adj3 (voice or audio or speech) with (user$2 or person$2) with (question$2 or quer$4) (G10L$/$ or G06F$/$).cpc. (intention$2 or semantic$2 or meaning$2 or intent$2) with (answer$2 or response$2)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO	AND	OFF	2020/08/06 18:47

S56	43	@ad<="20180306" neural adj3 network same (multiple or plurality or second) adj3 (user$2 or person$2) (intention$2 or semantic$2 or meaning$2 or intent$2) with (answer$2 or response$2)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO	AND	OFF	2020/08/06 19:05
S57	133	@ad<="20180306" neural adj3 network same (multiple or plurality or second) adj3 (user$2 or person$2 or speaker$2 or client$2 or input$2 or audio$2 or voice$2) (intention$2 or semantic$2 or meaning$2 or intent$2) with (answer$2 or response$2)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO	AND	OFF	2020/08/06 19:05
S59	46	@ad<="20180306" neural adj3 network same (multiple or plurality or second) adj3 (user$2 or person$2 or speaker$2 or client$2) (intention$2 or semantic$2 or meaning$2 or intent$2) with (answer$2 or response$2)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO	AND	OFF	2020/08/06 19:12
S60	1,582	@ad<="20180306" (multiple or plurality or second) adj3 (voice$2 or utterance$2 or utter$4) (intention$2 or semantic$2 or meaning$2 or intent$2) with (answer$2 or response$2)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO	AND	OFF	2020/08/07 09:36
S61	221	@ad<="20180306" (multiple or plurality or second) adj3 (voice$2 or utterance$2 or utter$4) (intention$2 or semantic$2 or meaning$2 or intent$2) with (answer$2 or response$2) (chat adj2 bot$2 or chat adj2 group$2 or virtual adj assistant$2 or virtual adj agent$2)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO	AND	OFF	2020/08/07 09:37
S62	0	@ad<="20180306" (voice$2 or utterance$2 or utter$4) with whisper (intention$2 or semantic$2 or meaning$2 or intent$2) with (answer$2 or response$2) (chat adj2 bot$2 or chat adj2 group$2 or virtual adj assistant$2 or virtual adj agent$2)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO	AND	OFF	2020/08/07 12:02
S63	10	@ad<="20180306" (voice$2 or utterance$2 or utter$4) with whisper (intention$2 or semantic$2 or meaning$2 or intent$2) (multiple or plurality) adj4 (answer$2 or response$2)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO	AND	OFF	2020/08/07 12:02
S64	293,421	@ad<="20180306" (voice$2 or utterance$2 or utter$4 or speech or voice adj3 command or request$2 or question$2 or quer$4 or audio or sound) with (tone or intensity or volume or signal adj3 strength	US-PGPUB; USPAT; USOCR;	AND	OFF	2020/08/07 12:43

		or rssi or signal adj3 noise or power or energy) same (response$2 or answer$2 or output$2)	FPRS; EPO; JPO			
S65	154,930	@ad<="20180306" (voice$2 or utterance$2 or utter$4 or speech or voice adj3 command or request$2 or question$2 or quer$4 or audio or sound) with (tone or intensity or volume or signal adj3 strength or rssi or signal adj3 noise or power or energy) same (sentence or paragraph or word$2 or response$2 or answer$2)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO	AND	OFF	2020/08/07 12:43
S66	3,185	@ad<="20180306" (voice$2 or utterance$2 or utter$4 or speech or voice adj3 command or request$2 or question$2 or quer$4 or audio or sound) with (tone or intensity or volume or signal adj3 strength or rssi or signal adj3 noise or power or energy) same (classify$4 or classificat$4 or categor$4) same (sentence or paragraph or word$2 or response$2 or answer$2)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO	AND	OFF	2020/08/07 12:44
S67	1,202	@ad<="20180306" (voice$2 or utterance$2 or utter$4 or speech or voice adj3 command or request$2 or question$2 or quer$4 or audio or sound) with (tone or intensity or volume or signal adj3 strength or rssi or signal adj3 noise or power or energy) with (classify$4 or classificat$4 or categor$4) same (sentence or paragraph or word$2 or response$2 or answer$2)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO	AND	OFF	2020/08/07 12:45
S68	1	@ad<="20180306" (voice$2 or utterance$2 or utter$4 or speech or voice adj3 command or request$2 or question$2 or quer$4 or audio or sound) semantic$4 with intent$5 same (characteristic$2 or content$2 or attribute$2) same (notif$5)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO	AND	OFF	2020/08/07 15:58
S69	114	@ad<="20180306" (voice$2 or utterance$2 or utter$4 or speech or voice adj3 command or request$2 or question$2 or quer$4 or audio or sound) semantic$4 with intent$5 same (characteristic$2 or content$2 or attribute$2) same (response $2 or sentence$2)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO	AND	OFF	2020/08/07 16:00
S70	125	@ad<="20180306" (voice$2 or utterance$2 or utter$4 or speech or voice adj3 command or request$2 or question$2 or quer$4 or audio or sound) semantic$4 with intent$5 same (characteristic$2 or content$2 or attribute$2) same (response $2 or sentence$2 or answer$2)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO	AND	OFF	2020/08/07 16:00

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8/16/2020 5:25:00 PM
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Bibliographic Data

Application No: 16/290,983

Foreign Priority claimed: (•) Yes ( ) No

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

Verified and Acknowledged: /LINDA WONG/ Examiner's Signature | Initials

Title: VOICE-CONTENT CONTROL DEVICE, VOICE-CONTENT CONTROL METHOD, AND NON-TRANSITORY STORAGE MEDIUM

FILING or 371(c) DATE	CLASS	GROUP ART UNIT	ATTORNEY DOCKET NO.
03/04/2019	704	2656	SAJVP171US
RULE			

APPLICANTS

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INVENTORS

Tatsumi Naganuma, Yokohama-shi, JAPAN

CONTINUING DATA

FOREIGN APPLICATIONS

JAPAN JP2018-039754 03/06/2018

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(Not for submission under 37 CFR 1.99)

Application Number	16290983
Filing Date	2019-03-04
First Named Inventor	Naganuma
Art Unit	
Examiner Name	
Attorney Docket Number	SAJVP171US

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	Application Number	
	Filing Date	2019-03-04
	First Named Inventor	Naganuma
	Art Unit	
	Examiner Name	
	Attorney Docket Number	SAJVP171US

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INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	
	Filing Date	2019-03-04
	First Named Inventor	Naganuma
	Art Unit	
	Examiner Name	
	Attorney Docket Number	SAJVP171US

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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

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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)	2019-03-04
Name/Print	Gregory Turocy	Registration Number	36952

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【書類名】明細書
【発明の名称】音声内容制御装置、音声内容制御方法、及び音声内容制御プログラム
【技術分野】
【０００１】
本発明は、音声内容制御装置、音声内容制御方法、及び音声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】
しかし、音声を出力する音声処理装置を用いる場合、ユーザ以外の周囲にいる人にもその音声が聞こえてしまう場合がある。例えば周囲にいる人が寝ている際には、その音声が迷惑となるおそれがある。このような場合、出力する音声自体を小さくしてもよいが、小さくし過ぎると、ユーザ自身にもその音声が聞こえ難くなり、内容が理解できなくなるおそれがある。従って、ユーザに音声を出力する場合に、ユーザ以外への影響を抑えつつ、ユーザに出力する音声の内容を適切に理解可能とすることが求められている。
【０００５】
本発明は、上記課題を鑑み、ユーザに音声を出力する場合に、ユーザ以外への影響を抑えつつ、ユーザに出力する音声の内容を適切に理解可能とする音声内容制御装置、音声内容制御方法、及び音声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音声内容制御装置は、音声取得部が取得したユーザが発する音声を解析して、前記音声を、第１音声と第２音声とのいずれかに分類する音声分類部と、前記音声取得部が取得した音声を解析して、前記ユーザが要求する処理を実行する処理実行部と、前記処理実行部が実行した処理内容に基づき、前記ユーザに向けて出力する音声用の文章データである出力文章を生成する音声内容生成部と、を有し、前記音声内容生成部は、前記第１音声と分類された場合に、前記出力文章として第１出力文章を生成し、前記第２音声と分類された場合に、前記第１出力文章と比べて情報が省略される第２出力文章を、前記出力文章として生成する。
【０００７】
本発明の一態様にかかる音声内容制御方法は、ユーザが発する音声を取得する音声取得ステップと、前記音声取得ステップで取得した音声を解析して、前記音声を、第１音声と第２音声とのいずれかに分類する音声分類ステップと、前記音声取得ステップで取得した音声を解析して、前記ユーザが意図した処理を実行する処理実行ステップと、前記処理実行ステップで実行した処理内容に基づき、前記ユーザに向けて出力する音声用の文章データである出力内容を生成する音声内容生成ステップと、を有し、前記音声内容生成ステップにおいて、前記第１音声と分類された場合に、前記出力文章として第１出力文章を生成し、前記第２音声と分類された場合に、前記前記第１出力文章に含まれる情報の一部が省略される第２出力文章を生成する。
【０００８】

本発明の一態様にかかる音声内容制御プログラムは、ユーザが発する音声を取得する音声取得ステップと、前記音声取得ステップで取得した音声を解析して、前記音声を、第１音声と第２音声とのいずれかに分類する音声分類ステップと、前記音声取得ステップで取得した音声を解析して、前記ユーザが意図した処理を実行する処理実行ステップと、前記処理実行ステップで実行した処理内容に基づき、前記ユーザに向けて出力する音声用の文章データである出力内容を生成する音声内容生成ステップと、をコンピュータに実行させ、前記音声内容生成ステップにおいて、前記第１音声と分類された場合に、前記出力文章として第１出力文章を生成し、前記第２音声と分類された場合に、前記前記第１出力文章に含まれる情報の一部が省略される第２出力文章を生成する。

【発明の効果】

【０００９】

本発明によれば、ユーザに音声を出力する場合に、ユーザ以外への影響を抑えつつ、ユーザに出力する音声の内容を適切に理解可能とすることができる。

【図面の簡単な説明】

【００１０】

【図１】図１は、第１実施形態に係る音声内容制御装置の模式図である。

【図２】図２は、第１実施形態に係る音声内容制御装置の模式的なブロック図である。

【図３】図３は、属性情報の一例を説明する表である。

【図４】図４は、取得情報を説明するための表である。

【図５】図５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６】図６は、出力文章の出力処理のフローの他の例を示すフローチャートである。

【図７】図７は、第２実施形態に係る音声処理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実施形態に係る音声内容制御装置の模式図である。図１に示すように、第１実施形態に係る音声内容制御装置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、音声内容制御装置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。その人が寝ている際などには、音声Ｖ２が、その人の迷惑となるおそれがある。本実施形態に係る音声内容制御装置１は、音声Ｖ１を解析して、音声Ｖ２として出力される文章を調整することで、音声Ｖ２のユーザＨ以外への影響を抑えつつ、ユーザＨが音声Ｖ２の内容を適切に理解可能としている。

【００１３】

図２は、第１実施形態に係る音声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、音声内容制御装置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。音声内容制御装置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。音声内容制御装置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、音声内容制御装置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（Laser 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Ｗｉ―Ｆｉ（登録商標）モジュール、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、Ｗｉ―Ｆｉなどの無線通信により外部サーバと情報の送受信を行うが、ケーブルなどと接続することで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、処理実行部３４と、音声内容生成部３６と、音声分類部３８と、出力制御部４０とを有する。音声取得部３０と、音声解析部３２と、処理実行部３４と、音声内容生成部３６と、音声分類部３８と、出力制御部４０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、時間毎の振幅や波長などによる音声波形を検出する。そして、音声解析部３２は、音声波形と、文字との関係を記憶したテーブルに基づき、時間毎の音声波形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】

処理実行部３４は、音声解析部３２が生成したテキストデータに基づき、音声Ｖ１に含まれた、音声内容制御装置１に実行して欲しい処理内容の情報を検出し、その処理を実行する。処理実行部３４は、意図解析部５０と、処理部５２とを有する。

【００１８】

意図解析部５０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を抽出し、意図情報Ｉに基づき、属性情報Ｅを抽出する。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。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が意図する処理を実行する際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。

【００１９】

まず、意図情報Ｉの抽出処理について説明する。意図情報Ｉ、すなわちインテントは、言い換えれば、ユーザＨが、音声内容制御装置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る。換言すれば、意図情報Ｉとは、ユーザＨが音声内容制御装置１に対してどのような処理を行うことを要求しているかの情報である。意図解析部５０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を抽出する。本実施形態では、意図解析部５０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を抽出する。ここでの教師ありデータは、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５０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、教師ありデータは、記憶部２０に記憶されていなくてもよく、意図解析部５０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５０は、テキストデータから意図情報Ｉを抽出するものであれば、意図情報Ｉの抽出方法は任意である。例えば、意図解析部５０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。

【００２０】

例えばテキストデータが「今日の天気は」という文章である場合、意図解析部５０は、上述のような解析を行って、天気情報をユーザ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。また、意図解析部５０は、例えばテキストデータが「照明をつけて」という文章である場合、上述のような解析を行って、照明の電源をオンにするという処理が、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。このように、意図情報Ｉは、要求された情報を通知する旨の情報と、要求されたように機器を制御する旨の情報とに分類される。

【００２１】

なお、テキストデータによる意図情報Ｉの抽出方法は、これに限られず任意である。例えば、音声内容制御装置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５０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。

【００２２】

次に、属性情報Ｅについて説明する。図３は、属性情報の一例を説明する表である。属性情報Ｅ、すなわちエンティティは、意図情報Ｉとして抽出されたユーザＨの要求する処理を実行する際に必要とされる条件、すなわちパラメータである。例えば、意図情報Ｉが、天気情報である場合、属性情報Ｅは、どこの天気情報であるかを示す場所の情報と、いつの天気情報であるかを示す日時の情報とを含む。さらに言えば、図３に示すように、属性情報Ｅは、属性パラメータＥ０と、属性内容Ｅ１との情報を含む。属性パラメータＥ０は、パラメータの種類、すなわちどのような条件であるかを示す情報であり、属性内容Ｅ１は、その属性パラメータＥ０の内容を指す。すなわち、属性情報Ｅが場所の情報の場合、属性パラメータＥ０は、条件が場所である旨の情報であり、属性内容Ｅ１は、場所が東京である旨の情報である。また、属性情報Ｅが日時の情報の場合、属性パラメータＥ０は、条件が日時である旨の情報であり、属性内容Ｅ１は、日時がＸ年Ｙ月Ｚ日である旨の情報である。

【００２３】

本実施形態では、意図解析部５０は、抽出した意図情報Ｉに基づき、属性情報Ｅを抽出する。より詳しくは、意図解析部５０は、抽出した意図情報Ｉから、属性パラメータＥ０を選択して抽出する。意図解析部５０は、記憶部２０に記憶されている意図情報Ｉと属性パラメータＥ０との関係テーブルを読み出し、関係テーブルから、抽出した意図情報Ｉと一致する意図情報Ｉを検出する。そして、意図解析部５０は、一致する意図情報Ｉと紐付けられた属性パラメータＥ０を抽出する。ただし、意図解析部５０は、通信部１８を介して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。

【００２４】

意図解析部５０は、属性パラメータＥ０を抽出したら、属性パラメータＥ０毎に、属性内容Ｅ１を設定する。意図解析部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Ｅ１を抽出する。すなわち、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、日時の属性パラメータＥ０の属性内容Ｅ１を本日に設定する。ま

た、意図解析部５０は、属性パラメータＥ０に対する属性内容Ｅ１を予め設定していてもよい。例えば、記憶部２０に、予め、意図情報Ｉが天気情報である場合、場所の属性内容Ｅ１が、東京である旨の設定データを記憶させておく。このようにしておけば、テキストデータに場所を示すキーワードが含まれない場合でも、意図解析部５０は、場所の属性内容Ｅ１を東京として設定可能である。また、意図解析部５０は、通信部１８によって外部サーバと通信して属性内容Ｅ１を設定してもよい。この場合、例えば、意図解析部５０は、ＧＰＳ（位置情報測位システム）などの通信により現在の場所を取得し、それを属性内容Ｅ１として設定する。

【００２５】

意図解析部５０は、以上のようにして、意図情報Ｉと属性情報Ｅとを抽出するが、意図情報Ｉと属性情報Ｅとの抽出方法は、上記に限られず任意である。なお、図３は、天気情報が意図情報Ｉの場合であるが、他の場合でも同様に意図情報Ｉと属性情報Ｅとを抽出可能である。例えば、照明の電源をオンにするという情報が意図情報Ｉである場合、属性情報Ｅは、照明の場所の情報と、いつ電源をオンにするかという日時の情報とを含む。

【００２６】

図２に戻り、処理部５２は、意図情報Ｉの内容に基づき、ユーザが要求する処理を実行する。処理部５２は、意図情報Ｉが機器を制御する旨である場合、意図情報Ｉの内容の処理を実行する。例えば、処理部５２は、属性情報Ｅで示された場所の照明の電源をオンにする。

【００２７】

図４は、取得情報を説明するための表である。処理部５２は、意図情報Ｉが要求された情報を通知する旨である場合、要求された情報、すなわち取得情報Ａを取得する。取得情報Ａとは、ユーザＨに通知するための情報であり、言い換えれば、ユーザＨが通知を求めている情報であると処理実行部３４によって判断された情報である。処理部５２は、意図解析部５０が抽出した意図情報Ｉに基づき、取得情報Ａを取得する。より詳しくは、処理部５２は、抽出した意図情報Ｉから、取得パラメータＡ０を選択して抽出する。処理部５２は、記憶部２０に記憶されている意図情報Ｉと取得パラメータＡ０との関係テーブルを読み出し、抽出した意図情報Ｉと一致する意図情報Ｉを、関係テーブルから検出する。そして、処理部５２は、一致する意図情報Ｉと紐付けられた取得パラメータＡ０を抽出する。ただし、処理部５２は、通信部１８を介して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】

処理部５２は、取得パラメータＡ０を抽出したら、属性情報Ｅに基づき、取得パラメータＡ０毎に、取得内容情報Ａ１を取得する。具体的には、処理部５２は、属性パラメータＥ０が設定した属性内容Ｅ１となる場合の取得内容情報Ａ１を、取得パラメータＡ０毎に取得する。処理部５２は、通信部１８によって外部サーバ（外部機器）と通信して、取得パラメータＡ０毎に、外部サーバから、取得内容情報Ａ１を取得する。ただし、処理部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を取得してもよい。すなわち、取得内容情報Ａ１とは、処理部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】

