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PCT

WRITTEN OPINION OF THE INTERNATIONAL SEARCHING AUTHORITY

(PCT Rule 43*bis*.1)

Date of mailing
(day/month/year) see form PCT/ISA/210 (second sheet)

Applicant's or agent's file reference
see form PCT/ISA/220

FOR FURTHER ACTION
See paragraph 2 below

International application No.	International filing date *(day/month/year)*	Priority date *(day/month/year)*
PCT/US2016/017317	10.02.2016	

International Patent Classification (IPC) or both national classification and IPC
INV. G10L15/32 ADD. G10L21/0216

Applicant
NUANCE COMMUNICATIONS, INC.

1. This opinion contains indications relating to the following items:

- ☒ Box No. I Basis of the opinion
- ☐ Box No. II Priority
- ☐ Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- ☐ Box No. IV Lack of unity of invention
- ☒ Box No. V Reasoned statement under Rule 43*bis*.1(a)(i) with regard to novelty, inventive step and industrial applicability; citations and explanations supporting such statement
- ☐ Box No. VI Certain documents cited
- ☐ Box No. VII Certain defects in the international application
- ☐ Box No. VIII Certain observations on the international application

2. **FURTHER ACTION**

If a demand for international preliminary examination is made, this opinion will usually be considered to be a written opinion of the International Preliminary Examining Authority ("IPEA") except that this does not apply where the applicant chooses an Authority other than this one to be the IPEA and the chosen IPEA has notifed the International Bureau under Rule 66.1*bis*(b) that written opinions of this International Searching Authority will not be so considered.

If this opinion is, as provided above, considered to be a written opinion of the IPEA, the applicant is invited to submit to the IPEA a written reply together, where appropriate, with amendments, before the expiration of 3 months from the date of mailing of Form PCT/ISA/220 or before the expiration of 22 months from the priority date, whichever expires later.

For further options, see Form PCT/ISA/220.

Name and mailing address of the ISA:	Date of completion of this opinion	Authorized Officer
European Patent Office D-80298 Munich Tel. +49 89 2399 - 0 Fax: +49 89 2399 - 4465	see form PCT/ISA/210	Zimmermann, Elko Telephone No. +49 89 2399-0

Form PCT/ISA/237 (Cover Sheet) (January 2015)

Box No. I Basis of the opinion

1. With regard to the **language**, this opinion has been established on the basis of:

   ☒ the international application in the language in which it was filed.

   ☐ a translation of the international application into , which is the language of a translation furnished for the purposes of international search (Rules 12.3(a) and 23.1 (b)).

2. ☐ This opinion has been established taking into account the **rectification of an obvious mistake** authorized by or notified to this Authority under Rule 91 (Rule 43*bis*.1(a))

3. ☐ With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, this opinion has been established on the basis of a sequence listing:

   a. ☐ forming part of the international application as filed:

      ☐ in the form of an Annex C/ST.25 text file.

      ☐ on paper or in the form of an image file.

   b. ☐ furnished together with the international application under PCT Rule 13*ter*.1(a) for the purposes of international search only in the form of an Annex C/ST.25 text file.

   c. ☐ furnished subsequent to the international filing date for the purposes of international search only:

      ☐ in the form of an Annex C/ST.25 text file (Rule 13*ter*.1(a)).

      ☐ on paper or in the form of an image file (Rule 13*ter*.1(b) and Administrative Instructions, Section 713).

4. ☐ In addition, in the case that more than one version or copy of a sequence listing has been filed or furnished, the required statements that the information in the subsequent or additional copies is identical to that forming part of the application as filed or does not go beyond the application as filed, as appropriate, were furnished.

5. Additional comments:

Box No. V Reasoned statement under Rule 43*bis*.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Yes:	Claims	2-17, 19, 20
	No:	Claims	1, 18
Inventive step (IS)	Yes:	Claims	6, 11, 13, 15
	No:	Claims	1-5, 7-10, 12, 14, 16-20
Industrial applicability (IA)	Yes:	Claims	1-20
	No:	Claims	

2. Citations and explanations

see separate sheet

Re Item V

Reasoned statement with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1 The subject-matter of claim 1 is not new (Article 33(2) PCT), because EP 1 511 010 A1 discloses a system for detecting a designated wake-up word ("das Wort 'ich'", column 6, line 13), the system comprising:

a plurality of microphones ("Mikrofonanordnung 12" of figure 1, column 5, line 3) to detect acoustic information from a physical space having a plurality of acoustic zones ("Raumrichtungen", see figure 2 and paragraph [0025]);

at least one processor configured to:

receive a first acoustic signal representing the acoustic information received by the plurality of microphones ("Mikrofonanordnung 12");

process ("Optimierungseinheit 10" of figure 1, column 7, line 20) the first acoustic signal to identify content of the first acoustic signal originating from each of the plurality of acoustic zones ("Raumrichtungen");

provide a plurality of second acoustic signals ("vorverarbeitete Mikrofonsignale", column 6, line 33), each of the plurality of second acoustic signals substantially corresponding to the content identified as originating from a respective one of the plurality of acoustic zones ("aus unterschiedlichen Raumrichtungen", column 6, line 35); and

performing automatic speech recognition ("Spracherkenner 11" of figure 1, column 6, line 24) on each of the plurality of second acoustic signals to determine whether the designated wake-up word ("das Wort 'ich'") was spoken (see column 6, lines 13-23).

2 The objection raised against claim 1 is accordingly raised against corresponding claim 18.

3 The features of claims 1 and 2 could serve as basis for a new claim that meets the requirements of Articles 33(2) and (3) PCT.

In order to clarify the difference with respect to the prior art cited above the "wake-up word" claimed in claim 1 should be defined more precisely in the new claim, for example in view of the last three lines of page 1 and the first two lines of page 2, which teach that unless and until the system detects the wake-up word, the system assumes that the acoustic input received from the environment is not directed or intended for the system and will not process the acoustic input further, and once the wake-up word has been detected, the system begins recognizing subsequent speech spoken by the user.

Further, the additional steps of claim 2 should be defined more precisely in the new claim, for example in view of the last sentence of paragraph [0021], which teaches that once a first acoustic zone has been selected, the system performs speech recognition on sounds produced from the selected acoustic zone whilst excluding sounds produced from other acoustic zones.