このように、取得内容情報Ａ１は、処理部５２が、外部サーバとの通信、又は、記憶部２０からの読出しにより取得した情報である。図４の例では、意図情報Ｉが天気であり、取得パラメータＡ０が、天気、気温、及び降水確率である。この場合、処理部５２は、Ｘ年Ｙ月Ｚ日の東京における、天気、気温、及び降水確率の各取得パラメータＡ０に対する取得内容情報Ａ１を取得する。図４の例では、天気についての取得内容情報Ａ１が、「晴れ時々曇り」であり、気温についての取得内容情報Ａ１が、「最高気温：２５度、最低気温：１５度」であり、降水確率についての取得内容情報Ａ１が、「２０％」である。

【００３０】

以上のように、処理部５２は、取得パラメータＡ０毎の取得内容情報Ａ１を、属性情報

Ｅに基づき取得する。なお、本実施形態では、意図情報Ｉに、複数の取得パラメータＡ０が紐付けられていた。ただし、意図情報Ｉに１つの取得パラメータＡ０が紐付けられてもよい。この場合、意図情報Ｉそのものが、取得パラメータＡ０であるといえる。

【００３１】

図２に戻り、音声内容生成部３６は、処理部５２が取得した取得内容情報Ａ１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。音声内容生成部３６は、出力文章として第１出力文章を生成する第１出力文章生成部６０と、出力文章として第２出力文章を生成する第２出力文章生成部６２とを有する。第１出力文章生成部６０と第２出力文章生成部６２とを説明する前に、音声分類部３８について説明する。

【００３２】

音声分類部３８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。本実施形態では、音声分類部３８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２音声Ｖ１Ｂに分類する。そして、音声分類部３８は、音声Ｖ１がささやき声でない場合、その音声Ｖ１を第１音声Ｖ１Ａ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２音声Ｖ１Ｂ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。

【００３３】

例えば、音声分類部３８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３８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３８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２音声Ｖ１Ｂ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１音声ＶＢであると分類する。ただし、音声分類部３８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３８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３８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、音声内容制御装置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と音声内容制御装置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３８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３８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。

【００３４】

このように、音声分類部３８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３８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２音声Ｖ１Ｂに分類し、音声Ｖ１がささやき声でない場合は、第１音声Ｖ１Ａに分類する。

【００３５】

また、音声分類部３８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３８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３８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２音声Ｖ１Ｂ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１音声Ｖ１Ａであると分類してもよい。

【００３６】

音声分類部３８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。

【００３７】

音声内容生成部３６は、音声分類部３８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出力文章生成部６０に、第１出力文章を生成させる。すなわち、音声内容生成部３６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出力文章生成部６０は、処理実行部３４に取得された意図情報Ｉと属性情報Ｅ(より詳しくは属性内容Ｅ１)と取得情報Ａとの全ての情報を含む文章を、第１出力文章として生成する。すなわち、第１出力文章とは、処理実行部３４に取得された意図情報Ｉと属性内容Ｅ１と取得情報Ａとを全て含むテキストデータである。

【００３８】

図３及び図４の例では、意図情報Ｉが、「天気」であり、属性内容Ｅ１が、「Ｘ年Ｙ月Ｚ日」、「東京」である。そして、取得情報Ａのうち、取得パラメータＡ０が、「天気」、「気温」、「降水確率」であり、取得内容情報Ａ１が、「晴れ時々曇り」、「最高気温：２５度、最低気温：１５度」、「２０％」である。この場合、第１出力文章生成部６０は、例えば、「Ｘ年Ｙ月Ｚ日の東京の天気は晴れ時々曇り、降水確率は２０％、最高気温は２５度、最低気温は１５度です」という文章を、第１出力文章として生成する。意図情報Ｉと属性内容Ｅ１と取得情報Ａとは、それぞれ個別の情報である。第１出力文章生成部６０は、第１出力文章を、意図情報Ｉと属性内容Ｅ１と取得情報Ａとを含む文章とするために、第１出力文章に情報を加える。すなわち、第１出力文章生成部６０は、意図情報Ｉ、属性内容Ｅ１、及び取得情報Ａ以外の情報（単語）を、第１出力文章に加えている。この加える情報（単語）としては、日本語であれば「です」などの丁寧語や、「は」などの助詞などであり、英語であれば冠詞などである。以下、この情報を、文章用情報とする。

【００３９】

一方、音声内容生成部３６は、音声分類部３８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出力文章生成部６２に、第２出力文章を生成させる。すなわち、音声内容生成部３６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出力文章生成部６２は、第１出力文章に比べて、情報の一部が省略されるように文章を生成することで、第２出力文章を生成する。従って、第２出力文章は、第１出力文章よりも、文章量が少なくなる。さらに言えば、同じ意図情報Ｉと属性情報Ｅと取得情報Ａとに基づき第１出力文章と第２出力文章とを生成したと仮定した場合、第２出力文章は、第１出力文章に比べて含まれる情報が省略されるため、第１出力文章よりも文章量が少なくなる。

【００４０】

具体的には、第２出力文章生成部６２は、処理実行部３４が取得した意図情報Ｉ、属性内容Ｅ１、及び取得情報Ａと、第１出力文章を生成する場合に加えられた文章用情報との、少なくともいずれかが含まれないように、第２出力文章を生成する。言い換えれば、第２出力文章生成部６２は、同じ意図情報Ｉと属性情報Ｅと取得情報Ａとに基づき第１出力文章を生成したと仮定した場合に、第１出力文章に含まれた意図情報Ｉと属性内容Ｅ１と取得情報Ａと文章用情報との少なくともいずれかを省略して、第２出力文章を生成する。

【００４１】

意図情報Ｉを含めない場合、すなわち意図情報Ｉを省略する場合、例えば、第２出力文章は、意図情報Ｉである「天気」が省略され、「Ｘ年Ｙ月Ｚ日の東京は晴れ時々曇り、降水確率は２０％、最高気温は２５度、最低気温は１５度です」となる。ユーザＨは、意図情報Ｉが尋ねたい情報の種類であるため、その意図情報Ｉが省略されても、内容を把握す

ることができる。
【００４２】
また、属性内容Ｅ１を含めない、すなわち属性内容Ｅ１を省略する場合、例えば、第２出力文章は、属性内容Ｅ１である「Ｘ年Ｙ月Ｚ日」と「東京」が省略され、「天気は晴れ時々曇り、降水確率は２０％、最高気温は２５度、最低気温は１５度です」となる。ユーザＨは、通常であれば、属性内容Ｅ１を音声Ｖ１に含めているので、属性内容Ｅ１が省略されても、内容を把握することができる。言い換えれば、第２出力文章生成部６２は、音声Ｖ１に含まれる情報を、省略する情報、すなわち第２出力文章に含めない情報として、選択してよい。すなわち、第２出力文章生成部６２は、ユーザＨが発する音声Ｖ１に含まれる情報を、省略される情報の一部とする。また、例え属性内容Ｅ１が音声Ｖ１に含まれていなくても、属性内容Ｅ１は、記憶部２０に設定データとして記憶されている場合がある。この場合、ユーザＨは、属性内容Ｅ１が設定データ、すなわちデフォルトのデータとして設定されていることを認識しているため、属性内容Ｅ１が含まれなくても、内容を理解することができる。なお、属性内容Ｅ１が複数ある場合、第２出力文章生成部６２は、全ての属性内容Ｅ１を省略してもよいし、一部の属性内容Ｅ１だけを省略してもよい。
【００４３】
また、文章用情報を含めない、すなわち文章用情報を省略する場合、例えば、第２出力文章は、文章用情報である単語が省略され、「Ｘ年Ｙ月Ｚ日の東京の天気は晴れ時々曇り、降水確率は２０％、最高気温は２５度、最低気温は１５度」となる。すなわち、例えば日本語の場合は、例えば文章用情報として丁寧語が省略され、例えば英語の場合は、冠詞が省略される。
【００４４】
一方、取得情報Ａは、ユーザＨが尋ねたい情報であるため、意図情報Ｉと属性内容Ｅ１と文章用情報とに比べ、省略しないことが望ましい。特に、取得内容情報Ａ１は、ユーザＨに提供するデータそのものであるため、省略しないことが望ましい。すなわち、第２出力文章生成部６２は、取得内容情報Ａ１以外の情報から省略する情報を選択して、第２出力文章を生成することが望ましい。さらに言えば、第２出力文章生成部６２は、取得内容情報Ａ１を省略する情報として選択せず、取得内容情報Ａ１を第２出力文章に含ませることが望ましい。このように、第２出力文章に含めない情報を、取得内容情報Ａ１以外の情報から選択し、第２出力文章に含めない情報として取得内容情報Ａ１を選択しないことで、ユーザＨに内容を把握させつつ、文章量を適切に少なくすることができる。
【００４５】
ただし、第２出力文章生成部６２は、取得情報Ａを省略することもあり、その場合について以下で説明する。例えば、第２出力文章生成部６２は、取得情報Ａのうちの取得パラメータＡ０を、省略する情報として選択してもよい。この場合、第２出力文章は、取得パラメータＡ０である「天気」、「降水確率」、「気温（最高気温、最低気温）」、「降水確率」が省略され、「「Ｘ年Ｙ月Ｚ日の東京は晴れ時々曇り、２０％、１５度から２５度です」」となる。取得パラメータＡ０は、ユーザＨが尋ねたい取得内容情報Ａ１に紐づいた情報であるため、取得内容情報Ａ１が通知されれば、ユーザＨは、どの取得パラメータＡ０に対する取得内容情報Ａ１であるかを認識することができる。
【００４６】
より具体的には、第２出力文章生成部６２は、取得内容情報Ａ１が単位を含んだ数値情報である場合、その取得内容情報Ａ１に紐づいた取得パラメータＡ０、すなわち数値情報の種類を示す情報を、省略する情報として選択する。取得内容情報Ａ１が単位を含んでいる場合、ユーザＨは、その単位から、取得パラメータＡ０を認識することができる。
【００４７】
また、第２出力文章生成部６２は、取得内容情報Ａ１が数値範囲を示す情報である場合、その取得内容情報Ａ１に紐づいた取得パラメータＡ０を、省略する情報として選択する。この場合の省略される取得パラメータＡ０は、数値範囲のうちの最大値であることを示す情報（この例では「最高気温」）と数値範囲のうちの最小値であることを示す情報（こ

の例では「最低気温」）とである。

【００４８】

また、第２出力文章生成部６２は、取得内容情報Ａ１に開始と終了とを示す情報である場合、その取得内容情報Ａ１に紐づいた取得パラメータＡ０を、省略する情報として選択する。開始と終了とを示す情報とは、例えば、乗車駅が東京駅で、到着駅が横浜駅である場合の情報である。この場合、東京駅が開始を示す情報で、横浜駅が終了を示す情報である。この場合、例えば第１出力文章は、「乗車駅は東京駅で、降車駅は横浜駅です」となるが、第２出力文章は、取得パラメータＡ０である「乗車駅」と「降車駅」とが省略され、「東京駅から横浜駅です」となる。すなわち、この場合、取得パラメータＡ０である「乗車駅」が、開始に該当する取得内容情報Ａ１が開始であることを示す情報であり、取得パラメータＡ０である「降車駅」が、終了に該当する取得内容情報Ａ１が終了であることを示す情報であるといえる。以上のような場合でも、第２出力文章は、「ＡからＢまで」という取得内容情報Ａ１は含まれているので、取得パラメータＡ０が省略されても、ユーザＨが内容を把握することができる。

【００４９】

また、第２出力文章生成部６２は、複数の意図情報Ｉや、複数の取得内容情報Ａ１が取得された場合、一部の取得内容情報Ａ１を省略する情報として選択してもよい。例えば、第２出力文章生成部６２は、複数の意図情報Ｉが抽出された場合、いずれかの意図情報Ｉに属する取得内容情報Ａ１を、省略する。例えば、第２出力文章生成部６２は、文章とした場合に文章量が多くなる意図情報Ｉに属する取得内容情報Ａ１を、優先度の低い情報として、省略する。例えば、音声Ｖ１が「おはよう」である場合に、意図情報Ｉとして天気とニュースとを抽出するように設定されていたケースを説明する。このケースでは、第２出力文章生成部６２は、天気に関する出力文章よりもニュースに関する出力文章が長くなる場合、ニュースに関する取得内容情報Ａ１を省略し、天気に関する取得内容情報Ａ１を残す。

【００５０】

また、第２出力文章生成部６２は、１つの意図情報Ｉに対して複数の取得内容情報Ａ１が取得された場合にも、いずれかの取得内容情報Ａ１を省略してもよい。例えば、第２出力文章生成部６２は、意図情報Ｉが渋滞の情報を通知するものである場合、取得内容情報Ａ１は、場所ごとの渋滞情報となる。この場合、第２出力文章生成部６２は、例えば現在位置から遠い場所の渋滞情報や、渋滞の規模が小さい場所の渋滞情報など、重要度の低い渋滞情報（取得内容情報Ａ１）を、優先度の低い情報として、省略する。

【００５１】

このように、第２出力文章生成部６２は、複数の取得内容情報Ａ１があり、複数の取得内容情報Ａ１のうちの一部を省略する場合は、優先度の低い取得内容情報Ａ１を、省略する情報として選択する。第２出力文章生成部６２は、優先度を予め設定して記憶部２０に記憶させておき、その優先度に基づき、優先度の低い取得内容情報Ａ１を選択する。すなわち、例えば、文章量が少ないことを優先度が高いものとしたり、現在位置から近い渋滞情報を、優先度が高いものとしたりして、記憶させておく。

【００５２】

第２出力文章生成部６２は、以上のように、意図情報Ｉと属性内容Ｅ１と取得情報Ａと文章用情報との少なくともいずれかを省略して、第２出力文章を生成する。すなわち、意図情報Ｉと属性内容Ｅ１と取得情報Ａと文章用情報とは、省略可能な情報といえる。第２出力文章生成部６２は、以上で説明した省略可能な情報を、全て省略する情報として選択してもよいし、省略可能な情報のうちの一部のみを省略してもよい。例えば、音声内容制御装置１は、省略可能な情報のうち、実際に省略する情報を、予め設定しておく。例えば、意図情報Ｉと属性内容Ｅ１とを省略する情報として設定された場合、第２出力文章生成部６２は、第２出力文章を生成する際には、意図情報Ｉと属性内容Ｅ１との種類を問わず、常に意図情報Ｉと属性内容Ｅ１とを省略する。また、音声内容制御装置１は、実際に省略する情報の種類を示すテーブルを、記憶部２０に記憶させていてもよい。この場合、例

えば、省略される意図情報Ｉ（例えば天気など）と、省略されない情報（例えば時刻など）とが区分されるため、情報の種類に応じて、省略する情報を適切に選択することができる。

【００５３】

音声内容生成部３６は、以上のように、出力文章を生成する。以上の説明は、意図情報Ｉが情報を通知する旨の内容である場合の出力文章の生成方法である。意図情報Ｉが機器を制御する旨の内容である場合も、音声内容生成部３６は、同様に、第１出力文章よりも情報が省略されるように、第２出力文章を生成する。この場合、音声内容生成部３６は、処理部５２による制御（例えば照明の電源をオンにする制御）を実行した後に、その制御の実行状況を説明する文章を、出力文章として生成する。より詳しくは、音声内容生成部３６は、第１音声Ｖ１Ａであると分類された場合に、第１出力文章として、「はい、処理を受け付けました」というテキストデータを生成する。すなわち、第１出力文章は、「はい」などの返答の情報と、「処理を受け付けました」などの、返答の情報に後続する文の情報とを含む。一方、音声内容生成部３６は、第２音声Ｖ１Ｂであると分類された場合に、第２出力文章として、「はい」というテキストデータを生成する。すなわち、この場合、第２出力文章は、返答の情報を含み、返答の情報に後続する文の情報が省略される。従って、この場合でも、音声内容生成部３６は、第２音声Ｖ１Ｂであると分類された場合には、第１出力文章が生成された場合に含まれる一部の情報を省略しているといえる。

【００５４】

図２に戻り、出力制御部４０は、音声内容生成部３６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４０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。出力制御部４０は、音量を調整するスイッチで同じ音量に設定されていた場合、第１出力文章を読む音声Ｖ２の音量と、第２出力文章を読む音声Ｖ２の音量とを、同じ音量とする。すなわち、出力制御部４０は、第１出力文章と第２出力文章とで、音声Ｖ２の音量を変えない。ただし、出力制御部４０は、第１出力文章と第２出力文章とで、音声Ｖ２の音量を変えてもよい。また、出力制御部４０は、音声Ｖ２を出力する際や、処理部５２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。

【００５５】

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５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５の示すように、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５０により、テキストデータから、意図情報Ｉと属性情報Ｅとを抽出する（ステップＳ１４）。意図情報Ｉと属性情報Ｅとを抽出したら、制御部１６は、処理部５２により、意図情報Ｉに即した処理を実行するか、意図情報Ｉに則した取得情報を取得するかの、いずれかを行う（ステップＳ１６）。すなわち、処理部５２は、意図情報Ｉが機器を制御する旨の内容である場合、意図情報Ｉと属性情報Ｅとで規定された内容の処理（例えば照明の電源をオンにする）を実行する。一方、処理部５２は、意図情報Ｉが情報を通知する旨の内容である場合、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。具体的には、処理部５２は、意図情報Ｉと属性情報Ｅとに基づき、取得パラメータＡ０を抽出し、取得パラメータＡ０毎に、取得内容情報Ａ１を取得する。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３８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Ｓ１８）。

【００５６】

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Ｓ２０）、第１

音声Ｖ１Ａである場合（ステップＳ２０；Ｙｅｓ）、第１出力文章生成部６０により、第１出力文章を生成する（ステップＳ２２）。一方、制御部１６は、第１音声Ｖ１Ａでない場合（ステップＳ２０；Ｎｏ）、すなわち第２音声Ｖ１Ｂである場合、第２出力文章生成部６２により、第２出力文章を生成する（ステップＳ２４）。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４０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Ｓ２６）、処理を終了する。すなわち、出力制御部４０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４０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。

【００５７】

本実施形態に係る音声内容制御装置１は、音声分類部３８と、処理実行部３４と、音声内容生成部３６とを有する。音声分類部３８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を、第１音声Ｖ１Ａと第２音声Ｖ１Ｂとのいずれかに分類する。処理実行部３４は、音声取得部３０が取得した音声Ｖ１を解析して、ユーザが要求する処理を実行する。音声内容生成部３６は、処理実行部３４が実行した処理内容に基づき、ユーザＨに向けて出力する音声Ｖ２用の文章データ（テキストデータ）である出力文章を生成する。音声内容生成部３６は、第１音声Ｖ１Ａと分類された場合に、出力文章として第１出力文章を生成する。音声内容生成部３６は、第２音声Ｖ１Ｂと分類された場合に、第１出力文章と比べて情報の一部が省略される第２出力文章を、出力文章として生成する。さらに本実施形態では、音声内容生成部３６は、第２音声Ｖ１Ｂと分類された場合に、第１出力文章と比べて情報の一部が省略されるように文章を生成することで、第１出力文章よりも文章量が少ない第２出力文章を、出力文章として生成する。