4 Claim 18 could be amended accordingly.

Espacenet

Bibliographic data: EP1511010 (A1) — 2005-03-02

Control of a microphone array using feedback of a speech recognition system, and speech recognizion using said array

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Applicant(s): DAIMLER CHRYSLER AG [DE] ± (DAIMLERCHRYSLER AG)

Classification: **- international:** ***F21V29/02; G10L15/20;*** *F21W101/10; F21Y101/02; G10L21/0216;* (IPC1-7): G10L15/20
- cooperative: **G10L15/20;** G10L2021/02166

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Abstract of EP1511010 (A1)

An optimizing unit (OU) (10) controls a microphone system (MS) (12) regarding its receiving parameters. The MS picks up and processes voice signals. After processing the signals via the OU, the MS receiving parameters are controlled so that recognition performance is optimized for a voice identifier (11) subordinate to the OU. An independent claim is also included for a device for controlling a voice recognition system.

(19) Europäisches Patentamt
European Patent Office
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(11) EP 1 511 010 A1

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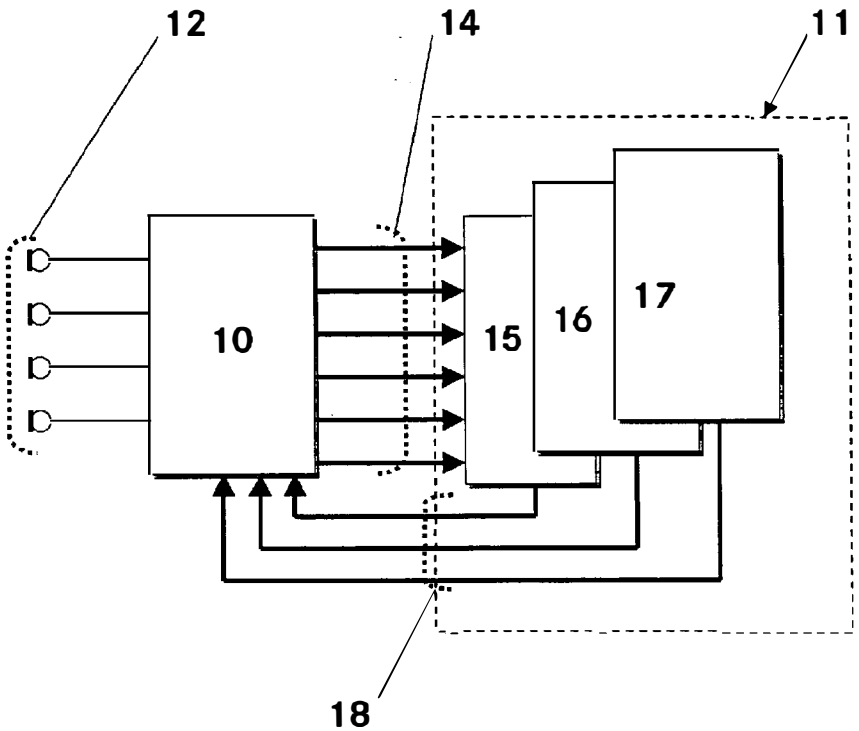
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(54) Intelligentes akustisches Mikrofon-Frontend mit Spracherkenner-Feedback

(57) Hierbei wird zur Regelung des Spracherkennungssystems eine richtungsselektive Mikrofonanordnung (12) durch ein Optimierungseinheit (10) in ihrer Empfangscharakteristik gesteuert. Die hiermit empfangenen Sprachsignale werden sodann zumindest zeitweise in einem Spracherkenner (11) parallel verarbeitet. Auf Grundlage der von dem Spracherkenner (11) gelieferten Ergebnisse wird sodann über die Optimierungseinheit (10) die Empfangscharakteristik der Mikrofonanordnung (12) so gesteuert, dass die Erkennungsleistung des nachgeordneten Spracherkenners optimiert wird.



Figur 1

EP 1 511 010 A1

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Beschreibung

[0001] Die Erfindung betrifft ein intelligentes akustisches Mikrofon-Frontend und ein Verfahren zum Betrieb eines solchen nach dem Oberbegriff der Patentansprüche 1 und 6.

[0002] In modernen Kraftfahrzeugen werden zunehmend Systeme installiert, welche über Spracheingabe bedient werden können. Hierbei sollen solche Systeme durch unterschiedliche Fahrzeuginsassen aus unterschiedlichen Positionen bedienbar sein. Auch ist es Ziel, im Rahmen moderner Insassenkommunikationsanlagen die einzelnen Plätzen im Fahrzeuginnenraum mit diesen spezifisch zugeordneten Mikrofonen und Lautsprechern auszustatten. Auch hierbei sollte sichergestellt werden, dass der einzelnen Insasse unabhängig von der physikalischen Gestaltung des Insassenkommunikationssystems zu jeder Zeit und in jeder Position komfortabel kommunizieren kann.

[0003] Die japanische Schrift JP 2002-091469 zeigt ein Spracherkennungssystem, welches zur Aufnahme von Sprachsignalen über ein durch eine Einheit zur Strahlformung (Beamforming Unit) schaltbares, richtungsselektives Mikrofonarray verfügt. Die Einheit zur Strahlformung umfasst hierbei einen Richtungserkenner, welcher aus den aufgenommenen Sprachsignalen die auf die Sprechrichtung bezogene Winkelablagen erkennt. Hierzu werden aus unterschiedlichen Winkelablagen hinsichtlich der Empfangscharakteristik des Mikrofonarrays Signale empfangen und einer Schwellwertuntersuchung zugeführt. Im Rahmen dieser Schwellwertuntersuchung liefert der Richtungserkenner als Erkennungsergebnis die wahrscheinlichste Richtung, aus welcher das Sprachsignal herrührt. Dieses Ergebnis wird sodann von der Einheit zur Strahlformung zur Steuerung des Mikrofonarrays herangezogen, so dass das Empfangsdiagramm des Mikrofonarrays möglichst auf die Richtung hin ausgerichtet wird, aus welcher das wahrscheinlich beste Sprachsignal herrührt.