【００５８】

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、音声内容制御装置１の周囲にいるユーザＨ以外の人にも届く場合がある。ユーザＨは、周りの人に音声Ｖ２による影響を与えたくないと判断した場合は、ささやき声で音声Ｖ１を発したりするなど、音声Ｖ２による影響を与えてもよい判断した場合に対し、同じ内容を伝える場合であっても、音声Ｖ１を変化させる。音声内容制御装置１は、ユーザの音声Ｖ１を解析して、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以外の人への影響を考慮しなくてもよいと判断して、音声Ｖ２用に、第１出力文章を生成する。一方、音声内容制御装置１は、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以外の人への影響を考慮する必要があると判断して、音声Ｖ２用に、第１出力文章より文章量が少ない第２出力文章を生成する。これにより、音声内容制御装置１は、ユーザＨ以外の人への影響を考慮する必要がある場合に、音声Ｖ２として発される文章量を少なくすることができ、音声Ｖ２が出力される長さを短くして、ユーザＨ以外の人への影響を抑制する。さらに、音声内容制御装置１は、情報の一部を省略して第２出力文章を生成するため、省略する情報を調整することで、ユーザＨが、音声Ｖ２の内容、すなわち第２出力文章の内容を、適切に理解可能とすることができる。

【００５９】

また、処理実行部３４は、音声Ｖ１に基づき、ユーザＨの意図を示す意図情報Ｉを抽出する意図解析部５０と、意図情報Ｉに基づきユーザＨに通知する取得内容情報Ａ１を取得する処理部５２と、を有する。音声内容生成部３６は、取得内容情報Ａ１を含む文章データを、出力文章とする。この音声内容制御装置１は、意図情報Ｉに基づき取得された取得内容情報Ａ１を、出力文章に含ませるため、ユーザＨが望む情報を、適切にユーザＨに伝えることができる。

【００６０】

また、音声内容生成部３６は、第２音声Ｖ１Ｂと分類された場合に、取得内容情報Ａ１以外の情報から省略する情報を選択して、第２出力文章を生成する。取得内容情報Ａ１は

、ユーザＨが要求している情報そのものを指す場合がある。音声内容生成部３６は、取得内容情報Ａ１以外から省略する情報を選択するため、取得内容情報Ａ１を省略することなく情報を通知することができ、ユーザＨに、音声Ｖ２の内容を適切に理解させることができる。

【００６１】

また、音声内容生成部３６は、取得内容情報Ａ１を省略する情報として選択せず、取得内容情報Ａ１を第２出力文章に含ませる。音声内容生成部３６は、取得内容情報Ａ１を省略することなく情報を通知することができ、ユーザＨに、音声Ｖ２の内容を適切に理解させることができる。

【００６２】

また、音声内容生成部３６は、予め設定したテーブルから、省略する情報を選択する。音声内容制御装置１は、記憶部２０に記憶させたテーブルから省略する情報を選択するため、省略する情報を適切に選択して、ユーザＨに、音声Ｖ２の内容を適切に理解させることができる。

【００６３】

また、音声内容生成部３６は、ユーザＨが発する音声Ｖ１に含まれる情報を、省略する情報として選択する。ユーザＨが発する音声Ｖ１に含まれる情報は、省略したとしても、ユーザＨは意味を理解しやすい。音声内容制御装置１は、そのような音声Ｖ１に含まれる情報を省略することで、音声Ｖ２の内容を適切に理解させつつ、ユーザＨ以外の人への影響を抑制することができる。

【００６４】

また、音声内容生成部３６は、取得内容情報Ａ１に単位を含む数値情報が含まれる場合、数値情報の種類を示す情報（取得パラメータＡ０）を、省略する情報として選択する。音声内容制御装置１は、単位が含まれる取得内容情報Ａ１に紐づいた取得パラメータＡ０を省略することで、音声Ｖ２の内容を適切に理解させつつ、ユーザＨ以外の人への影響を抑制することができる。

【００６５】

音声内容生成部３６は、処理実行部３４から複数種類の取得内容情報Ａ１を取得した場合、優先度の低い取得内容情報Ａ１を、省略する情報として選択する。音声内容制御装置１は、優先度の低い取得内容情報Ａ１を省略することで、音声Ｖ２の内容を適切に理解させつつ、ユーザＨ以外の人への影響を抑制することができる。

【００６６】

音声内容生成部３６は、複数種類の取得内容情報Ａ１のうち、出力文章とした場合に文章量が多くなる前記取得内容情報Ａ１を、省略する情報として選択する。音声内容制御装置１は、文章量が多くなる取得内容情報Ａ１を省略することで、ユーザＨ以外の人への影響を抑制することができる。

【００６７】

音声内容生成部３６は、優先度を予め定めておき、予め定めた優先度に基づき、省略する情報を選択する。音声内容制御装置１は、予め優先度を定めることで、音声Ｖ２の内容を適切に理解させつつ、ユーザＨ以外の人への影響を抑制することができる。

【００６８】

音声分類部３８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。この音声内容制御装置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以外の人への影響を及ぼす状況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６は、出力文章の出力処理のフローの他の例を示すフローチャートである。なお、本実施形態の音声内容生成部３６は、第２音声Ｖ１Ｂである場合、第１出力文章を生成せず、第２出力文章を生成していた。ただし、音声内容生成部３６は、第１出力文章した後、生成した第１出力文章の情報の一部を省略することで、第２出力文章を生成してもよい。

すなわち、この場合、図６に示すように、音声内容生成部３６は、ステップＳ１６で処理部５２の処理が行われた後に、音声Ｖ１の分類結果を参照せず、すなわち分類結果を問わずに、第１出力文章を生成する（ステップＳ１７）。音声内容生成部３６は、第１出力文章を生成した後、第１音声Ｖ１Ａであると判断された場合（ステップＳ２０Ａ；Ｙｅｓ）、ステップＳ２６に移動して、その第１出力文章を出力文章とする。一方、音声内容生成部３６は、第１出力文章を生成した後、第１音声Ｖ１Ａでない（ステップＳ２０Ａ；Ｎｏ）、すなわち第２音声Ｖ１Ｂであると判断された場合、生成した第１出力文章の情報の一部を省略することで、第２出力文章を生成し（ステップＳ２４Ａ）、第２出力文章を出力文章とする。この場合の第２出力文章での情報の省略方法は、既述の方法でよい。

【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実施形態に係る音声内容制御装置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実施形態に係る音声内容制御装置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７は、第２実施形態に係る音声処理システムの模式的なブロック図である。図７に示すように、第２実施形態に係る音声処理システム１００は、音声内容制御装置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。音声内容制御装置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。音声内容制御装置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】

音声内容制御装置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、音声内容制御装置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、音声内容制御装置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、音声処理システム１００は、音声内容制御装置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、音声内容生成部３６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、音声内容制御装置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。

【００７３】

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】

【００７４】

１　音声内容制御装置
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　処理実行部

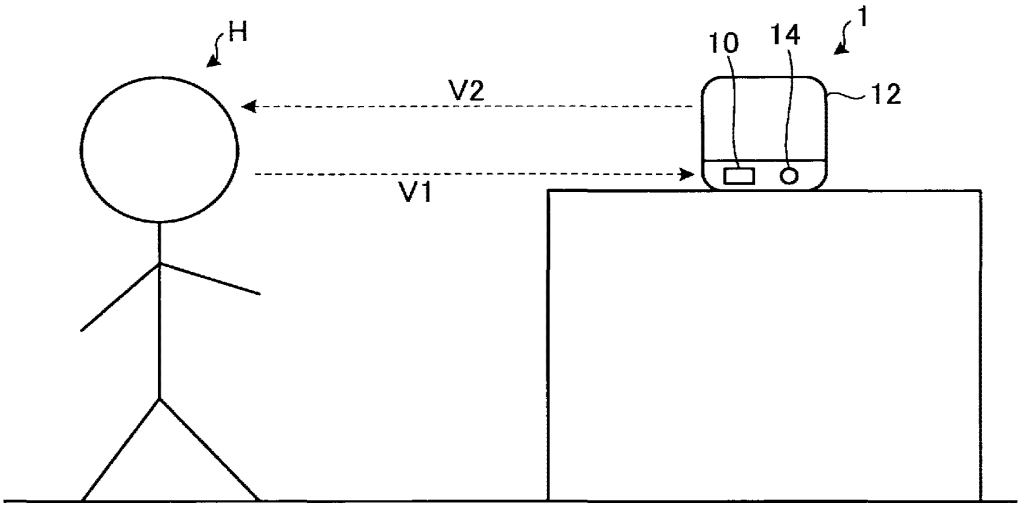
３６　音声内容生成部
３８　音声分類部
４０　出力制御部
５０　意図解析部
５２　処理部
Ａ　取得情報
Ｅ　属性情報
Ｈ　ユーザ
Ｉ　意図情報
Ｖ１、Ｖ２　音声
Ｖ１Ａ　第１音声
Ｖ１Ｂ　第２音声

【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、前記音声を、第１音声と第２音声とのいずれかに分類する音声分類部と、
　前記音声取得部が取得した音声を解析して、前記ユーザが要求する処理を実行する処理実行部と、
　前記処理実行部が実行した処理内容に基づき、前記ユーザに向けて出力する音声用の文章データである出力文章を生成する音声内容生成部と、を有し、
　前記音声内容生成部は、
　前記第１音声と分類された場合に、前記出力文章として第１出力文章を生成し、
　前記第２音声と分類された場合に、前記第１出力文章と比べて情報が省略される第２出力文章を、前記出力文章として生成する、音声内容制御装置。
【請求項２】
　前記処理実行部は、
　前記音声取得部が取得した音声に基づき、前記ユーザの意図を示す意図情報を抽出する意図解析部と、
　前記意図情報に基づき、前記ユーザに通知する取得内容情報を取得する処理部と、を有し、
　前記音声内容生成部は、前記取得内容情報を含む文章データを、前記出力文章とする、請求項１に記載の音声内容制御装置。
【請求項３】
　前記音声内容生成部は、前記ユーザが発する音声に含まれる情報を省略される情報の一部とする、請求項１または請求項２に記載の音声内容制御装置。
【請求項４】
　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、前記第２音声として分類する、請求項１から請求項３のいずれか１項に記載の音声内容制御装置。
【請求項５】
　ユーザが発する音声を取得する音声取得ステップと、
　前記音声取得ステップで取得した音声を解析して、前記音声を、第１音声と第２音声とのいずれかに分類する音声分類ステップと、
　前記音声取得ステップで取得した音声を解析して、前記ユーザが意図した処理を実行する処理実行ステップと、
　前記処理実行ステップで実行した処理内容に基づき、前記ユーザに向けて出力する音声用の文章データである出力文章を生成する音声内容生成ステップと、を有し、
　前記音声内容生成ステップにおいて、
　前記第１音声と分類された場合に、前記出力文章として第１出力文章を生成し、
　前記第２音声と分類された場合に、前記第１出力文章に含まれる情報の一部が省略される第２出力文章を生成する、音声内容制御方法。
【請求項６】
　ユーザが発する音声を取得する音声取得ステップと、
　前記音声取得ステップで取得した音声を解析して、前記音声を、第１音声と第２音声とのいずれかに分類する音声分類ステップと、
　前記音声取得ステップで取得した音声を解析して、前記ユーザが意図した処理を実行する処理実行ステップと、
　前記処理実行ステップで実行した処理内容に基づき、前記ユーザに向けて出力する音声用の文章データである出力文章を生成する音声内容生成ステップと、
　をコンピュータに実行させ、
　前記音声内容生成ステップにおいて、
　前記第１音声と分類された場合に、前記出力文章として第１出力文章を生成し、
　前記第２音声と分類された場合に、前記第１出力文章に含まれる情報の一部が省略され

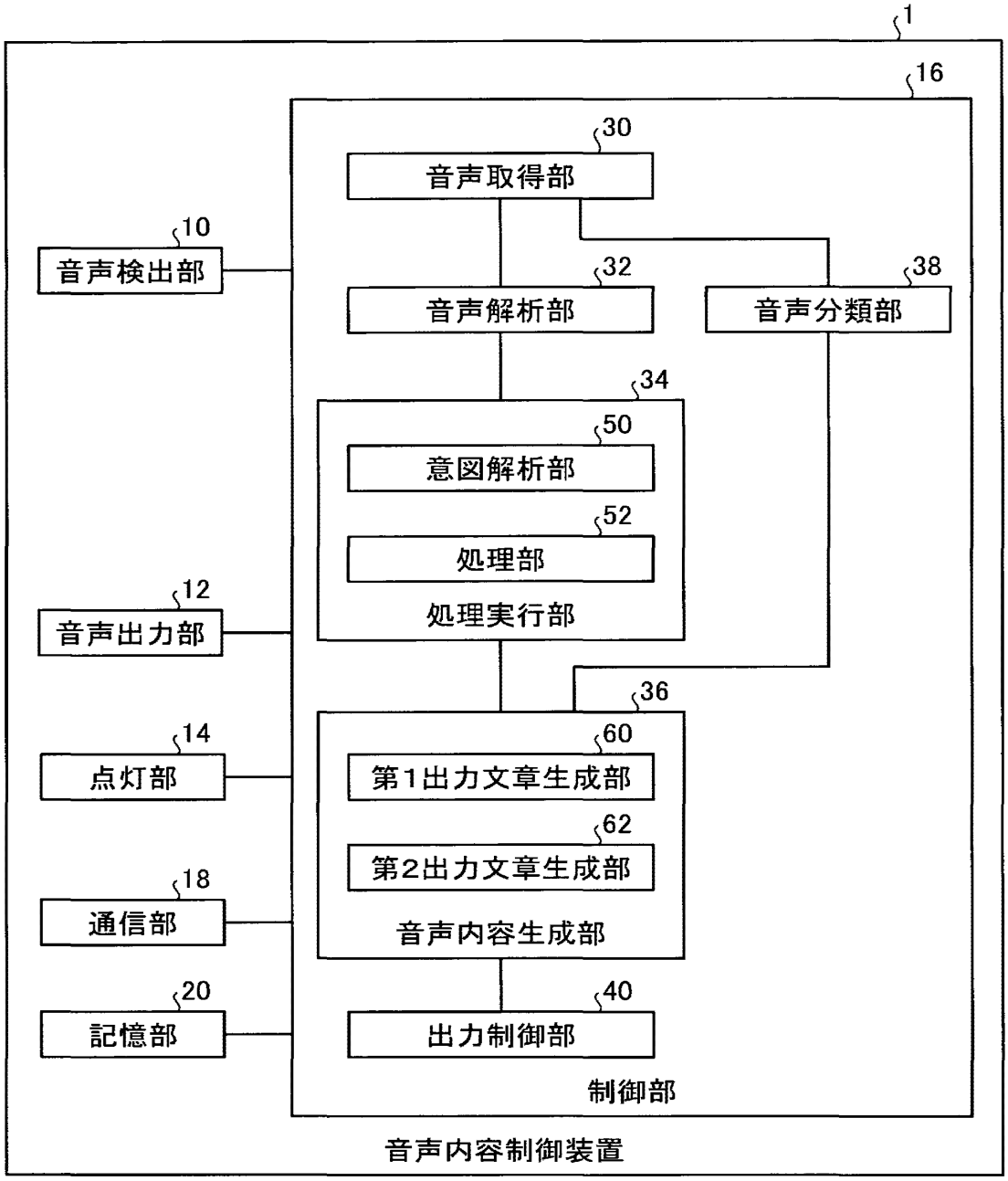
る第２出力文章を生成する、音声内容制御プログラム。

【書類名】要約書
【要約】
【課題】ユーザ以外への影響を抑えつつ、ユーザに出力する音声の内容を適切に理解可能とする。
【解決手段】音声内容制御装置１は、ユーザが発する音声を解析して、音声を、第１音声と第２音声とのいずれかに分類する音声分類部３８と、音声を解析して、ユーザが要求する処理を実行する処理実行部３４と、処理実行部３４が実行した処理内容に基づき、ユーザに向けて出力する音声用の文章データである出力文章を生成する音声内容生成部３６と、を有する。音声内容生成部３６は、第１音声と分類された場合に、出力文章として第１出力文章を生成し、第２音声と分類された場合に、第１出力文章と比べて情報が省略される第２出力文章を、出力文章として生成する。
【選択図】図２

【書類名】図面
【図１】



【図２】


1
16
30
音声取得部
10
音声検出部
32
音声解析部
38
音声分類部
34
50
意図解析部
52
処理部
処理実行部
12
音声出力部
36
14
点灯部
60
第1出力文章生成部
62
第2出力文章生成部
18
通信部
音声内容生成部
20
記憶部
40
出力制御部
制御部
音声内容制御装置