[0004] Aus der Offenlegungsschrift EP 1 081 682 A2 ist ein Spracherkennungssystem für eine Insassenkommunikationsanlage bekannt, welche eine Vielzahl unterschiedlich positionierter Mikrofonsysteme umfasst. Die Signale der einzelnen Mikrofonsysteme werden parallel erfasst und hinsichtlich der Parameter Signal-Rausch-Verhältnis und des im Signal enthaltenen mittleren Sprachpegels untersucht. Diejenigen Signale, deren Parameter bestimmte Schwellwerte überschreiten, werden einem Spracherkenner zugeführt, welcher sequentiell die einzelnen Signale bearbeitet, wobei mit dem stärksten Signal begonnen wird. Aus den aus den Einzelsignalen resultierenden positiven Erkennungsergebnissen wird der Sprachinhalt der Signale ermittelt. Durch die parallele Untersuchung der an unterschiedlichen Stellen aufgenommenen Mikrofonsignale ist ein Sprecher nicht mehr daran gebunden, die Sprachinformation in eine bestimmte Richtung hin zu sprechen; auch wird es möglich, dass er während des Sprechvorgangs die Sprechrichtung ändert, ohne dass Information verloren geht.

[0005] Eine weitere Spracherkennungseinrichtung zur parallelen Verarbeitung mehrerer paralleler Mikrofonkanäle wird in der deutschen Offenlegungsschrift DE 100 30 105 A1 beschrieben. Hierbei werden die einzelnen Mikrofonkanäle unabhängig voneinander einer Merkmalsextraktion unterzogen und erst im Rahmen einer gemeinsamen Klassifikation zusammengeführt. Auf diese Weise ist in der der Klassifikation zugeführten Information noch die den einzelnen Kanälen individuell zuordenbare Information enthalten. Auch wird es möglich die Vorverarbeitung in den einzelnen Kanälen individuell zu gestalten und die daraus resultierenden Auswirkungen auf die Signale unabhängig zu beobachten.

[0006] Aufgabe der Erfindung ist es ein Spracherkennungssystem zu schaffen, welches zum einen eine verbesserte Spracherfassung aufweist und zum anderen eine optimierte Steuerung der Spracherfassung ermöglicht.

[0007] Die Aufgabe wird durch ein Verfahren und eine zur Durchführung des Verfahrens geeignete Vorrichtung mit den Merkmalen der Patentansprüche 1 und 6 gelöst. Vorteilhafte Ausgestaltungen und Weiterbildungen der Erfindung sind in den Unteransprüchen beschrieben.

[0008] Zur Regelung des Spracherkennungssystems wird eine Mikrofonanordnung (12) durch eine Optimierungseinheit (10) in ihrer Empfangscharakteristik modifiziert, wobei mittels der Mikrofonanordnung (12) Sprachsignale empfangen werden. Diese Sprachsignale werden sodann in einem Spracherkenner (11) zumindest zeitweise parallel verarbeitet. Auf Grundlage der von dem Spracherkenner (11) gelieferten Ergebnisse wird sodann über die Optimierungseinheit (10) die Empfangscharakteristik der Mikrofonanordnung (12) so gesteuert, dass die Erkennungsleistung des der Optimierungseinheit (10) nachgeordneten Spracherkenners (11) optimiert wird. In erfinderischer Weise werden hierbei dem Spracherkenner die empfangenen Sprachsignale parallel oder zumindest quasi-parallel zugeführt über die Sprachkanäle (14), so dass dieser unterschiedliche Sprachsignale zumindest Zeitweise parallel verarbeiten kann. Die Erkennungsergebnisse werden sodann hinsichtlich ihrer Qualität miteinander verglichen, wobei auf Grundlage dieses Vergleichs diejenigen Sprachsignale auswählt und weiterverarbeitet werden, welche das Potential für eine bestmögliche Erkennungsleistung haben. Desweiteren erhält auf Grundlage der Erkennungsergebnisse die Optimierungseinheit (10) durch den Spracherkenner die notwendigen Regelsignale (18), um die Empfangscharakteristik der Mikrofonanordnung (12) mittels einer Optimierungseinheit (10) in Bezug auf diejenigen Sprachkanäle (14) zu optimieren, welche die Sprachsignale führen, welche das Potential für eine bestmögliche Erkennungsleistung haben.

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[0009] Im Sinne dieser Erfindung ist selbstverständlich eine quasi-parallele Signalverarbeitung oder Signalweiterleitung mit einer parallelen Signalverarbeitung oder Signalweiterleitung gleichzusetzen. Bei einer quasi-parallelen Signalverarbeitung oder Signalweiterleitung erfolgt die Verarbeitung oder Weiterleitung zwar teilweise sequentiell (auf Grund der Prozessordimensionierung oder mangelnder Kapazität der Übertragungskanäle (14)), die Verarbeitungsergebnisse werden aber so behandelt, als ob der Verarbeitungs- oder Weiterleitungsvorgang tatsächlich parallel bzw. gleichzeitig verlaufen wäre.

[0010] In besonders vorteilhafte Weise erlaubt die Erfindung eine intelligente Optimierung der Empfangscharakteristik des Mikrofonarrays (12), da die Regelung auf den Erkennungsergebnissen eines Spracherkenners (11) basiert und nicht nur auf Grundlage rein abstrakter, physikalischer Signalparameter (Stärke des Signalpegels oder Verhältnisse der Signale an den Ausgängen der Einzelmikrofone des Mikrofonarrays).

[0011] Als Mikrofonanordnung eignet sich in besonderer Weise eine Mikrofonarray, also eine Zusammenschaltung einer Anordnung von mehreren Einzelmikrofonen. Hierbei können die Einzelmikrofone zu einer oder mehreren Gruppen zusammengeführt werden, wodurch sich unterschiedliche Richtungsselektivitäten in der Empfangscharakteristik der einzelnen Mikrofonarrays erzielen läst. Am Ausgang der Mikrofonanordnung (12) können sodann parallel oder quasi-parallel Sprachsignale aus -unterschiedlichen Raumrichtungen abgegriffen und einer Weiterverarbeitung in einem Spracherkenner (11) zugeführt werden.

[0012] Es ist denkbar die Empfangscharakteristik des Mikrofonarrays (12) auf unterschiedliche Weise zu modifizieren und in Bezug auf unterschiedliche Empfangsrichtungen hin zu optimieren:

- Einerseits ist es hierbei denkbar die Richtungsselektivität (Richtwirkung) der Empfangscharakteristik des Mikrofonarrays (12) aktiv zu steuern.

- Andererseits kann die Empfangscharakteristik auch dahingehend optimiert werden, dass mehreren der Einzelmikrofone des Mikrofonarrays Einheiten zur Geräuschreduktion nachgeschaltet werden.

[0013] Diese beiden vorteilhaften Optimierungsverfahren und Ausgestaltungsmöglichkeiten können einzeln oder auch in Kombination realisiert werden. So wird in besonders vorteilhafter Weise das Spracherkennungssystem so ausgestaltet, dass mehreren der Einzelmikrofone des Mikrofonarrays (12) Einheiten zur Geräuschreduktion zugeordnet werden, und die Optimierungseinheit (10) ausgehend von den Regelsignalen (18) des Spracherkenners (11) sowohl die Richtungsselektivität als auch die Geräuschreduktion steuert und modifiziert.

[0014] So aber gleichwohl auch denkbar, das die Mikrofonanordnung (12) als Mikrofonarray so auszugestalten, dass dessen Empfangscharakteristik eine oder mehrere spezifische Richtungsselektivitäten aufweist, welche unveränderlich, fest vorgegeben sind, sodass die Optimierungseinheit (10) nur mehrere der den Einzelmikrofonen nachgeschalteten Einheiten zur Geräuschreduktion ansteuert und so die Empfangscharakteristik des Mikrofonarrays (12) modifiziert. Auf diese Weise lassen sich Schaltungsaufwand und Kosten in Bezug auf das Mikrofonarray (12) minimieren. In gleicher Weise ist es selbstverständlich auch denkbar auf die mehreren der Einzelmikrofone nachgeschalteten Einheiten zur Geräuschreduktion zu verzichten.

[0015] Eine andere vorteilhafte Ausgestaltung der Mikrofonanordnung (12), welche sich insbesondere dann eignet wenn aus physikalischen oder designtechnischen Gründen nur ein geringer Einbauplatz vorhanden ist, besteht darin, dass nur ein einzelnen Mikrofon benutzt wird. Hierbei wird dessen Ausgangssignal auf mehrere parallele oder quasi-parallele Sprachkanäle aufgetrennt, welchen für diese Sprachkanäle spezifische Signalaufbereitungseinheiten (insbesondere Einheiten zur Geräuschreduktion) zugeordnet sind. Auf die Funktionsparameter dieser Signalaufbereitungseinheiten wird durch die Optimierungseinheit (10) sodann im Rahmen der Spracherkennung einfluss genommen, so dass diejenige sprachkanal-spezifische Signalaufbereitung optimiert wird, welche die besten Erkennungsergebnisse im Spracherkenner (11) liefert.

[0016] Die Erfindung lässt sich somit in besonders vorteilhafter Weise mit den unterschiedlichsten Arten von Mikrofonanordnungen koppeln, hierdurch in ihrer Funktionalität beeinflusst zu werden. Hierdurch lässt sich die Erfindung auch auf die unterschiedlichsten Einsatzorte (Kraftfahrzeug (->geringes Platzangebot), Konferenzraum (-> großzügiges Platzangebot)) und Einsatzbedingungen (eine Sprecherposition mit unterschiedlichen Sprechern oder aber mehrere gleichzeitige Sprecherpositionen mit starken Umgebungsgeräuschen) anpassen.

[0017] Nachfolgend wird anhand von Ausführungsbeispielen und mit Hilfe von Figuren die Erfindung im Detail erläutert. Dabei zeigen:

Fig. 1 zeigt den Aufbau einer vorteilhaften Ausführung des mehrstufigen, rückgekoppelten Sprachenerkennungssystems.

Fig. 2 zeigt die Variabilität. der durch die Einheit zur Strahlformung gesteuerten Empfangscharakterisiken des Mikrofonarrays auf.

Fig. 3 zeigt beispielhaft eine mögliche statistische Auswertung der Signale des Mikrofonarrays zur Erkennung und Lokalisation mehrerer Sprecher.

[0018] Mittels der Figuren werden insbesondere Aus-

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führungsbeispiele beschrieben, bei welchen die Richtungsselektivität (Richtwirkung) der Empfangscharakteristik der Mikrofonanordnung (12) durch die Optimierungseinheit (10) beeinflusst wird. Es ist für den Fachmann jedoch naheliegend diese Ausführungsbeispiele auch auf Anwendungsfälle zu übertragen, bei welchem die Empfangscharakteristik der Mikrofonanordnung (12) zusätzlich oder nur mittels der Steuerung von Einheiten zur Geräuschreduktion, welche mehreren der Einzelmikrofonen nachgeschalteten sind, modifiziert wird. Entsprechendes gilt für den Fall, bei welchem die Mikrofonanordnung (12) nur ein einziges Mikrofon gebildet wird, dessen Ausgangssignal auf mehrere parallele oder quasi-parallele Kanäle mit kanal-spezifischer Signalaufbereitung (insbesondere Geräuschreduktion) aufgespaltet wird.

[0019] In besonders vorteilhafter Weise lässt sich das erfindungsgemäße Spracherkennungssystem ausgestalten, indem der Spracherkenner (11) dergestalt ausgebildet wird, dass die Spracherkennung im Rahmen eines mehrstufigen Prozesses erfolgt. Dabei erfolgt durch eine oder mehrere dieser Verarbeitungsstufen zum einen eine Auswahl von Sprachsignalen, welche das Potential für eine bestmögliche Erkennungsleistung haben und einer Weiterverarbeitung zugeführt werden sollen. Zum anderen stellen diese einzelnen Verarbeitungsstufen einzeln oder gemeinsam der Optimierungseinheit (10) die notwendigen Regelsignale (18) zur Verfügung, um die Empfangscharakteristik des Mikrofonarrays (12) zu optimieren. Bei dem dargestellten Fall, dass die Mikrofonanordnung (12) aus einem richtungsselektiven Mikrofonarray besteht, wird durch die Optimierungseinheit (10) insbesondere die Richtungsselektivität der Empfangscharakteristik der Mikrofonanordnung (12) in Bezug auf diejenigen Richtungen hin zu optimieren, aus welchen diejenigen Sprachsignale empfangen werden, welche das Potential für eine bestmögliche Erkennungsleistung haben.