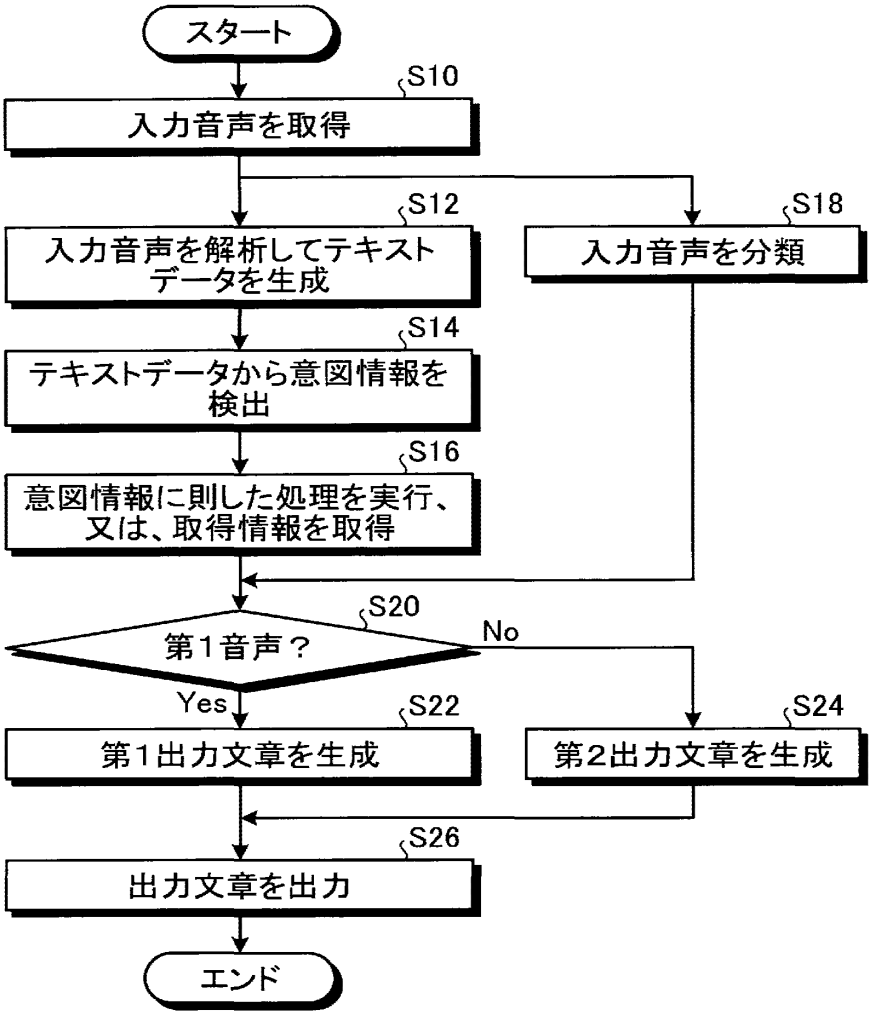
【図３】

意図情報I	属性パラメータE0/ 属性内容E1	属性パラメータE0/ 属性内容E1
天気	日時	場所
	X年Y月Z日	東京

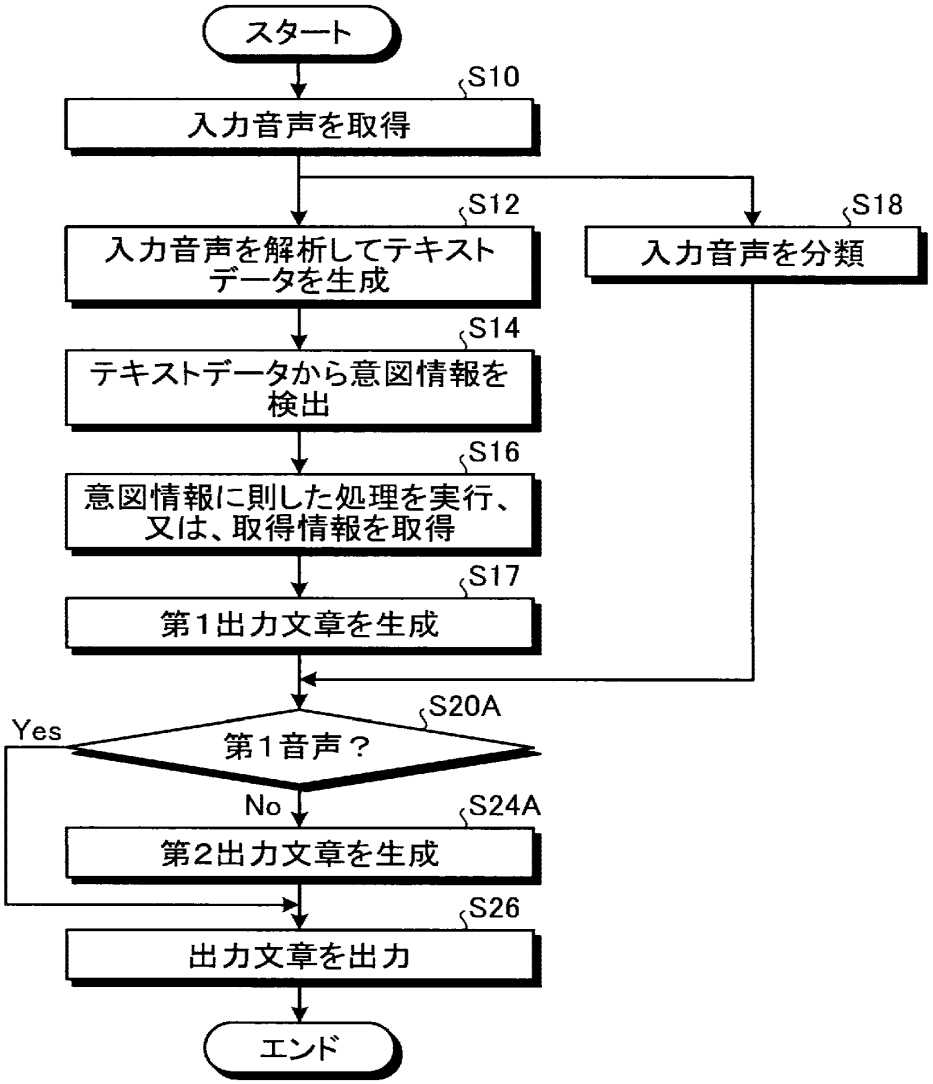
【図４】

意図情報I	取得パラメータA0/ 取得内容情報A1	取得パラメータA0/ 取得内容情報A1	取得パラメータA0/ 取得内容情報A1
天気	天気	気温	降水確率
	晴れ時々曇り	最高気温:25度 最低気温:15度	20%

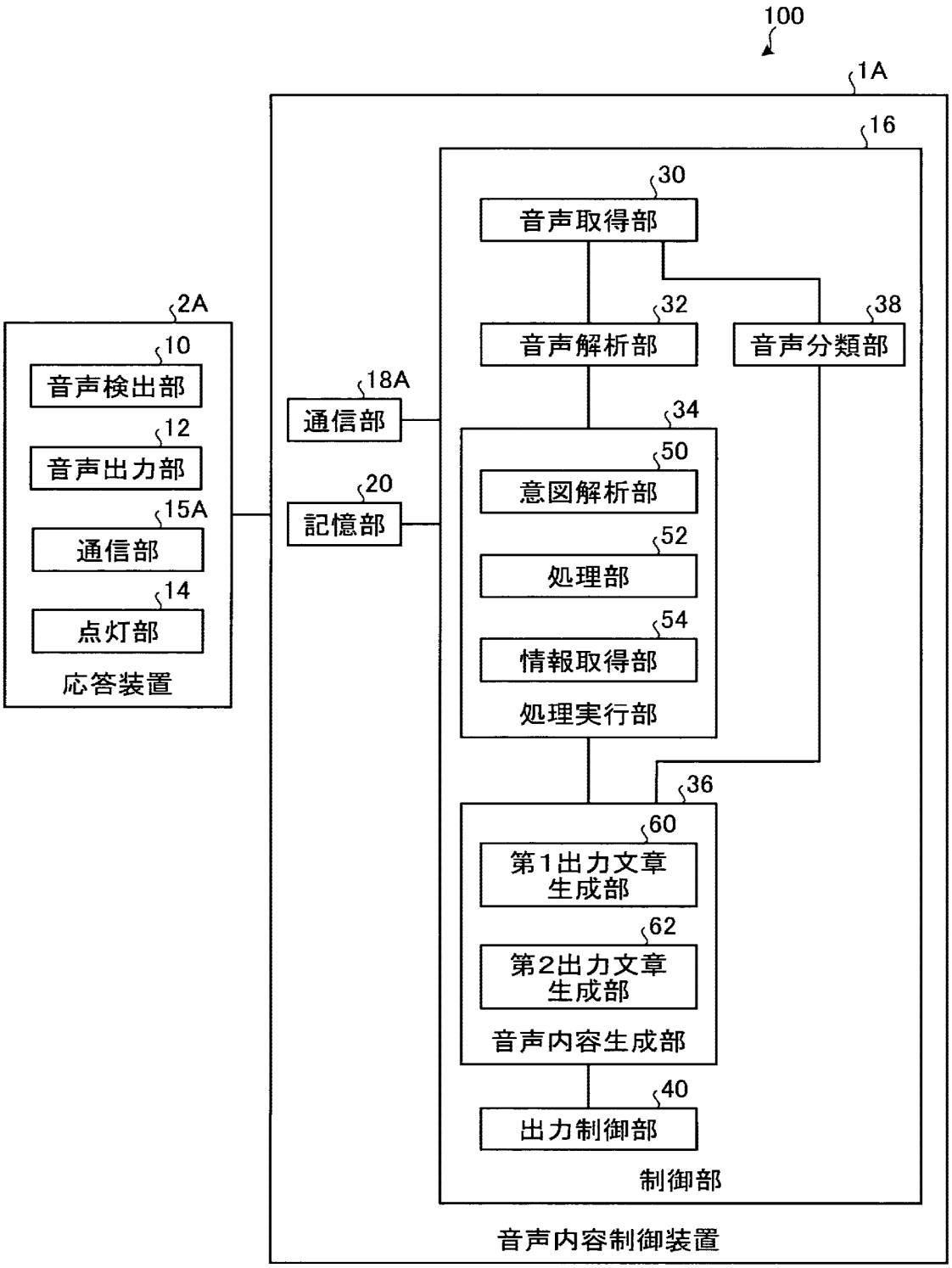
【図５】


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
S18
入力音声を分類
S14
テキストデータから意図情報を検出
S16
意図情報に則した処理を実行、又は、取得情報を取得
S20
第１音声？
No
Yes
S22
第１出力文章を生成
S24
第２出力文章を生成
S26
出力文章を出力
エンド

【図６】


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
S18
入力音声を分類
S14
テキストデータから意図情報を検出
S16
意図情報に則した処理を実行、又は、取得情報を取得
S17
第1出力文章を生成
S20A
第1音声？
Yes
No
S24A
第2出力文章を生成
S26
出力文章を出力
エンド

【図７】


100
1A
16
30
音声取得部
32
音声解析部
38
音声分類部
34
50
意図解析部
52
処理部
54
情報取得部
処理実行部
36
60
第1出力文章生成部
62
第2出力文章生成部
音声内容生成部
40
出力制御部
制御部
音声内容制御装置
2A
10
音声検出部
12
音声出力部
15A
通信部
14
点灯部
応答装置
18A
通信部
20
記憶部

出願人履歴

３０８０３６４０２

20110810

名称変更

神奈川県横浜市神奈川区守屋町３丁目１２番地

株式会社ＪＶＣケンウッド

PATENT APPLICATION FEE DETERMINATION RECORD

Substitute for Form PTO-875

Application or Docket Number: 16/290,983

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))	6 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.

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

APPLICATION NUMBER	FILING or 371(c) DATE	GRP ART UNIT	FIL FEE REC'D	ATTY.DOCKET.NO	TOT CLAIMS	IND CLAIMS
16/290,983	03/04/2019	2658	1720	SAJVP171US	6	3

CONFIRMATION NO. 5210

FILING RECEIPT

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

OC000000108722178

Date Mailed: 03/21/2019

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 2018-039754 03/06/2018 Access Code Provided

Permission to Access Application via Priority Document Exchange: Yes

Permission to Access Search Results: Yes

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

Request to Retrieve - This application either claims priority to one or more applications filed in an intellectual property Office that participates in the Priority Document Exchange (PDX) program or contains a proper **Request to**

Retrieve Electronic Priority Application(s) (PTO/SB/38 or its equivalent). Consequently, the USPTO will attempt to electronically retrieve these priority documents.

If Required, Foreign Filing License Granted: 03/19/2019

The country code and number of your priority application, to be used for filing abroad under the Paris Convention, is **US 16/290,983**

Projected Publication Date: 09/12/2019

Non-Publication Request: No

Early Publication Request: No

Title

VOICE-CONTENT CONTROL DEVICE, VOICE-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

PROTECTING YOUR INVENTION OUTSIDE THE UNITED STATES

Since the rights granted by a U.S. patent extend only throughout the territory of the United States and have no effect in a foreign country, an inventor who wishes patent protection in another country must apply for a patent in a specific country or in regional patent offices. Applicants may wish to consider the filing of an international application under the Patent Cooperation Treaty (PCT). An international (PCT) application generally has the same effect as a regular national patent application in each PCT-member country. The PCT process **simplifies** the filing of patent applications on the same invention in member countries, but **does not result** in a grant of "an international patent" and does not eliminate the need of applicants to file additional documents and fees in countries where patent protection is desired.

Almost every country has its own patent law, and a person desiring a patent in a particular country must make an application for patent in that country in accordance with its particular laws. Since the laws of many countries differ in various respects from the patent law of the United States, applicants are advised to seek guidance from specific foreign countries to ensure that patent rights are not lost prematurely.

Applicants also are advised that in the case of inventions made in the United States, the Director of the USPTO must issue a license before applicants can apply for a patent in a foreign country. The filing of a U.S. patent application serves as a request for a foreign filing license. The application's filing receipt contains further information and guidance as to the status of applicant's license for foreign filing.

Applicants may wish to consult the USPTO booklet, "General Information Concerning Patents" (specifically, the section entitled "Treaties and Foreign Patents") for more information on timeframes and deadlines for filing foreign patent applications. The guide is available either by contacting the USPTO Contact Center at 800-786-9199, or it can be viewed on the USPTO website at http://www.uspto.gov/web/offices/pac/doc/general/index.html.

For information on preventing theft of your intellectual property (patents, trademarks and copyrights), you may wish to consult the U.S. Government website, http://www.stopfakes.gov. Part of a Department of Commerce initiative, this website includes self-help "toolkits" giving innovators guidance on how to protect intellectual property in specific

countries such as China, Korea and Mexico. For questions regarding patent enforcement issues, applicants may call the U.S. Government hotline at 1-866-999-HALT (1-866-999-4258).

LICENSE FOR FOREIGN FILING UNDER

Title 35, United States Code, Section 184

Title 37, Code of Federal Regulations, 5.11 & 5.15

GRANTED

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

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

NOT GRANTED

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

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The United States represents the largest, most dynamic marketplace in the world and is an unparalleled location for business investment, innovation, and commercialization of new technologies. The U.S. offers tremendous resources and advantages for those who invest and manufacture goods here. Through SelectUSA, our nation works to promote and facilitate business investment. SelectUSA provides information assistance to the international investor community; serves as an ombudsman for existing and potential investors; advocates on behalf of U.S. cities, states, and regions competing for global investment; and counsels U.S. economic development organizations on investment attraction best practices. To learn more about why the United States is the best country in the world to develop

technology, manufacture products, deliver services, and grow your business, visit http://www.SelectUSA.gov or call +1-202-482-6800.

PATENT ASSIGNMENT COVER SHEET

Electronic Version v1.1
Stylesheet Version v1.2

EPAS ID: PAT5401928

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:	16290983

CORRESPONDENCE DATA

Fax Number: (216)696-8731

Correspondence will be sent to the e-mail address first; if that is unsuccessful, it will be sent using a fax number, if provided; if that is unsuccessful, it will be sent via US Mail.

Phone: 216-696-8730
Email: epas@thepatentattorneys.com
Correspondent Name: AMIN, TUROCY & WATSON, LLP
Address Line 1: 200 PARK AVENUE
Address Line 2: SUITE 300
Address Line 4: BEACHWOOD, OHIO 44122

ATTORNEY DOCKET NUMBER:	SAJVP171US
NAME OF SUBMITTER:	GREGORY TUROCY
SIGNATURE:	/Greg Turocy/
DATE SIGNED:	03/04/2019
	This document serves as an Oath/Declaration (37 CFR 1.63).

Total Attachments: 2
source=DEC171#page1.tif
source=DEC171#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: VOICE-CONTENT CONTROL DEVICE, VOICE-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 parties 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)
Approved for use through 11/30/2014. OMB 0651-0051
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出願人による委任状
POWER OF ATTORNEY BY APPLICANT

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

(注記：PTO/AIA82Aに同じ情報が明記されている場合、上の枠内は空欄でも可)
(Note: The boxes above may be left blank if information is provided on form PTO/AIA/82A.)

☒ 私は、下記顧客番号に関連する特許弁護士を、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。
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.)

添付の伝送書又は上記枠内にて特定された出願に対する郵便物送付先を下記のいずれかに登録または変更してください。
Please recognize or change the correspondence address for the application identified in the attached transmittal letter or the boxes above to:

☐ 上記顧客番号に付随する住所
The address associated with the above-mentioned Customer Number

又は
OR

☐ 顧客番号に付随する住所
The address associated with Customer Number:

又は
OR

事務所または個人名 Firm or Individual Name					
住所 Address					
市 City		州 State		郵便番号 Zip	
国 Country					
電話番号 Telephone		メールアドレス Email			

This collection of information is required by 37 CFR 1.131, 1.32, and 1.33. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and 1.14. This collection is estimated to take 3 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

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

PTO/AIA/82B (07-13)
Approved for use through 11/30/2014. OMB 0651-0051
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出願人による委任状
POWER OF ATTORNEY BY APPLICANT

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。
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	Application Number	
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	First Named Inventor	Naganuma
	Art Unit	
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INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	
	Filing Date	2019-03-04
	First Named Inventor	Naganuma
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	Attorney Docket Number	SAJVP171US

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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)	2019-03-04
Name/Print	Gregory Turocy	Registration Number	36952

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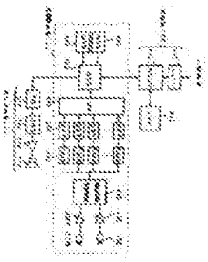
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Legal Status

(11)Publication number 04-204700
(43)Date of publication of application 27.07.1992
(51)Int.Cl. G10L 3/00

(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
Ｇ１０Ｌ　3/00	５２１　Ｃ			
	Ｂ			
	５６１　Ｅ			

請求項の数２(全　７　頁)

(21)出願番号　特願平2－334766

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(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