[0020] Wie in Figur 1 aufgezeigt, wird in gewinnbringender Weise der Spracherkenner aus zumindest drei aufeinander folgenden Verarbeitungseinheiten gebildet, welche zumindest

- einen Klassifikator (15), zur Erkennung von Lauteinheiten und/oder Lautuntereinheiten von Lauteinheiten,
- eine Einheit zur Worterkennung (16), zur Erkennung gesprochener Worte,
- und ein Einheit zur Erkennung und Interpretation sinnvoller Sätze (17) umfasst.

[0021] Hierbei sind die einzelnen Verarbeitungseinheiten (15, 16, 17) des Spracherkenners (11) so miteinander verbunden, dass mehrere der zuvor parallel verarbeiteten Signale parallel oder quasi-parallel an die nachfolgende Verarbeitungsstufe wertergereicht werden können. So wird nicht nur das als ‚bestes' Signal identifizierte Sprachsignal weiterverarbeitet, sondern es ist möglich auch weitere ‚gute' Sprachsignale weiter zu berücksichtigen. Eine derartige Ausgestaltung ist insbesondere deshalb besonders vorteilhaft, da es sich in der Praxis manchmal zeigt, dass bestimmte Signale in einer der Verarbeitungsstufen zwar exzellente Ergebnisse liefern, in der darauffolgenden Verarbeitungsstufe aber nicht zu gebrauchen sind; hier liefern dann oft diejenigen Sprachsignale, welche in der vorausgehenden Verarbeitungsstufe mit nicht so gutem Ergebnis abgeschnitten haben im gesamten ein besseres Ergebnis. Wird beispielsweise das gesprochene Wort "ich" durch störende Umfeldgeräusche zu einem scheinbaren "mich", so würde dieser Fehler von der Einheit zur Sprachinterpretation (17) meist noch richtig auf "ich" umgedeutet, wenn dieser durch den Worterkenner parallel sowohl die Worte "mich" als auch "ich" zugeführt würden. Würde der Worterkenner (16) aber nur das Wort, welches er mit der höchsten Wahrscheinlichkeit erkennt weiter geleitet, so hätte die Einheit zur Sprachinterpretation (17) keine Möglichkeit zu Erkennen, dass in diesem Zusammenhang das Wort "ich" richtig ist.

[0022] Dem Spracherkenner (11) werden durch die Optimierungseinheit (10) mehrere Mikrofonsignale über Zuleitungen (15) parallel oder quasi parallel zugeführt. Hierbei kann es sich um Signale unterschiedlichster Art handeln. In einfachster Form entsprechen die parallel geführten Signale den Einzelsignalen der einzelnen die Mikrofonanordnung (10) bildenden Einzelmikrofone. Sehr wohl ist es aber auch denkbar, über die einzelnen parallel geführten Signalkanäle bereits durch die Optimierungseinheit (10) vorverarbeitete Mikrofonsignale zu führen. So ist es möglich, dass die Signalkanäle Signale aus unterschiedlichen Raumrichtungen (21) führen, welche durch adaptives Beamforming und zusammenführen der Signale mehrerer Einzelmikrofone (12) generiert wurden. Sehr wohl kann es sich aber auch um die Sprachsignale aus einer einzelnen Raumrichtung ($21_{(1-k)}$) handeln, welche mit unterschiedlich gestalteten Empfangscharakteristiken des Mikrofonarrays (beispielsweise: breite/schmale Empfangskeule, unterschiedlichste Empfangsparameter und -empfindlichkeiten oder unterschiedlichen Methoden bzw. Parameter bei der Geräuschreduktion)empfangen wurden. Mittels der Rückkopplung der Steuersignale vom Spracherkenner zum Optimierungseinheit (10) kann die Empfangscharakteristik des Mikrofonarrays also auch hinsichtlich der Anzahl und Art von Charakteristiken und auf Grundlage unterschiedlichster optimierter Geräuschreduktions-Parameter gesteuert werden.

[0023] Die Optimierungseinheit (10) erhält ihre Steuersignale über eine oder mehrere Steuerleitungen (18) vom Spracherkenner (11) beziehungsweise von einer seiner Untereinheiten (15, 16, 17). Der Klassifikator (15) kann beispielsweise bewirken, dass der Empfang von denjenigen Raumrichtungen unterdrückt wird, welche nur akustische Signale liefern, welche gar keine Sprach-

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signale sind. Durch die Steuersignale der Einheit zur Worterkennung (16) kann die Empfangscharakteristik weiter optimiert werden, um ein geeignetes Empfangssignal zu generieren, aus welchem Wörter optimal extrahiert werden können. In Bezug auf den oben angeführten Beispielsfall, bei welchem das Wort "ich" durch Störsignale, zumindest bei bestimmten Empfangscharakterisiken als Wort "mich" vom Mikrofonarray empfangen wurde, kann durch gezielte Steuerung durch die Einheit zur Sprachinterpretation die Empfangscharakteristik des Mikrofonarrays ergänzend dergestalt optimiert werden, dass die in diesem Falle verfälschenden Störgeräusche bestmöglich weiter unterdrückt werden.

[0024] Dieses besonders vorteilhafte Konzept der mehrstufigen, parallelisierten Steuerung der Empfangscharakteristik der Mikrofonanordnung (12) erlaubt eine bestmögliche Elimination von Störeinflüssen und resultiert in einer optimalen Spracherkennung.