【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〕

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。

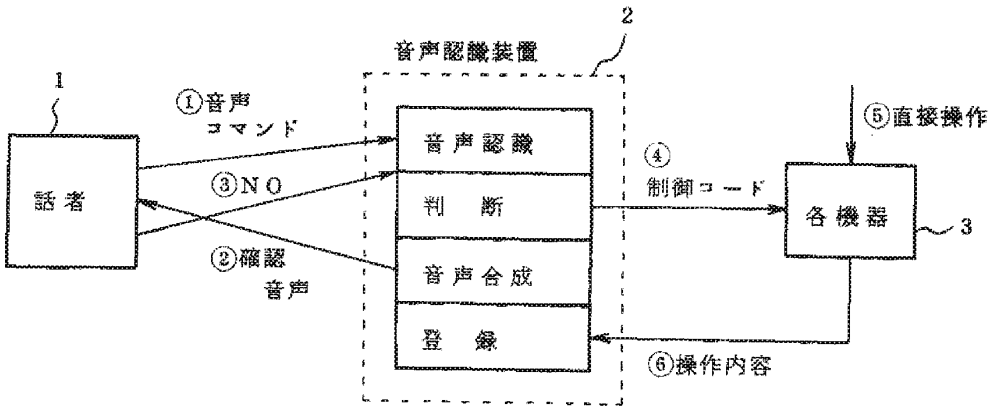
〔発明の効果〕

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】

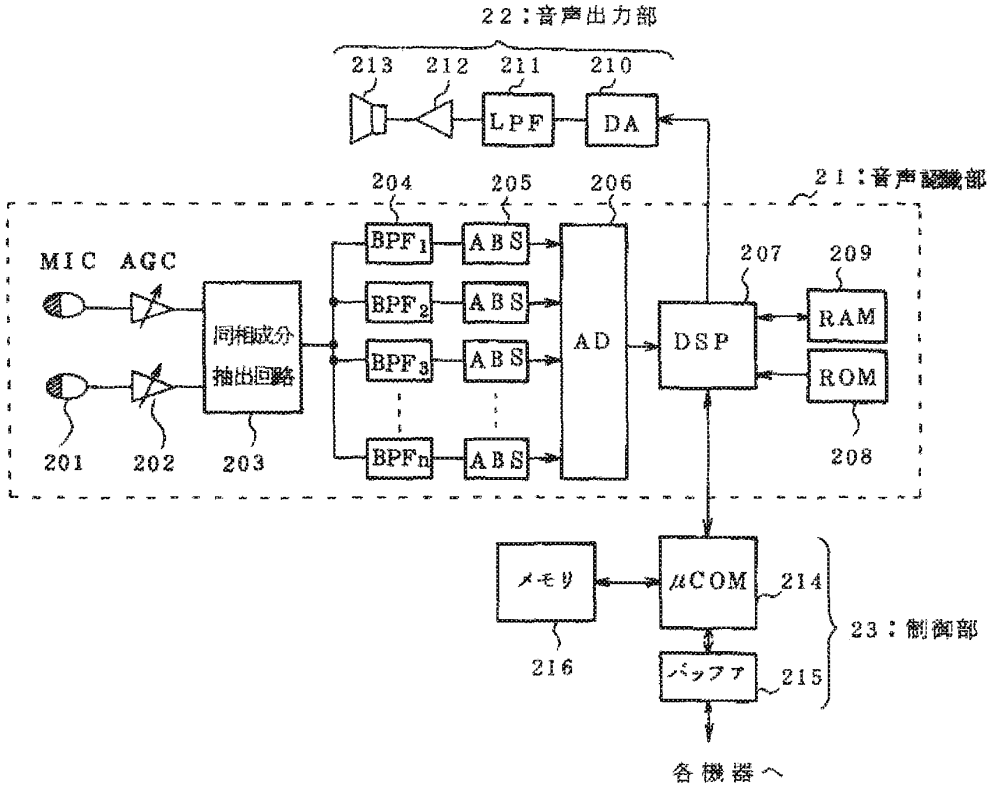
図1は本発明の原理図、
図2は本発明の実施例の構成図、
図3は具体的なシステム構成図、
図4は本発明のフローチャート、
図5は登録パターンの説明図である。
1……話者
2……音声認識装置
3……機器

【第1図】



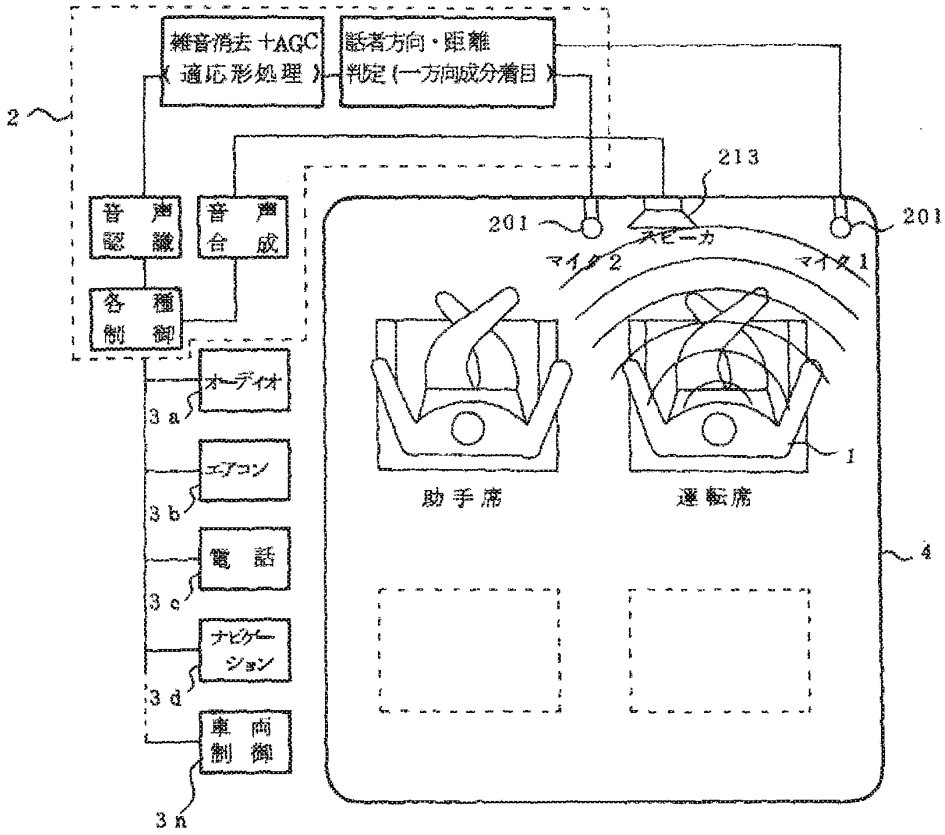
本発明の原理図

【第2図】



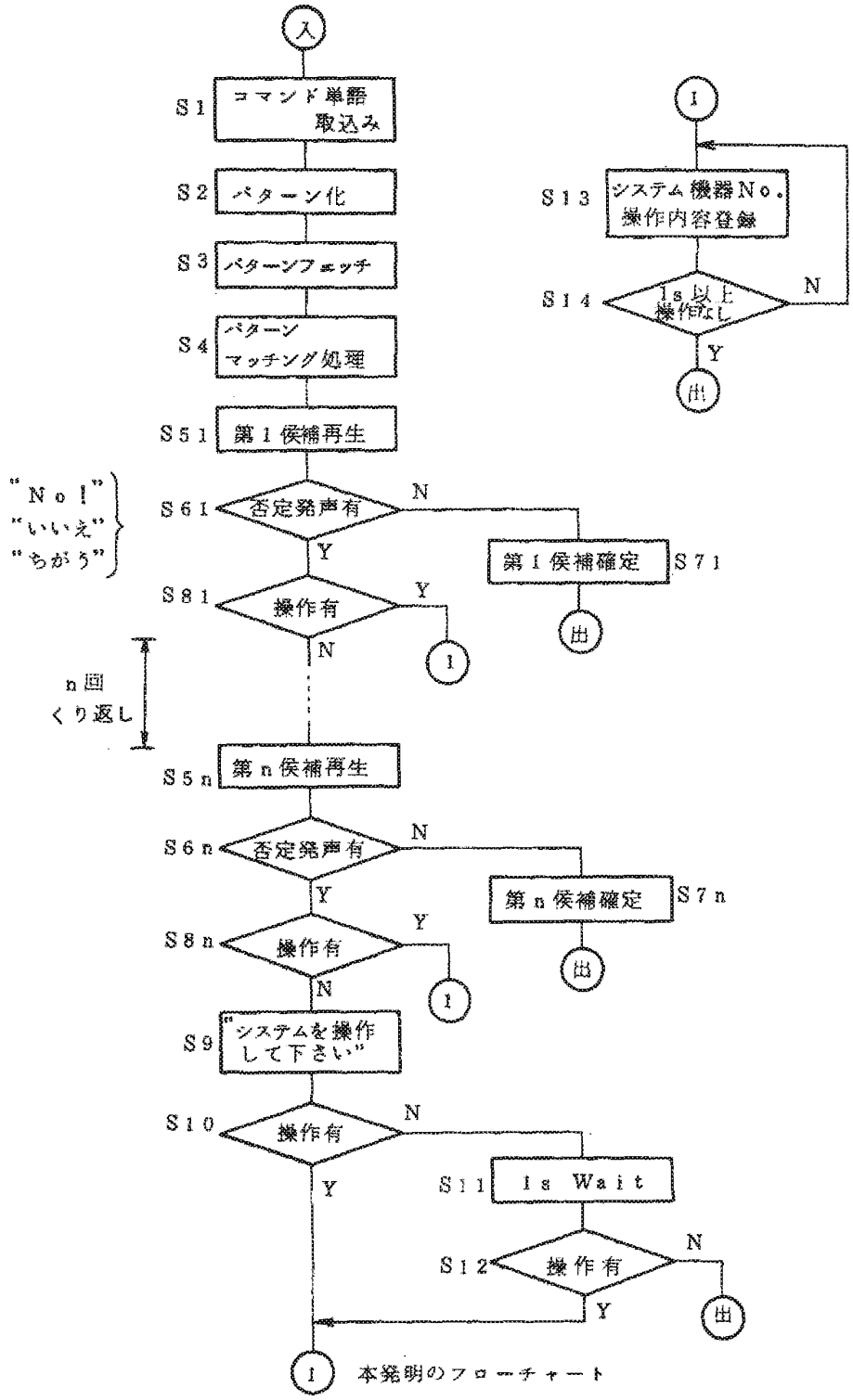
本発明の実施例の構成図

【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
I 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

Electronic Patent Application Fee Transmittal	
Application Number:	
Filing Date:	
Title of Invention:	VOICE-CONTENT CONTROL DEVICE, VOICE-CONTENT CONTROL METHOD, AND NON-TRANSITORY STORAGE MEDIUM
First Named Inventor/Applicant Name:	Tatsumi Naganuma
Filer:	Gregory Turocy/Rebecca Veri
Attorney Docket Number:	SAJVP171US
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:	35296132
Application Number:	16290983
International Application Number:	
Confirmation Number:	5210
Title of Invention:	VOICE-CONTENT CONTROL DEVICE, VOICE-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:	SAJVP171US
Receipt Date:	04-MAR-2019
Filing Date:	
Time Stamp:	06:02:15
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	CARD
Payment was successfully received in RAM	$1720
RAM confirmation Number	030419INTEFSW06033900
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		SPEC171.pdf	114394 18beba80f798887ec8d29a57cc42bc327113e2db	yes	42
	Multipart Description/PDF files in .zip description				
	Document Description		**Start**	**End**	
	Specification		1	38	
	Claims		39	41	
	Abstract		42	42	
Warnings:					
Information:					
2	Drawings-only black and white line drawings	DRAWINGS171.pdf	348182 5757cfe1de110efcb2bc3db7fc4ecf4f7abeeb98	no	6
Warnings:					
Information:					
3	Application Data Sheet	ADS_NEW_for_use_after_20151130.pdf	1793150 dce54f481f34f311b622ffd225c436e84b2c4909	no	8
Warnings:					
Information:					
4	Oath or Declaration filed	DEC171.pdf	394606 2f8a3dc2034ba8314f5bb0b4e36ce15cb7bfc4c2	no	2
Warnings:					
Information:					
5	Transmittal Letter	TRANSMITTALPOA.pdf	154900 7ac99f5522b33deec51ccef65d120972e26ee574	no	1

Warnings:					
Information:					
6	Power of Attorney	JVC_POA.pdf	207312 68830222a1ea7b536f092a965b2bba2d3cc3bccf	no	2
Warnings:					
Information:					
7	Information Disclosure Statement (IDS) Form (SB08)	updated_IDS.pdf	611974 efa4fd4eff7f32f8e76492d8d8aa9b473227a8fa	no	4
Warnings:					
Information:					
8	Foreign Reference	H07-109560B2.pdf	333365 4f4c104aa03495194bc672d5f707c51a285df61e	no	8
Warnings:					
Information:					
9	Fee Worksheet (SB06)	fee-info.pdf	34716 a969f5bd47f53f2e45346c736fa4b66659043b22	no	2
Warnings:					
Information:					
			Total Files Size (in bytes):	3992599	

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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.

VOICE-CONTENT CONTROL DEVICE, VOICE-CONTENT CONTROL METHOD, AND NON-TRANSITORY STORAGE MEDIUM

CROSS-REFERENCE TO RELATED APPLICATION

[0001] This application claims priority from Japanese Application No. 2018-039754, filed on March 6, 2018, the contents of which are incorporated by reference herein in its entirety.

FIELD

[0002] The present application relates to a voice-content control device, a voice-content control method, and a non-transitory storage medium.

BACKGROUND

[0003] As disclosed in Japanese Examined Patent Publication No. H07-109560, for example, a voice control device that analyzes detected voice of a user and performs processing according to the user's intention has been proposed. Furthermore, a voice control device, which outputs, via voice, that processing intended by a user has been performed, or outputs, via voice-content of a user's inquiry, has also been proposed.

[0004] However, when a voice processing device that outputs voice is used, the output voice may be heard by a person who is not the user of the voice processing device and is around the voice processing device. For example, if a person around the voice processing device is asleep, the output voice may be an annoyance to the person. In that case, the output voice itself may be decreased in sound volume, but if the output voice is decreased in sound volume too much, the output voice may be hard to be heard by the user himself and the user may be unable to

understand the content of the voice. Therefore, on outputting the voice to the user, influence of the output voice to people other than the user is desired to be suppressed, and content of the output voice to the user is desired to be made adequately understandable.

SUMMARY

[0005] A voice-content control device, a voice-content control method, and a non-transitory storage medium are disclosed.

[0006] According to one aspect, there is provided a voice-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 classify the voice as either one of a first voice or a second voice; a process executing unit configured to analyze the voice acquired by the voice acquiring unit to execute processing required by the user; and a voice-content generating unit configured to generate, based on content of the processing executed by the process executing unit, output sentence that is text data for a voice to be output to the user, wherein the voice-content generating unit is further configured to generate a first output sentence as the output sentence when the acquired voice has been classified as the first voice, and generate a second output sentence in which information is omitted as compared to the first output sentence as the output sentence when the acquired voice has been classified as the second voice.

[0007] According to one aspect, there is provided a voice-content control method, comprising: acquiring a voice spoken by a user; analyzing the acquired voice to classify the acquired voice as either one of a first voice and a second voice; analyzing the acquired voice to execute

processing intended by the user; and generating, based on content of the executed processing, output sentence that is text data for a voice to be output to the user, wherein at the generating, a first output sentence is generated as the output sentence when the acquired voice has been classified as the first voice, and a second output sentence is generated as the output sentence in which a part of information included in the first output sentence is omitted when the acquired voice has been classified as the second voice.

[0008] According to one aspect, there is provided a non-transitory storage medium that stores a voice-content control program that causes a computer to execute: acquiring a voice spoken by a user; analyzing the acquired voice to classify the acquired voice as either one of a first voice and a second voice; analyzing the acquired voice to execute processing intended by the user; and generating, based on content of the executed processing, output sentence that is text data for a voice to be output to the user, wherein at the generating, a first output sentence is generated as the output sentence when the acquired voice has been classified as the first voice, and a second output sentence is generated as the output sentence in which a part of information included in the first output sentence is omitted when the acquired voice has been classified as the second 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 a voice-content control device according to a first embodiment;

FIG. 2 is a schematic block diagram of the voice-content control device according to the first embodiment;

FIG. 3 is a table illustrating an example of attribute information;

FIG. 4 is a table illustrating acquisition information;

FIG. 5 is a flow chart illustrating a flow of output processing for output sentence, according to the first embodiment;

FIG. 6 is a flow chart illustrating another example of the flow of the output processing for the output sentence; and

FIG. 7 is a schematic block diagram of a voice processing 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 a voice-content control device according to the first embodiment. As shown in FIG. 1, a voice-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

voice-content control device 1, the voice V2 can be heard by the people. If, for example, a person around the voice-content control device 1 is asleep, the voice V2 may be an annoyance to the person. The voice-content control device 1 according to this embodiment analyzes the voice V1, and adjusts text to be output as the voice V2, thereby suppressing influence of the voice V2 on people other than the user H and allowing the user H to adequately understand content of the voice V2.

[0013] FIG. 2 is a schematic block diagram of the voice-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 voice-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 voice-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 for a processing wished to be performed by the voice-content control device 1. The voice detecting unit 10 can be regarded as an input unit that accepts information input externally. The input unit may be provided in addition to 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 may 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 trademark) 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 the external servers by wireless communication such as Wi-Fi, but the communication of information with the external servers may 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, a process executing unit 34, a voice-content generating unit 36, a voice classifying unit 38, and an output controller 40. The voice acquiring unit 30, the voice analyzing unit 32, the process executing unit 34, the voice-content generating unit 36, the voice classifying unit 38, and the output controller 40 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,

voice waveform comprising amplitude and wave length per time from the voice V1. The voice analyzing unit 32 then replaces the voice waveform per time with characters based on a table in which a relationship between the voice waveforms and the characters is stored, thereby converting the voice V1 into the text data. Note that the converting method can be arbitrarily chosen as long as it enables to convert the voice V1 into the text data.

[0017] Based on the text data generated by the voice analyzing unit 32, the process executing unit 34 detects information on content of processing that is included in the voice V1 and desired to be executed by the voice-content control device 1, and executes the processing. The process executing unit 34 has an intention analyzing unit 50, and an acquisition content information acquiring unit 52.

[0018] The intention analyzing unit 50 acquires the text data that is generated by the voice analyzing unit 32, extracts intention information I based on the text data, and extracts 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.

[0019] Firstly, processing for extracting the intent information I will be described. The intention information I, that is, an intent, is information that indicates what kind of processing is intended by the user H to be performed on the voice-content control device 1. In other words, the intention information I is information that indicates what kind of processing is required by the user H

to be performed on the voice-content control device 1. The intention analyzing unit 50 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 50 extracts 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 the text data in advance. That is, the intention analyzing unit 50 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 50 can search for the training data in the external server by controlling the communication unit 18. As long as the intention analyzing unit 50 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 50 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 the text data.

[0020] For example, if the text data corresponds to text "How's the weather today?", by performing the above described analysis, the intention analyzing unit 50 recognizes that processing of notifying the user H of weather information is information on the processing required by the user H, that is, the intention information

I. Furthermore, if, for example, the text data corresponds to text "Turn on the light.", by performing the above described analysis, the intention analyzing unit 50 recognizes that processing of turning power of the light on is information on the processing required by the user H, that is, the intention information I. As described above, the intention information I is classified into information for notification of the required information, and information for control of devices as being required.

[0021] The extracting 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 a 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 news. In this case, when the user H speaks the voice V1 "*konnichiwa*", the intention analyzing unit 50 detects the weather information and the news as the intention information I.

[0022] Described next is the attribute information E. FIG. 3 is a table illustrating an example of the attribute information. The attribute information E, that is, the entity, is a condition needed upon execution of the processing, which is required by the user H and is extracted as the intention information I, that is, a parameter. For example, if the intention information I is weather information, the attribute information E includes information on a location indicating where the weather information is on, and information on a date indicating when the weather information is for. Furthermore, as

illustrated in FIG. 3, the attribute information E includes an attribute parameter E0 and attribute content E1. The attribute parameter E0 is information indicating the type of parameter, that is, the kind of condition, and the attribute content E1 indicates content of the attribute parameter E0. That is, if the attribute information E is information on a location, the attribute parameter E0 is information indicating that the condition is the location, and the attribute content E1 is information indicating that the location is Tokyo. Moreover, if the attribute information E is information on a date, the attribute parameter E0 is information indicating that the condition is the date, and the attribute content E1 is information indicating that the date is the day Z of the month Y of the year X.