[0025] Beispielhaft zeigt Figur 2 die Variabilität der durch die Optimierungseinheit (10) gesteuerten Empfangscharakterisiken des Mikrofonarrays aus M Einzelmikrofonen (12) auf. Hierbei weist die Optimierungseinheit (10) N parallele Ausgänge (15) zur Übermittlung der Mikrofonsignale an den Spracherkenner (11) auf. Wie zuvor bereits ausgeführt muss die Anzahl N der Ausgänge (15) der Optimierungseinheit (10) nicht mit der Anzahl M der Einzelmikrofone (12) an seinem Eingang übereinstimmen, da die parallelen Ausgangssignale im allgemeinen nicht einfache Kopien der Ausgangssignale der Einzelmikrofone des Mikrofonarrays entsprechen, sondern meist aus teilweise komplexen Fusionen dieser Signale herrühren. Im der unteren Hälfte der Figur 2 sind beispielhaft sechs mögliche Empfangscharakteristika des Mikrofonarrays aufgezeigt. So ist es beispielsweise denkbar, Empfangscharakteristiken zu bilden, welche selektiv bezüglich unterschiedlicher Raumrichtungen sind (A, B, C) oder welche unterschiedliche Richtungsselektivität aufweisen (D, E) oder welche mit einer Nullstelle (zum Beispiel in Richtung einer dominanten Störquelle, wie einem geöffneten Fenster)versehen sind (F).

[0026] Bei dem in Figur 2 aufgezeigten Beispiel finden sich ein Sprecher (22) in etwa zwischen den virtuellen Raumsektoren 2 und 3, so dass mit den im unteren Teil der Figur 2 mit B, D, E und F bezeichneten, durch die Optimierungseinheit(10) gebildeten Empfangscharakterisiken die beste Erkennungsleitung zu erwarten ist. Aus dieser Figur 2 wird jedoch zugleich auch klar, dass es im Vorfeld einer eigentlichen Spracherkennung schwierig ist sich auf eine dieser vier Empfangscharakteristiken B, D, E und F festzulegen, so dass sicher besser ist, alle aus den vier Empfangscharakteristiken resultierenden Signale parallel im Spracherkenner (11) zu verarbeiten und erst im Nachhinein eine Auswahl oder gar Optimierung der Empfangscharakteristik vorzunehmen.

[0027] Die Adaption der Empfangscharakteristik (Beamforming)der Mikrofonanordnung (12) kann mittels bekannter Verfahren beispielsweise mittels der Methode nach Griffith-Jim oder dem Frost-Beamforming erfolgen.

[0028] Es ist zudem oft üblich einer Einheit zur Adaption der Empfangscharakteristik eines Mikrofons (Mikrofon-Beamformer) ein einkanaliges Geräuschreduktionsverfahren, wie zum Beispiel, das bekannte Verfahren der Spektralen Subtraktion (im Spektralbereich des Mikrofonsignals wird ein Geräusch-Schätzwert subtrahiert), nachzuschalten. Einfache Geräuschreduktionsverfahren benutzen beispielsweise nur die Spektrale Subtraktion. Im vorliegenden Fall kann das einkanalige Verfahren zur Nachverarbeitung der einzelnen Ausgänge der Einheit zur Adaption der Empfangscharakteristik verwendet werden. Die Spektrale Subtraktion bringt ihrerseits Parameter mit, wie unter anderem ein Faktor mit der Geräusch-Schätzwerte vor der Subtraktion gewichtet wird, oder eine untere Schwelle im Spektrum die nach der Subtraktion nicht unerschritten werden darf (der sogenannte Spectral Floor). Der Geräusch-Gewichtungsfaktor und die untere Schwelle des Spektrums sind Parameter. Aus jedem der Ausgänge des Mikrofon-Beamformers können nun wiederum mehrere Ausgänge erzeugt werden, wenn das Ausgangssignal des Beamformers mehrere Parameter-Varianten einer Spektralen Subtraktion durchläuft.

[0029] In besonders vorteilhafter Weise lässt sich das erfindungsgemäße Spracherkennungssystem dahingehend modifizieren, dass es in die Lage versetzt wird, in der Mikrofonanordnung (12) empfangenen Signalen mehrere Sprecher (30, 31) zu erkennen. Werden mehrere Sprecher (30, 31) erkannt, so können sodann die über die Optimierungseinheit (10) unterschiedlich wählbaren Empfangscharakteristiken auf die Sprechrichtung der unterschiedlichen Sprecher hin optimiert werden. Figur 3 dient der Erläuterung eines besonders vorteilhaften Verfahrens zur Erkennung mehrer Sprecher (30, 31) in dem von der Mikrofonanordnung (12) aufgenommenen Signal. Hierbei wird über einen bestimmten Zeitraum eine Statistik darüber geführt, wie oft jeder einzelne der N-Ausgänge der Optimierungseinheit (10) durch den Spracherkenner (11) als derjenige der N Sprachsignalkanäle (15) identifiziert wird, welcher das ‚beste' Signal liefert. Aus der Kenntnis der den einzelnen Sprachsignalkanälen (15) zuzuordnenden Empfangscharakteristik der Optimierungseinheit (10) kann sodann die Anzahl der Sprecher (30, 31) geschätzt werden. Bei dem in Figur 3 aufgezeigten Beispiel befindet sich einer der Sprecher (30) in Raumsektor 3 und einer Sprecher (31) in Raumsektor 1. Das System verfügt über N Sprachsignalkanäle (15) denen jeweils eine auf einen von N nebeneinanderliegenden Raumsektoren (21) spezifizierte Empfangscharakteristiken zugeordnet ist. Wird nun über einen gewissen Zeitraum, während dessen die Sprecher 30 und 31 reden, eine Statistik über die Qualität der Sprachsignale in den einzelnen Kanälen geführt, so ergibt sich in etwa die in Figur 3 aufgezeigte Statistik. In besonders vorteilhafte Weise

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wurde die hier dargestellte statistische Auswertung anhand eines Histogramms erstellt, wobei andere statistische Auswerteverfahren gleichsam ebenfalls zur Anwendung kommen können. Bei einer statistischen Auswertung auf Basis eines Histogramms werden im Hinblick auf das in Figur 3 dargestellte Beispiel entlang der Ordinate des Diagramms unterschiedliche räumlich nebeneinander liegende Empfangscharakteristiken (Raumrichtungen) aufgelistet. Dabei wird abgebildet, wie häufig ein aus deiner dieser bestimmten Raumrichtungen (21) empfangenes Signal zu einem brauchbaren Erkennungsergebnis beigetragen hat. Auf diese Weise kann sodann auf unterschiedliche Sprecher (30, 31) geschlossen werden, wenn zwischen zwei im Histogramm in ihrer Häufigkeit deutlich hervortretenden Raumrichtungen wenigstens eine Raumrichtung gegeben ist, welche eine hierzu signifikant geringe Häufigkeit aufweist. Selbstverständlich kann durch den Fachmann dieses Verfahren vergleichbar auf eine Optimierungseinheit mit unterschiedlichsten Richtungsselektivitäten in der Empfangscharakteristik adaptiert werden.