[0023] According to this embodiment, the intention analyzing unit 50 extracts the attribute information E, based on the extracted intention information I. More specifically, the intention analyzing unit 50 selects and extracts the attribute parameter E0 from the extracted intention information I. The intention analyzing unit 50 reads out a relation table between the intention information I and the attribute parameters E0 stored in the storage 20, and detects, from the relation table, the intention information I matched with the extracted intention information I. The intention analyzing unit 50 then extracts the attribute parameter E0 associated with the matched intention information I. However, the intention analyzing unit 50 may communicate with an external server via the communication unit 18, and acquire the relation table from the external server.

[0024] After the intention analyzing unit 50 has extracted attribute parameters E0, the intention analyzing

unit 50 sets the attribute content E1 for each of the attribute parameters E0. The intention analyzing unit 50 extracts the attribute content E1 from, for example, the text data generated by the voice analyzing unit 32. That is, if a keyword "today" is included in the text data, the intention analyzing unit 50 sets the attribute content E1 of the attribute parameter E0, the date, to today. Furthermore, the intention analyzing unit 50 may set the attribute content E1 for the attribute parameter E0 in advance. For example, if the intention information I is weather information, set data indicating that the attribute content E1 of the location is Tokyo may be stored in the storage 20 in advance. Accordingly, even if a keyword indicating the location is not included in the text data, the intention analyzing unit 50 is able to set the attribute content E1 of the location to Tokyo. Furthermore, the intention analyzing unit 50 may set the attribute content E1 by communicating with the external server through the communication unit 18. In this case, for example, the intention analyzing unit 50 acquires the current location by communication with a global positioning system (GPS), and sets the location as the attribute content E1.

[0025] The intention analyzing unit 50 extracts the intention information I and the attribute information E as described above, but without being limited thereto. Any extraction methods for the intention information I and attribute information E may be used. FIG. 3 illustrates a case where the weather information is the intention information I, but the intention information I and attribute information E are able to be extracted similarly in other cases. For example, if information indicating that the power of the light is to be turned on is the

intention information I, the attribute information E includes information on the location of the light, and information on the date and time when the power is to be turned on.

[0026] The acquisition content information acquiring unit 52 illustrated in FIG. 2 executes, based on content of the intention information I, processing required by the user. If the intention information I indicates that a device is to be controlled, the acquisition content information acquiring unit 52 executes processing of content of the intention information I. For example, the acquisition content information acquiring unit 52 turns the power of the light at the location indicated by the attribute information E on.

[0027] FIG. 4 is a table illustrating acquisition information. If the intention information I indicates notification of required information, the acquisition content information acquiring unit 52 acquires the required information, that is, acquisition information A. The acquisition information A is information that the user H is to be notified of, and is, in other words, information determined by the process executing unit 34 to be information that the user H requires to be notified of. Based on the intention information I extracted by the intention analyzing unit 50, the acquisition content information acquiring unit 52 acquires the acquisition information A. More specifically, the acquisition content information acquiring unit 52 selects and extracts acquisition parameter A0 from the extracted intention information I. The acquisition content information acquiring unit 52 reads out a relation table between the intention information I and the acquisition parameters A0 stored in the storage 20, and detects, from the relation

table, the intention information I matched with the extracted intention information I. The acquisition content information acquiring unit 52 then extracts the attribute parameter A0 associated with the matched intention information I. However, the acquisition content information acquiring unit 52 may communicate with the external server via the communication unit 18, and acquire the relation table from the external server.

[0028] After having extracted the acquisition parameters A0, the acquisition content information acquiring unit 52 acquires, based on the attribute information E, acquisition content information A1 for each of the acquisition parameters A0. Specifically, for each of the acquisition parameters A0, the acquisition content information acquiring unit 52 acquires the acquisition content information A1 corresponding to the attribute content E1 set for that attribute parameter E0. By communicating with the external server/external device via the communication unit 18, the acquisition content information acquiring unit 52 acquires the acquisition content information A1 from the external server for each of the acquisition parameters A0. However, if the acquisition content information A1 has been stored in the storage 20, the acquisition content information acquiring unit 52 may acquire the acquisition content information A1 from the storage 20. That is, the acquisition content information A1 can be said to be data that the acquisition content information acquiring unit 52 acquires from a database of the external server, the storage 20, or the like.

[0029] As described above, the acquisition content information A1 is information that the acquisition content information acquiring unit 52 has acquired by the communication with the external server, or read-out from

the storage 20. In the example of FIG. 4, the intention information I is weather, and the acquisition parameters A0 are weather, air temperature, and chance of rainfall. In this case, the acquisition content information acquiring unit 52 acquires the acquisition content information A1 for the respective acquisition parameters A0, that is, weather, air temperature, and chance of rainfall, in Tokyo, on the day Z of the month Y of the year X. In the example of FIG. 4, the acquisition content information A1 for weather is "partly cloudy", the acquisition content information A1 for air temperature is "highest air temperature: 25 degrees; lowest air temperature: 15 degrees", and the acquisition content information A1 for chance of rainfall is "20%".

[0030] As described above, the acquisition content information acquiring unit 52 acquires, based on the attribute information E, the acquisition content information A1 for each of the acquisition parameter A0. According to this embodiment, multiple acquisition parameters A0 are associated with the intention information I. However, one acquisition parameter A0 may be associated with the intention information I. In this case, the intention information I itself can be said to be the acquisition parameter A0.

[0031] Referring back to FIG. 2, the voice-content generating unit 36 generates the output sentence based on the acquisition content information A1 acquired by the acquisition content information acquiring unit 52. The output sentence is data of the 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 voice-content generating unit 36 includes a first output sentence generating unit 60 that generates a first output sentence as the output sentence, and a second output

sentence generating unit 62 that generates a second output sentence as the output sentence. The voice classifying unit 38 is explained before explaining of the first output sentence generating unit 60 and the second output sentence generating unit 62.

[0032] The voice classifying unit 38 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. In the present embodiment, the voice classifying unit 38 classifies the voice V1 to the second voice V1B when the voice V1 is determined to be a whisper as a result of analysis. The voice classifying unit 38 classifies the voice V1 to the first voice V1A 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 it is classified to the second voice V1B by, for example, a method described later.

[0033] For example, the voice classifying unit 38 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 38 classifies the voice V1 as either one of 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 38 determines the voice as a whisper to classify to the second voice V1B when the peak frequency is equal to or lower than the threshold, and determines the voice as not a whisper to classify to the first voice V1A when the peak frequency is larger than the threshold. Note

that the voice classifying unit 38 can perform the classification to the first voice V1A and the second voice V1B by using any method. For example, the voice classifying unit 38 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 38 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 the user and a wind noise as a feature value. Furthermore, a proximity sensor can be provided in the voice-content control device 1, a distance between the user H and the voice-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 38 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 38 sets a threshold of the feature value, and classifies the voice V1 as either one of the first voice V1A or the second voice V1B based on whether the feature value exceeds the threshold.

[0034] As described above, the voice classifying unit 38 classifies the voice V1 by using the voice V1 acquired by the voice acquiring unit 30. That is, the voice classifying unit 38 classifies the voice V1 to the second voice V1B when the voice V1 is a whisper, and to the first voice V1A when the voice V1 is not a whisper even when meaning of the voice V1 is the same.

[0035] Moreover, the voice classifying unit 38 is not limited to perform the classification to the first voice V1A and 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 acquired by the voice acquiring unit 30, and by using the text data of the voice V1. For example, the voice classifying unit 38 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 38 can classify the voice V1 to the second voice V1B when a keyword stored in the storage 20 is included in the voice V1, and to the first voice V1A when the keyword stored in the storage 20 is not included in the voice V1.

[0036] The voice classifying unit 38 can use either one of the classification methods explained above, or can perform the classification by combining the classification methods explained above.

[0037] The voice-content generating unit 36 causes the first output-sentence-generating unit 60 to generate the first output sentence when the voice classifying unit 38 classifies the voice V1 to the first voice V1A. That is, the voice-content generating unit 36 generates the first output sentence, not generating the second output sentence when the voice V1 is classified to the first voice V1A. The first output-sentence-generating unit 60 generates a sentence that includes all pieces of information of the intention information I, the attribute information E (the attribute content information E1), and the acquisition information A, which are acquired by the process executing unit 34, as the first output sentence. That is, the first output sentence is text data that includes all of the

intention information I, the attribute content information E1, and the acquisition information A acquired by the process executing unit 34.

[0038] In the example of FIG. 3 and FIG. 4, the intention information I is "weather", and the attribute content E1 is "the day Z of the month Y of the year X" and "Tokyo". In the acquisition information A, the acquisition parameters A0 are "weather", "air temperature", and "chance of rainfall", and the acquisition content information A1 is "partly cloudy", "highest air temperature: 25 degrees; lowest air temperature: 15 degrees", and "20%". In this case, the first output sentence generating unit 60 generates, as the first output sentence "On the day Z of the month Y of the year X, in Tokyo, the weather is partly cloudy, the chance of rainfall is 20%, the highest air temperature is 25 degrees, and the lowest air temperature is 15 degrees", for example. The intention information I, the attribute content E1, and the acquisition information A are each separate information. The first output sentence generating unit 60 has added information in the first output sentence, such that the first output sentence is formed into sentence including the intention information I, the attribute content E1, and the acquisition information A. That is, the first output sentence generating unit 60 has added information (a word or words) other than the intention information I, the attribute content E1, and the acquisition information A, in the first output sentence. This added information (word) may be, if the first output sentence is in Japanese, a polite Japanese expression such as "desu", or a Japanese postpositional particle "ha" and may be, if the first output sentence is in English, an article or the like. Hereinafter, this added information will be referred to as sentence information.

[0039] When the voice V1 has been classified as the second voice V1B by the voice classifying unit 38, the voice-content generating unit 36 causes the second output sentence generating unit 62 to generate the second output sentence. That is, if the voice V1 has been classified as the second voice V1B, the voice-content generating unit 36 generates the second output sentence without generating the first output sentence. The second output sentence generating unit 62 generates the second output sentence by generating sentence such that a part of information is omitted, as compared to the first output sentence. Therefore, an amount of sentence of the second output sentence is less than that of the first output sentence. In other words, if the first output sentence and the second output sentence were to be generated based on the same intention information I, attribute information E, and acquisition information A, the amount of sentence of the second output sentence would be less than that of the first output sentence because information included in the second output sentence would be omitted as compared to the first output sentence.

[0040] Specifically, the second output sentence generating unit 62 generates the second output sentence such that the second output sentence does not include at least one of the intention information I, the attribute content E1, the acquisition information A, and the sentence information that is added when the first output sentence is generated, the intention information I, attribute content E1, and acquisition information A having been acquired by the process executing unit 34. In other words, if the first output sentence were to be generated based on the same intention information I, attribute information E, and acquisition information A, the second output sentence

generating unit 62 would generate the second output sentence by omitting at least one of the intention information I, the attribute content E1, the acquisition information A. and the sentence information all included in the first output sentence.

[0041] If the intention information I is not to be included in the second output sentence, that is, if the intention information I is to be omitted, for example, "weather", which is the intention information I, will be omitted, and the second output sentence will be "On the day Z of the month Y of the year X, Tokyo is partly cloudy, the chance of rainfall is 20%, the highest air temperature is 25 degrees, and the lowest air temperature is 15 degrees". Since the intention information I is a type of information that the user H wishes to ask for, the user H is able to understand the content even if the intention information I is omitted.

[0042] Furthermore, if the attribute content E1 is not to be included in the second output sentence, that is, if the attribute content E1 is to be omitted, for example, "the day Z of the month Y of the year X" and "Tokyo", which are the attribute content E1, will be omitted, and the second output sentence will be "The weather is partly cloudy, the chance of rainfall is 20%, the highest air temperature is 25 degrees, and the lowest air temperature is 15 degrees". Since the user H has normally included the attribute content E1 in the voice V1 the user H is able to understand the content even if the attribute content E1 is omitted. In other words, the second output sentence generating unit 62 may select information included in the voice V1 as omitted information, that is, information not to be included in the second output sentence. That is, the second output sentence generating unit 62 determines

information included in the voice V1 spoken by the user H as a part of information to be omitted. Further, even if the attribute content E1 is not included in the voice V1, the attribute content E1 may have been stored as the set data in the storage 20. In this case, since the user H is aware that the attribute content E1 is the set data, that is, the attribute content E1 has been set as default data, the user H is able to understand the content even if the attribute content E1 is not included in the voice V1. If there are multiple types of the attribute content E1, the second output sentence generating unit 62 may omit all of the types of attribute content E1 or may omit a part of the types of attribute content E1.

[0043] Furthermore, if the sentence information is to be not included in the second output sentence, that is, if the text information is to be omitted, for example, a word/words that is/are the sentence information will be omitted, and the second output sentence will be "On day Z of month Y of year X, in Tokyo, weather partly cloudy, chance of rainfall 20%, highest air temperature 25 degrees, and lowest air temperature 15 degrees". That is, if the second output sentence is in Japanese, for example, the polite Japanese expression will be omitted as the sentence information, and if the second output sentence is in English, the articles will be omitted.

[0044] The acquisition information A, on the other hand, is information that the user H wishes to ask for, and is thus desirably not omitted, as compared to the intention information I, the attribute content E1, and the sentence information. In particular, since the acquisition content information A1 is data themselves to be provided to the user H, the acquisition content information A1 is desirably not omitted. That is, desirably, the second output

sentence generating unit 62 generates the second output sentence by selecting information to be omitted from information excluding the acquisition content information A1. In other words, desirably, without selecting the acquisition content information A1 as information to be omitted, the second output sentence generating unit 62 includes the acquisition content information A1 in the second output sentence. Accordingly, by selecting information not to be included in the second output sentence, from information excluding the acquisition content information A1, and not selecting the acquisition content information A1 as the information to be not included the second output sentence, the second output sentence generating unit 62 enables the user H to understand the content, and the amount of sentence to be adequately reduced.

[0045] However, the second output sentence generating unit 62 may omit the acquisition information A, and such a case will be described hereinafter. For example, the second output sentence generating unit 62 may select the acquisition parameters A0 of the acquisition information A, as information to be omitted. In this case, "weather", "chance of rainfall", and "air temperature (highest air temperature and lowest air temperature)", which are all the acquisition parameters A0, will be omitted, and the second output sentence will be "On the day Z of the month Y of the year X, Tokyo is partly cloudy, 20%, and 15 degrees to 25 degrees.". Since the acquisition parameters A0 are information associated with the acquisition content information A1 that the user H wishes to ask for, when the user H is notified of the acquisition content information A1, the user H is able to recognize each of the parameters A0 corresponding to each of the acquisition content

information A1.

[0046] More specifically, if the acquisition content information A1 is numerical information including a unit, the second output sentence generating unit 62 selects, as information to be omitted, the acquisition parameter A0 associated with the acquisition content information A1, that is, information indicating type of the numerical information. When the acquisition content information A1 includes a unit, the user H is able to recognize the acquisition parameter A0 from that unit.

[0047] Furthermore, if the acquisition content information A1 is information indicating a numerical range, the second output sentence generating unit 62 selects, as information to be omitted, the acquisition parameter A0 associated with the acquisition content information A1. The acquisition parameter A0 to be omitted in this case is information indicating the highest value in the numerical range ("highest air temperature" in this example), and information indicating the lowest value in the numerical range ("lowest air temperature" in this example).

[0048] Furthermore, if the acquisition content information A1 is information indicating start and end, the second output sentence generating unit 62 selects, as information to be omitted, the acquisition parameters A0 associated with the acquisition content information A1. The information indicating start and end is, for example, information for a case where a departure station is Tokyo Station and an arrival station is Yokohama Station. In this case, Tokyo Station is information indicating the start, and Yokohama Station is information indicating the end. In this case, for example, the first output sentence will be "The departure station is Tokyo Station and the arrival station is Yokohama Station.", while the second

output sentence will be "It will be from Tokyo Station to Yokohama Station." by omission of "departure station" and "arrival station", which are the acquisition parameters A0. That is, in this case, it can be said that "departure station" that is an acquisition parameter A0 is information corresponding to the start in the acquisition content information A1, and "arrival station" that is another acquisition parameter A0 is information corresponding to the end is the end in the acquisition content information A1. In the above described case also, since the second output sentence includes "from A to B" as the acquisition content information A1, the user H is able to understand the content even if the acquisition parameters A0 is omitted.

[0049] Furthermore, if multiple types of the intention information I or multiple types of the acquisition content information A1 have been acquired, the second output sentence generating unit 62 may select, as information to be omitted, a part of the multiple types of acquisition content information A1. For example, if the multiple types of intention information I have been extracted, the second output sentence generating unit 62 omits the acquisition content information A1 belonging to one of the types of intention information I. For example, the second output sentence generating unit 62 omits, as the information of low priority, the acquisition content information A1 of the type of the intention information I the amount of which, on being generated as the sentence, would become large. For example, described below is a case where it has been set such that weather and news are extracted as types of the intention information I when the voice V1 is "Good morning." In this case, when the output sentence related to the news would be longer in length than the output

sentence related to the weather, the second output sentence generating unit 62 omits the acquisition content information A1 related to the news, and leaves the acquisition content information A1 related to the weather.

[0050] Furthermore, when multiple types of the acquisition content information A1 have been acquired for one type of the intention information I, the second output sentence generating unit 62 may also omit one of the multiple types of the acquisition content information A1. For example, if the type of the intention information I is for notification of traffic jam information, the acquisition content information A1 will be pieces of traffic jam information for different locations. In this case, the second output sentence generating unit 62 omits, as a piece of information of low priority, pieces of traffic jam information of low importance (acquisition content information A1), such as, for example, pieces of traffic jam information for locations far from the current position, or pieces of traffic jam information for locations in which degree of traffic jam is small.

[0051] Accordingly, when there are multiple types of the acquisition content information A1, and a part of the multiple types of the acquisition content information A1 is to be omitted, the second output sentence generating unit 62 selects, as information to be omitted, a type of the acquisition content information A1 of low priority. Priority levels are set and stored in the storage 20 in advance, and the second output sentence generating unit 62 selects, based on the stored priority levels, a type of the acquisition content information A1 of low priority. That is, for example, the small amount of the sentence may be determined to be high priority, or traffic jam information for a location close to the current position may be

determined to be high priority, and these priority levels are stored.