[0030] Eine weitere gewinnbringende Verbesserung des erfindungsgemäßen Spracherkennungssystems lässt sich dadurch erzielen, dass für den Fall, dass auf das Vorhandensein mehrere Sprecher geschlossen wird, dem Spracherkennungssystem wenigstens ein weiterer Spracherkenner zugeschaltet wird. Die Zuschaltung erfolgt idealer Weise direkt hinter der Optimierungseinheit (10), so dass gewissermaßen eine Parallelschaltung der Spracherkenner entsteht. Auf diese Weise lässt sich die Verarbeitungsleistung weiter steigern und optimieren, insbesondere indem jedem einzelnen der Spracherkenner spezifisch diejenigen Sprachsignale zugeleitet werden, welche aus denjenigen Raumrichtungen stammen, welche den einzelnen der mehreren Sprecher zugeordnet sind.

Patentansprüche

1. Verfahren zur Regelung eines Spracherkennungssystems,
   bei welchem eine Mikrofonanordnung durch ein Optimierungseinheit (10) in ihrer Empfangscharakteristik gesteuert wird,
   wobei mittels der Mikrofonanordnung Sprachsignale empfangen und verarbeitet werden,
   und bei dem in Folge der Verarbeitung der Sprachsignale über die Optimierungseinheit (10) die Empfangscharakteristik der Mikrofonanordnung (12) so gesteuert wird, dass die Erkennungsleistung des der Optimierungseinheit(10) nachgeordneten Spracherkenners (11) optimiert wird,
   dadu rch gekennzeichnet,
   dass dem Spracherkenner (11) empfangenen Sprachsignale über mehrere parallele oder quasiparallele Sprachkanäle (15) zugeführt werden,
   dass der Spracherkenner (11) diese Sprachkanäle zumindest zeitweise parallel verarbeitet und die Erkennungsergebnisse hinsichtlich ihrer Qualität miteinander vergleicht,
   und **dass** auf Grundlage dieses Vergleichs
   zum einen die Sprachsignale derjenigen Sprachkanäle (14) auswählt und weiterverarbeitet werden, welche das Potential für eine bestmögliche Erkennungsleistung haben,
   und zum anderen die Optimierungseinheit (10) durch den Spracherkenner die notwendigen Regelsignale (18) erhält, um die Empfangscharakteristik des Mikrofonarrays (12) in bezug auf diejenigen Sprachkanäle (14) zu optimieren, über welche diejenigen Sprachsignale empfangen werden, welche das Potential für eine bestmögliche Erkennungsleistung haben.

2. Verfahren zur Regelung eines Spracherkennungssystems nach Anspruch 1,
   dadurch gekennzeichnet,
   dass die Spracherkennung im Spracherkenner (11) im Rahmen eines mehrstufigen Prozesses erfolgt, welcher zumindest nacheinander folgend die Verarbeitungsstufen

   - Klassifikation (15), zur Erkennung von Lauteinheiten und/oder Lautuntereinheiten von Lauteinheiten,
   - Worterkennung (16), zur Erkennung gesprochener Worte,
   - und Interpretation, zur Erkennung und Interpretation sinnvoller Sätze (17) umfasst,

   und **dass** durch eine oder mehrere dieser Verarbeitungsstufen
   zum einen eine Auswahl von Sprachsignalen getroffen wird, welche das Potential für eine bestmögliche Erkennungsleistung haben, und welche einer Weiterverarbeitung zugeführt werden sollen,
   und zum anderen der Optimierungseinheit (10) notwendige Regelsignale (18) zur Verfügung gestellt werden, um die Empfangscharakteristik des Mikrofonarrays (12) in Bezug auf diejenigen Sprachkanäle (14) zu optimieren, aus welchen diejenigen Sprachsignale empfangen werden, welche das Potential für eine bestmögliche Erkennungsleistung haben.

3. Verfahren zur Regelung eines Spracherkennungssystems nach einem der vorhergehenden Ansprüche,
   dadurch gekennzeichnet,
   dass eine Statistik darüber geführt wird, für welche Empfangscharakteristiken des Mikrofonarrays optimale Erkennungsleistungen erzielt wurden,
   und das ausgehend von dieser Statistik entschie-

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den wird, ob die von dem Spracherkennungssystem verarbeiteten Sprachsignale von unterschiedlichen Sprechern stammen.

4. Verfahren zur Regelung eines Spracherkennungssystems nach Anspruch 3,
dadurch gekennzeichnet,
dass die Statistik in Art eines Histogramms geführt wird, welches entlang seiner Ordinate unterschiedliche räumlich nebeneinander liegende Raumrichtungen auflistet, und abbildet, wie häufig ein aus einer dieser bestimmten Raumrichtungen empfangenes Signal zu einem brauchbaren Erkennungsergebnis beigetragen hat,
wobei dann auf unterschiedliche Sprecher entschieden wird, wenn zwischen zwei im Histogramm in ihrer Häufigkeit deutlich hervortretenden Raumrichtungen wenigstens eine Raumrichtung gegeben ist, welche eine hierzu signifikant geringe Häufigkeit aufweist.

5. Verfahren zur Regelung eines Spracherkennungssystem nach einem der Ansprüche 1 oder 4,
dadurch gekennzeichnet,
dass für den Fall, dass auf das Vorhandensein mehrerer Sprecher (30, 31) geschlossen wird, dem Spracherkennungssystem wenigstens ein weiterer Spracherkenner zugeschaltet wird,
welcher im wesentlichen die selben Funktionalitäten wie der bereits im Spracherkennungssystem enthaltene Spracherkenner aufweist,
und welchem von der Optimierungseinheit (10) diejenigen Sprachsignale zugeleitet werden, welche aus den Raumrichtungen stammen, welche wenigstens einem der mehreren Sprecher zugeordnet sind.