[0052] As described above, the second output sentence generating unit 62 generates the second output sentence by omitting at least one of the intention information I, the attribute content E1, the acquisition information A, and the sentence information. That is, the intention information I, the attribute content E1, the acquisition information A, and the sentence information can be said to be omittable information. The second output sentence generating unit 62 may select all of the above described omittable information as the information to be omitted, or may omit only a part of the omittable information. For example, the voice-content control device presets information to be actually omitted among the omittable information. For example, if the intention information I and the attribute content E1 have been set as the information to be omitted, the second output sentence generating unit 62 will always omit the intention information I and the attribute content E1 on generating the second output sentence, regardless of the type of the intention information I and attribute content E1. Furthermore, the voice-content control device 1 may have a table stored in the storage 20 in advance, the table indicating the types of the information to be actually omitted. In this case, since, for example, the intention information I to be omitted (for example, weather) will be distinguished from the information not to be omitted (for example, time), the information to be omitted is able to be appropriately selected according to the type of the information.

[0053] The voice-content generating unit 36 generates the output sentence as described below. The above

description is on a generation method for the output sentence in a case where the intention information I is a content indicating the notification of the information. In a case where the intention information I is a content indicating control of a device, the voice-content generating unit 36 generates the second output sentence similarly such that the information is omitted in the second output sentence as compared to first output sentence. In this case, after execution of control by the acquisition content information acquiring unit 52 (for example, control of turning the power of the light on), the voice-content generating unit 36 generates, as the output sentence, sentence explaining the execution state of that control. More specifically, if the voice V1 has been classified as the first voice V1A, the voice-content generating unit 36 generates, as the first output sentence, text data corresponding to "Yes, the processing has been accepted." That is, the first output sentence includes information for a reply such as "Yes", and information for sentence following the information for the reply such as "the processing has been accepted". On the contrary, when the voice V1 has been classified as the second voice V1B, the voice-content generating unit 36 generates, as the second output sentence, text data corresponding to "Yes". That is, in this case, the second output sentence includes information for a reply, and information for sentence following the information for the reply is omitted. Therefore, in also this case, when the voice V1 has been classified as the second voice V1B, the voice-content generating unit 36 can be said to omit a part of information that would be included in the first output sentence when the first output sentence were generated.

[0054] Referring back to FIG. 2, the output controller

40 acquires the output sentences generated by the voice-content generating unit 36, that is, the first output sentence or the second output sentence. The output controller 44 converts the output sentences in the text data into voice data, and causes the voice output unit 12 to output the voice data as the second voice V2. The output controller 40 makes a sound volume of a voice V2 for reading the first output sentence and a sound volume of the voice V2 for reading the second output sentence the same when the same sound volume has been set therefor. That is, the output controller 40 does not change the sound volume of the voice V2 between the first output sentence and the second output sentence. However, the output controller 40 may use different sound volumes for the voice V2 between the first output sentence and the second output sentence. Furthermore, the output controller 40 can control the lighting unit 14 to turn on the light when the voice V2 is output, when the processing by the acquisition content information acquiring unit 52 is completed, when the voice V1 is detected, or the like.

[0055] The controller 16 has a configuration as described above. A flow of output processing of the output sentence by the controller 16 is explained based on a flowchart. FIG. 5 is a flowchart showing a flow of output processing of the output sentence according to the first embodiment. As shown in FIG. 5, the controller 16 acquires the input voice, that is, the 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 the text data (step S12). Subsequently, the controller 16 causes the intention analyzing unit 50 to extract the intention information I and the attribute

information E from the text data (step S14). After having extracted the intention information I and the attribute information E, the controller 16 performs, through the acquisition content information acquiring unit 52, execution of processing for the intention information I or acquisition of the acquisition information for the intention information I (Step S16). That is, when the intention information I is a content indicating that a device is to be controlled, the acquisition content information acquiring unit 52 executes processing of content prescribed by the intention information I and the attribute information E (for example, turning on the power of the light). On the contrary, when the intention information I is a content indicating notification of information, the acquisition content information acquiring unit 52 acquires the acquisition information A based on the intention information I and the attribute information E. Specifically, the acquisition content information acquiring unit 52 extracts the acquisition parameters A0 based on the intention information I and the attribute information E, and acquires the acquisition content information A1 for each of the acquisition parameters A0. Furthermore, when the input voice, namely the voice V1, is acquired at step S10, the controller 16 causes the voice classifying unit 38 to classify the voice V1 as either one of the first voice V1A or the second voice V1B (step S18).

[0056] The controller 16 determines whether the voice V1 is the first voice V1A (step S20), and the voice V1 is determined to be the first voice V1A (step S20: YES), causes the first output sentence generating unit 60 to generate the first output sentence (step S22). On the other hand, when the voice V1 is determined not to be the first voice V1A (step S20: NO), that is, the voice V1 is

determined to be the second voice V1B, the controller 16 causes the second output sentence generating unit 62 to generate the second output sentence (step S24). After having generated the output sentence, that is, the first output sentence or the second output sentence, the controller 16 causes the output controller 40 to output the output sentence as the voice V2 by the voice output unit 12 (step S26), and ends the processing. That is, when the first output sentence is generated, the output controller 40 converts the first output sentence into the 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 40 converts the second output sentence into the voice data, and causes the voice output unit 12 to output it as the voice V2.

[0057] The voice-content control device 1 according to this embodiment has the voice classifying unit 38, the process executing unit 34, and the voice-content generating unit 36. By analyzing the voice V1 spoken by the user H and acquired by the voice acquiring unit 30, the voice classifying unit 38 classifies the voice V1 as the first voice V1A or the second voice V1B. The process executing unit 34 analyzes the voice V1 acquired by the voice acquiring unit 30, and executes the processing required by the user H. The voice-content generating unit 36 generates, based on the content of the processing executed by the process executing unit 34, the output sentence that is sentence/text data for the voice V2 to be output to the user H. When the voice V1 has been classified as the first voice V1A, the voice-content generating unit 36 generates, as the output sentence, the first output sentence. When the voice V1 has been classified as the second voice V1B, the voice-content generating unit 36 generates, as the

output sentence, the second output sentence in which a part of the information is omitted as compared to the first output sentence. Furthermore, according to this embodiment, when the voice V1 has been classified as the second voice V1B, the voice-content generating unit 36 generates, as the output sentence, the second output sentence that is less in the amount of the sentence than the first output sentence by generating the sentence such that a part of the information is omitted as compared to the first output sentence.

[0058] The voice V2 output as the voice data of the output sentence is output to the user H, but as described above, the voice V2 may reach a person, other than the user H, who is around the voice-content control device 1. When the user H determines that the voice V2 is not desired to influence any person around the voice-content control device 1, the user H changes the voice V1 by, for example, uttering the voice V1 as a whispered voice, even if the same content is to be told, unlike a case where the user determines that the person may be influenced by the voice V2. When the voice V1 classified as the first voice V1A has been detected by analysis of the voice V1 of the user H, the voice-content control device 1 determines that the influence of the voice V2 on any person other than the user H does not need to be considered, and generates the first output sentence for the voice V2. On the contrary, when the voice V1 classified as the second voice V1B has been detected, the voice-content control device 1 determines that the influence of the voice V2 on any person other than the user H needs to be considered, and generates, for the voice V2, the second output sentence in which the amount of the sentence is smaller than that of the first output sentence. Thereby, when there is a need for consideration

of the influence of the voice V2 on any person other than the user H, the voice-content control device 1 is able to reduce the amount of the sentence generated as the voice V2 and shorten the output length of the voice V2, thereby suppress the influence of the voice V2 on the person other than the user H. Furthermore, since the voice-content control device 1 generates the second output sentence by omitting a part of the information, the voice-content control device 1 enables the user H to adequately understand the content of the voice V2, that is, the content of the second output sentence by adjusting the omitted information.

[0059] Furthermore, the process executing unit 34 has the intention analyzing unit 50 that extracts, based on the voice V1, the intention information I indicating an intension of the user H, and the acquisition content information acquiring unit 52 that acquires, based on the intention information I, the acquisition content information A1 that the user H is to be notified of. The voice-content generating unit 36 generates, as the output sentence, the text data including the acquisition content information A1. Since the voice-content control device 1 make the acquisition content information A1 acquired based on the intention information I included in the output sentence, the information desired by the user H is able to be adequately conveyed to the user H.

[0060] Furthermore, when the voice V1 has been classified as the second voice V1B, the voice-content generating unit 36 generates the second output sentence by selecting the information to be omitted from the information excluding the acquisition content information A1. The acquisition content information A1 may refer to the information itself that is required by the user H.

Since the voice-content generating unit 36 selects the information to be omitted from the information excluding the acquisition content information A1, the notification of the information is enabled without the omission of the acquisition content information A1, and the user H is able to adequately understand the content of the voice V2.

[0061] Furthermore, the voice-content generating unit 36 does not select the acquisition content information A1 as the information to be omitted, and make the acquisition content information A1 included in the second output sentence. The voice-content generating unit 36 is able to perform the notification of the information without omitting the acquisition content information A1, and allow the user H to adequately understand the content of the voice V2.

[0062] Furthermore, the voice-content generating unit 36 selects the information to be omitted from the table that has been set in advance. Since the information to be omitted is selected from the table stored in the storage 20, the voice-content control device 1 enables the omitted information to be appropriately selected and the user H to adequately understand the content of the voice V2.

[0063] Furthermore, the voice-content generating unit 36 selects, as the information to be omitted, the information included in the voice V1 spoken by the user H. Even if the information included in the voice V1 spoken by the user H is omitted, it is easy for the user H to understand the meaning. By the omission of such information included in the voice V1, the voice-content control device 1 enables the content of the voice V2 to be adequately understood, and the influence of the voice V2 on any person other than the user H to be suppressed.

[0064] Furthermore, if the acquisition content

information A1 includes the numerical information including a unit, the voice-content generating unit 36 selects, as the information to be omitted, the information indicating the type of the numerical information (the acquisition parameter A0). By the omission of the acquisition parameter A0 associated with the acquisition content information A1 including the unit, the voice-content control device 1 enables the content of the voice V2 to be adequately understood, and the influence of the voice V2 on any person other than the user H to be suppressed.

[0065] When the multiple types of the acquisition content information A1 have been acquired from the process executing unit 34, the voice-content generating unit 36 selects, as the information to be omitted, the types of the acquisition content information A1 of low priority. By the omission of the type of the acquisition content information A1 of low priority, the voice-content control device 1 enables the content of the voice V2 to be adequately understood, and the influence of the voice V2 on any person other than the user H to be suppressed.

[0066] The voice-content generating unit 36 selects, as the information to be omitted, the types of the acquisition content information A1 the amount of which, on being generated as the output sentence, would become large from the multiple types of the acquisition content information A1. By the omission of the type of the acquisition content information A1 the amount of which, on being generated as the output sentence, would become large, the voice-content control device 1 enables the influence of the voice V2 on any person other than the user H to be suppressed.

[0067] The voice-content generating unit 36 determines the priority levels of the information in advance, and based on the priority levels determined in advance, selects

the information to be omitted. By the determination of the priority levels in advance, the voice-content control device 1 enables the content of the voice V2 to be adequately understood, and the influence of the voice V2 on any person other than the user H to be suppressed.

[0068] When the voice V1 spoken by the user H is the whispered voice, the voice classifying unit 38 classifies the voice V1 as the second voice V2B. By detecting the whispered voice to generate the second output sentence, the voice-content control device 1 can determine whether the voice-content control device 1 is in a state of influencing any person other than the user H adequately, and suppress the influence adequately.

[0069] FIG. 6 is a flow chart illustrating another example of the flow of the output processing for the output sentence. When the voice V1 is the second voice V1B, the voice-content generating unit 36 according to the above described embodiment generates the second output sentence without generating the first output sentence. However, after generating the first output sentence, the voice-content generating unit 36 may generate the second output sentence by omitting a part of the information of the generated first output sentence. That is, as illustrated in FIG. 6, after the processing by the acquisition content information acquiring unit 52 has been performed at Step S16, the voice-content generating unit 36 generates the first output sentence without referring to the classification result for the voice V1, that is, regardless of the classification result (Step S17). When, after generating the first output sentence, the voice V1 is determined to be the first voice V1A (Step S20A; Yes), the voice-content generating unit 36 proceeds to Step S26, and outputs that first output sentence. On the contrary, when,

after generating the first output sentence, the voice V1 is determined not to be the first voice V1A (Step S20A; No), that is, the voice V1 is determined to be the second voice V1B, the voice-content generating unit 36 generates the second output sentence by omitting a part of the information of the generated first output sentence (Step S24A), and generates the second output sentence. The information omission method for the second output sentence in this case may be the method that has been described already.

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. 7 is a schematic block diagram of an information output system according to the second embodiment. As shown in FIG. 7, an information output system 100 according to the second embodiment includes the voice-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 voice-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 voice-content control device 1A and the response device 2A are connected by wireless communication, but can be connected by wired communication.

[0072] The voice-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 voice-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 voice-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 voice-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 voice-content generating unit 36 as the voice V2. As described above, the voice-content control device 1A produces effects similar to those of the first embodiment even when the response device 2A is a separate unit.

[0073] According to the present application, on outputting the voice to the user, the influence of the output voice on people other than the user is able to be suppressed, and the content of the voice output to the user is able to be made adequately understandable.

[0074] 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. A voice-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 classify the voice as either one of a first voice or a second voice;

a process executing unit configured to analyze the voice acquired by the voice acquiring unit to execute processing required by the user; and

a voice-content generating unit configured to generate, based on content of the processing executed by the process executing unit, output sentence that is text data for a voice to be output to the user, wherein

the voice-content generating unit is further configured to generate a first output sentence as the output sentence when the acquired voice has been classified as the first voice, and generate a second output sentence in which information is omitted as compared to the first output sentence as the output sentence when the acquired voice has been classified as the second voice.

2. The voice-content control device according to claim 1, wherein

the process executing unit comprises:

an intention analyzing unit configured to extract intention information indicating an intention of the user based on the voice acquired by the voice acquiring unit; and

an acquisition content information acquiring unit configured to acquire acquisition content information which is notified to the user based on the extracted intention information, and

the voice-content generating unit is further configured to generate the text data including the acquisition content information as the output sentence.

3. The voice-content control device according to claim 1, wherein, on generating the second sentence, the voice-content generating unit is further configured to omit a part of information included in the voice spoken by the user.

4. The voice-content control device according to claim 1, wherein, when the voice spoken by the user is a whispered voice, the voice classifying unit is further configured to classify the voice as the second voice.

5. A voice-content control method, comprising:

acquiring a voice spoken by a user;

analyzing the acquired voice to classify the acquired voice as either one of a first voice and a second voice;

analyzing the acquired voice to execute processing intended by the user; and

generating, based on content of the executed processing, output sentence that is text data for a voice to be output to the user, wherein

at the generating,

a first output sentence is generated as the output sentence when the acquired voice has been classified as the first voice, and

a second output sentence is generated as the output sentence in which a part of information included in the first output sentence is omitted when the acquired voice has been classified as the second voice.

6. A non-transitory storage medium that stores a voice-content control program that causes a computer to execute:

acquiring a voice spoken by a user;

analyzing the acquired voice to classify the acquired voice as either one of a first voice and a second voice;

analyzing the acquired voice to execute processing intended by the user; and

generating, based on content of the executed processing, output sentence that is text data for a voice to be output to the user, wherein

at the generating,

a first output sentence is generated as the output sentence when the acquired voice has been classified as the first voice, and

a second output sentence is generated as the output sentence in which a part of information included in the first output sentence is omitted when the acquired voice has been classified as the second voice.

ABSTRACT

A voice-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 classify the voice as either one of a first voice or a second voice, a process executing unit configured to analyze the acquired voice to execute processing required by the user, and a voice-content generating unit configured to generate, based on content of the executed processing, output sentence that is text data for a voice to be output to the user, wherein the voice-content generating unit is further configured to generate a first output sentence as the output sentence when the analyzed voice has been classified as the first voice, and generate a second output sentence in which information is omitted as compared to the first output sentence as the output sentence when the analyzed voice has been classified as the second voice.

FIG.1

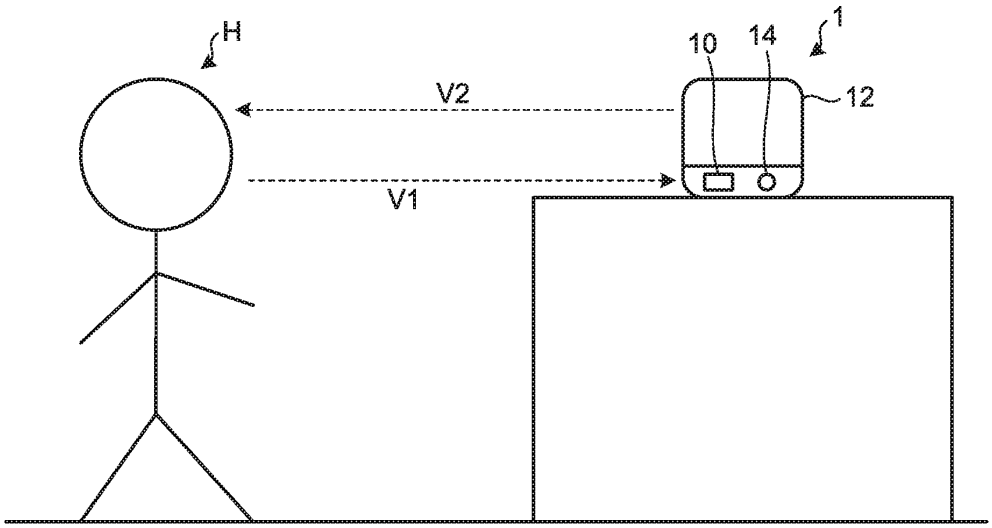


FIG.2

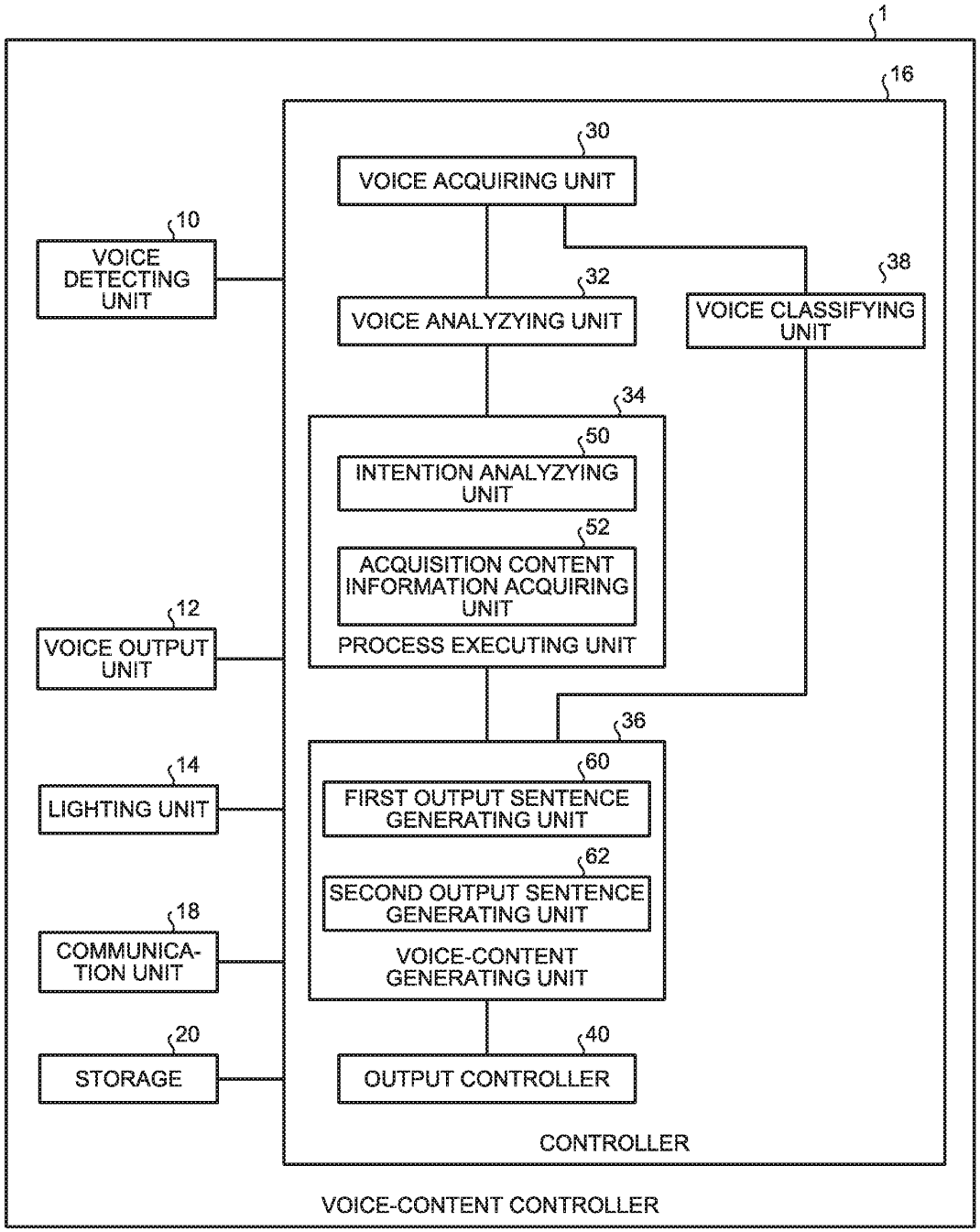

1
16
30
VOICE ACQUIRING UNIT
10
VOICE DETECTING UNIT
32
VOICE ANALYZYING UNIT
38
VOICE CLASSIFYING UNIT
34
50
INTENTION ANALYZYING UNIT
52
ACQUISITION CONTENT INFORMATION ACQUIRING UNIT
PROCESS EXECUTING UNIT
12
VOICE OUTPUT UNIT
36
60
FIRST OUTPUT SENTENCE GENERATING UNIT
14
LIGHTING UNIT
62
SECOND OUTPUT SENTENCE GENERATING UNIT
18
COMMUNICATION UNIT
VOICE-CONTENT GENERATING UNIT
20
STORAGE
40
OUTPUT CONTROLLER
CONTROLLER
VOICE-CONTENT CONTROLLER

FIG.3

INTENTION INFORMATION I	ATTRIBUTE PARAMETER E0/ ATTRIBUTE CONTENT E1	ATTRIBUTE PARAMETER E0/ ATTRIBUTE CONTENT E1
WEATHER	DATE	LOCATION
	DAY Z OF MONTH Y OF YEAR X	TOKYO

FIG.4

INTENTION INFORMATION I	ACQUISITION PARAMETER A0/ ACQUISITION CONTENT INFORMATION A1	ACQUISITION PARAMETER A0/ ACQUISITION CONTENT INFORMATION A1	ACQUISITION PARAMETER A0/ ACQUISITION CONTENT INFORMATION A1
WEATHER	WEATHER	AIR TEMPERATURE	CHANCE OF RAINFALL
	PARTLY CLOUDY	HIGHEST AIR TEMPERATURE: 25 DEGREES LOWEST AIR TEMPERATURE: 15 DEGREES	20%

FIG.5

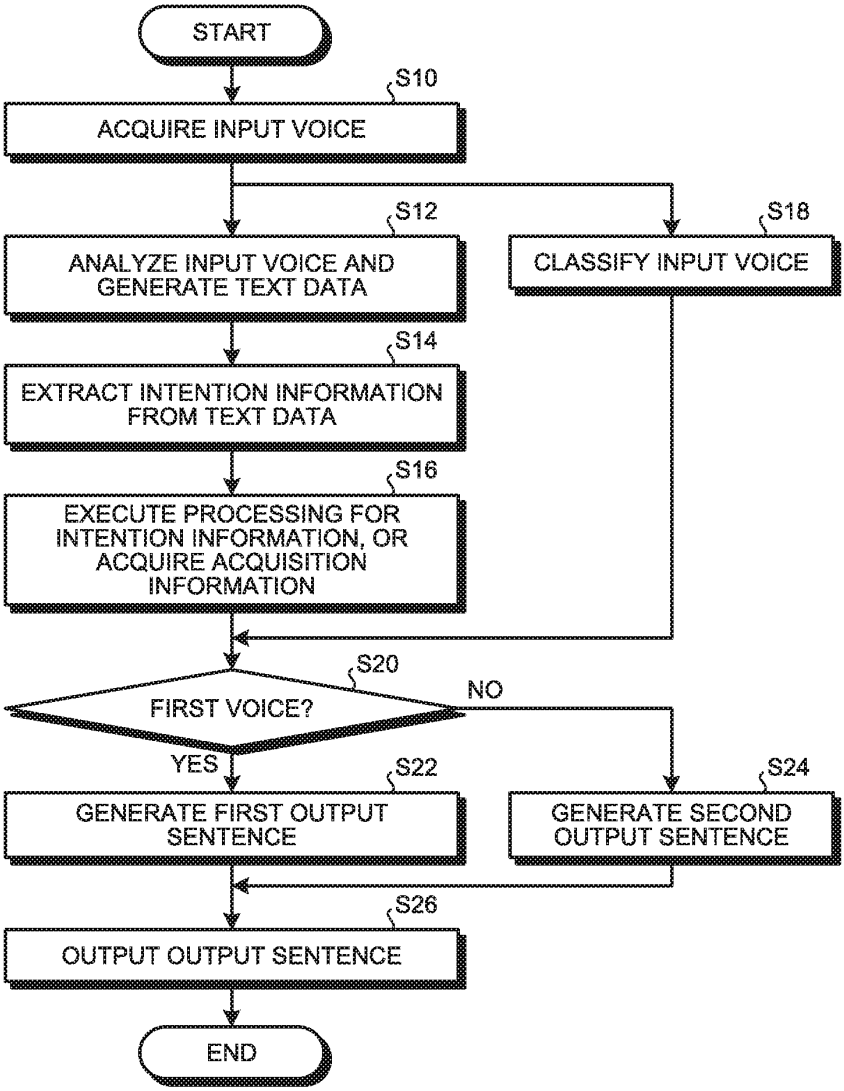

START
S10
ACQUIRE INPUT VOICE
S12
ANALYZE INPUT VOICE AND GENERATE TEXT DATA
S14
EXTRACT INTENTION INFORMATION FROM TEXT DATA
S16
EXECUTE PROCESSING FOR INTENTION INFORMATION, OR ACQUIRE ACQUISITION INFORMATION
S18
CLASSIFY INPUT VOICE
S20
FIRST VOICE?
YES
NO
S22
GENERATE FIRST OUTPUT SENTENCE
S24
GENERATE SECOND OUTPUT SENTENCE
S26
OUTPUT OUTPUT SENTENCE
END

FIG.6

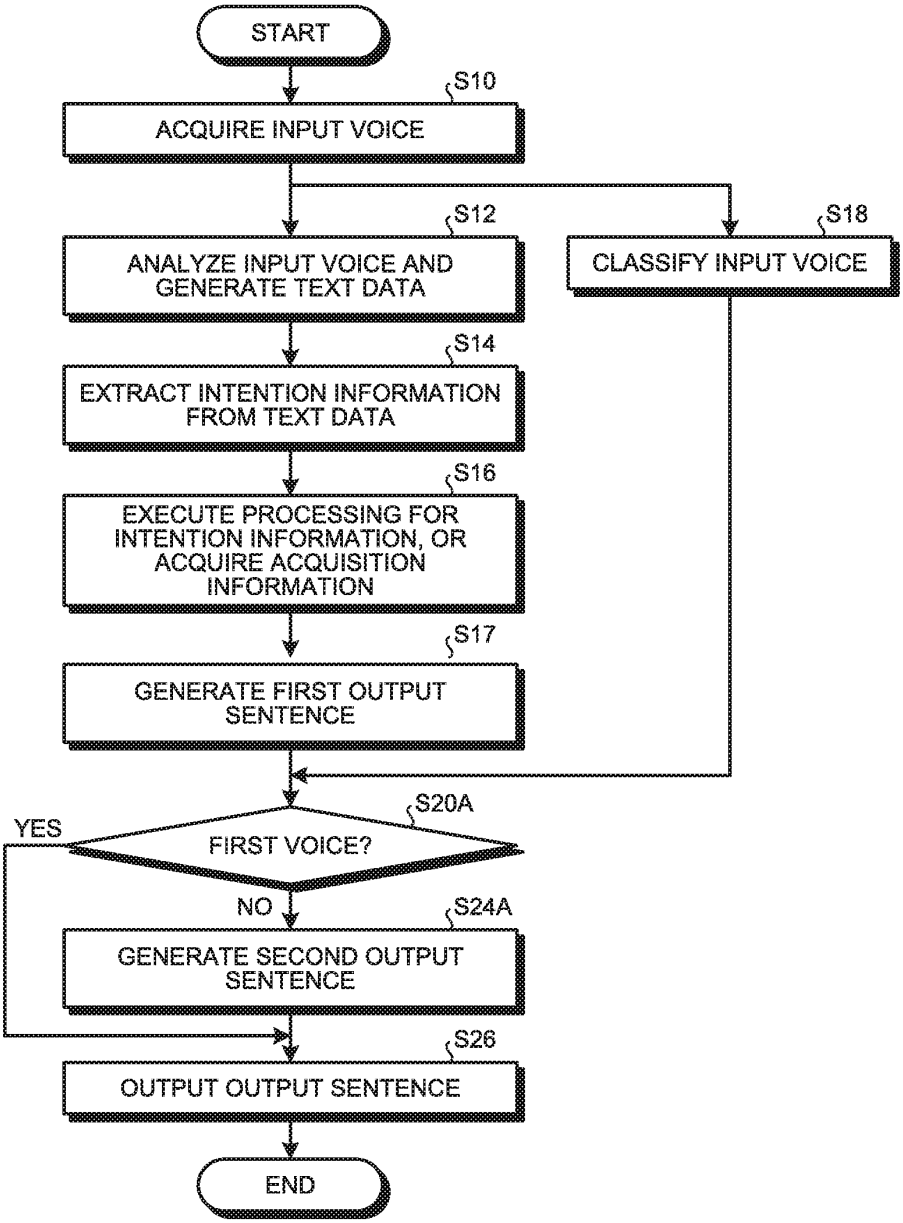
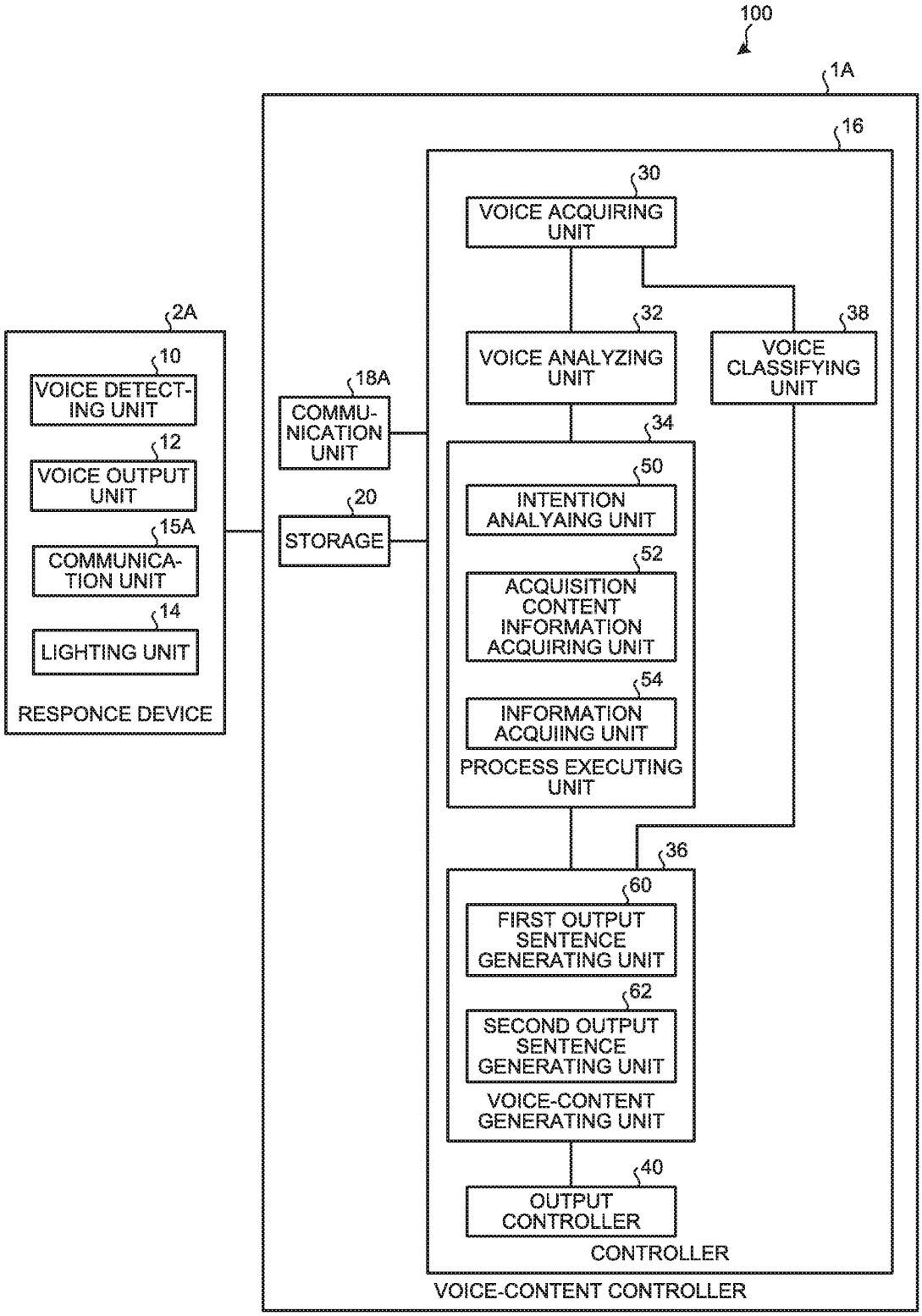

START
S10
ACQUIRE INPUT VOICE
S12
ANALYZE INPUT VOICE AND GENERATE TEXT DATA
S18
CLASSIFY INPUT VOICE
S14
EXTRACT INTENTION INFORMATION FROM TEXT DATA
S16
EXECUTE PROCESSING FOR INTENTION INFORMATION, OR ACQUIRE ACQUISITION INFORMATION
S17
GENERATE FIRST OUTPUT SENTENCE
S20A
YES
FIRST VOICE?
NO
S24A
GENERATE SECOND OUTPUT SENTENCE
S26
OUTPUT OUTPUT SENTENCE
END

FIG.7


100
1A
16
30
VOICE ACQUIRING UNIT
32
VOICE ANALYZING UNIT
38
VOICE CLASSIFYING UNIT
34
50
INTENTION ANALYAING UNIT
52
ACQUISITION CONTENT INFORMATION ACQUIRING UNIT
54
INFORMATION ACQUIING UNIT
PROCESS EXECUTING UNIT
36
60
FIRST OUTPUT SENTENCE GENERATING UNIT
62
SECOND OUTPUT SENTENCE GENERATING UNIT
VOICE-CONTENT GENERATING UNIT
40
OUTPUT CONTROLLER
CONTROLLER
VOICE-CONTENT CONTROLLER
18A
COMMU-NICATION UNIT
20
STORAGE
2A
10
VOICE DETECT-ING UNIT
12
VOICE OUTPUT UNIT
15A
COMMUNICA-TION UNIT
14
LIGHTING UNIT
RESPONCE DEVICE

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Application Data Sheet 37 CFR 1.76	Attorney Docket Number	SAJVP171US
	Application Number	
Title of Invention	VOICE-CONTENT CONTROL DEVICE, VOICE-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	VOICE-CONTENT CONTROL DEVICE, VOICE-CONTENT CONTROL METHOD, AND NON-TRANSITORY STORAGE MEDIUM		
Attorney Docket Number	SAJVP171US	**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

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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	SAJVP171US
	Application Number	
Title of Invention	VOICE-CONTENT CONTROL DEVICE, VOICE-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)
2018-039754	JP	2018-03-06	4BBC

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	SAJVP171US
	Application Number	
Title of Invention	VOICE-CONTENT CONTROL DEVICE, VOICE-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.

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Application Data Sheet 37 CFR 1.76	Attorney Docket Number	SAJVP171US
	Application Number	
Title of Invention	VOICE-CONTENT CONTROL DEVICE, VOICE-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	SAJVP171US
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Assignee 1

Complete this section if assignee information, including non-applicant assignee information, is desired to be included on the patent application publication. An assignee-applicant identified in the "Applicant Information" section will appear on the patent application publication as an applicant. For an assignee-applicant, complete this section only if identification as an assignee is also desired on the patent application publication.

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)	2019-03-04
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 Number	
Title of Invention	VOICE-CONTENT CONTROL DEVICE, VOICE-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: VOICE-CONTENT CONTROL DEVICE, VOICE-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 parties 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)

Approved for use through 11/30/2014. OMB 0651-0035

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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 4, 2019
First Named Inventor	Naganuma
Title	VOICE-CONTENT CONTROL DEVICE, VOICE-CONTENT CONTROL METHOD, AND NON-TRANSITORY STORAGE MEDIUM
Art Unit	
Examiner Name	
Attorney Docket Number	SAJVP171US

SIGNATURE of Applicant or Patent Practitioner

Signature	/Greg Turocy/	Date	March 4, 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.**

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