6. Vorrichtung zur Regelung eines Spracherkennungssystems,
bestehend aus einer Mikrofonanordnung mit einer Optimierungseinheit (10) zur Modifikation der Empfangscharakteristik der Mikrofonanordnung (12),
welche über wenigstens einen Spracherkenner (11) verfügt, welchem die Sprachsignale zugeführt werden und welcher diese verarbeitet,
wobei der Spracherkenner (11) mit der Optimierungseinheit (10) zur Modifikation Empfangscharakteristik der Mikrofonanordnung (12) in Verbindung steht, so dass über diese Verbindung die Empfangscharakteristik dergestalt geregelt werden kann, dass die Erkennungsleistung des der Optimierungseinheit (10) nachgeordneten Spracherkenners (11) optimiert wird,
dadurch gekennzeichnet,
dass dem Spracherkenner (11) die Sprachsignale über mehrere parallele Signalleitungen (14) zugeführt werden,
dass dem Spracherkenner (11) mit der Optimierungseinheit (10) dergestalt in Verbindung steht, dass ihm die aus Sprachsignale über Sprachkanäle (14) parallel oder quasi-parallel zugeführt werden,
dass der Spracherkenner (11) so ausgestaltet ist, dass er diese unterschiedlichen Sprachsignale parallel oder quasi-parallel verarbeiten und die Erkennungsergebnisse hinsichtlich ihrer Qualität miteinander vergleichen kann,
und **dass** auf Grundlage dieses Vergleichs
zum einen die Sprachsignale derjenigen Sprachkanäle auswählt und weiterverarbeitet werden, welche das Potential für eine bestmögliche Erkennungsleistung haben,
und zum anderen die Optimierungseinheit (10) durch den Spracherkenner die notwendigen Regelsignale (18) erhält, um die Empfangscharakteristik des Mikrofonarrays in Bezug auf diejenigen Sprachkanäle (14) hin zu optimieren, welche die Sprachsignale leiten, welche das Potential für eine bestmögliche Erkennungsleistung haben.

7. Vorrichtung zur Regelung eines Spracherkennungssystems nach Anspruch 6,
dadurch gekennzeichnet,
dass der Spracherkenner mehrstufig ausgestaltet ist, und zumindest enthält:

- einen Klassifikator (15), zur Erkennung von Lauteinheiten und/oder Lautuntereinheiten von Lauteinheiten,

- eine Einheit zur Erkennung gesprochener Worte in den empfangen Sprachsignalen (16), zur Erkennung gesprochener Worte,

- und eine Einheit zur Interpretation des empfangenen Sprachsignals (17), zur Erkennung und Interpretation sinnvoller Sätze umfasst,

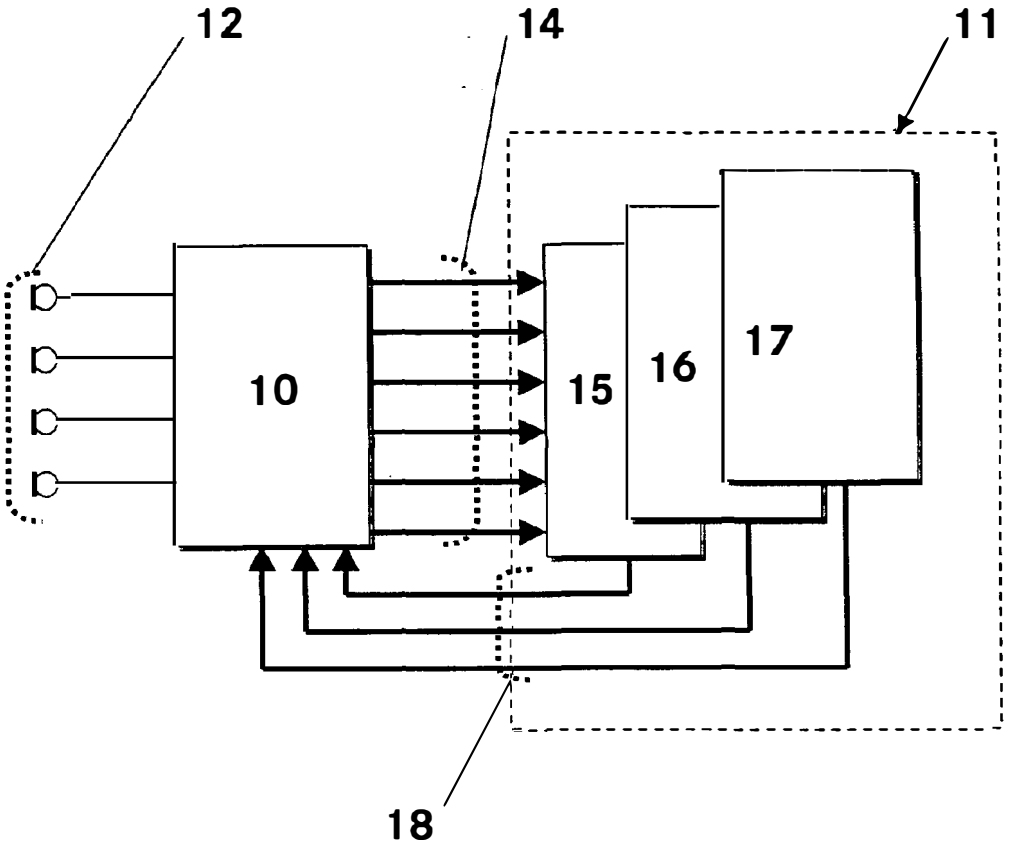
und **dass** durch eine oder mehrere dieser Verarbeitungsstufen
zum einen eine Auswahl von Sprachsignalen getroffen wird, welche das Potential für eine bestmögliche Erkennungsleistung haben, und welche einer Weiterverarbeitung zugeführt werden sollen,
und zum anderen der Optimierungseinheit (10) notwendige Regelsignale (18) zur Verfügung gestellt werden, um die Empfangscharakteristik des Mikrofonarrays (12) in Bezug auf diejenigen Sprachkanäle (14) hin zu optimieren, welche diejenigen Sprachsignale führen, welche das Potential für eine bestmögliche Erkennungsleistung haben.

8. Vorrichtung zur Regelung eines Spracherkennungssystem nach einem der Ansprüche 6 bis 7,
dadurch gekennzeichnet,
dass die Vorrichtung so ausgestaltet ist, dass für

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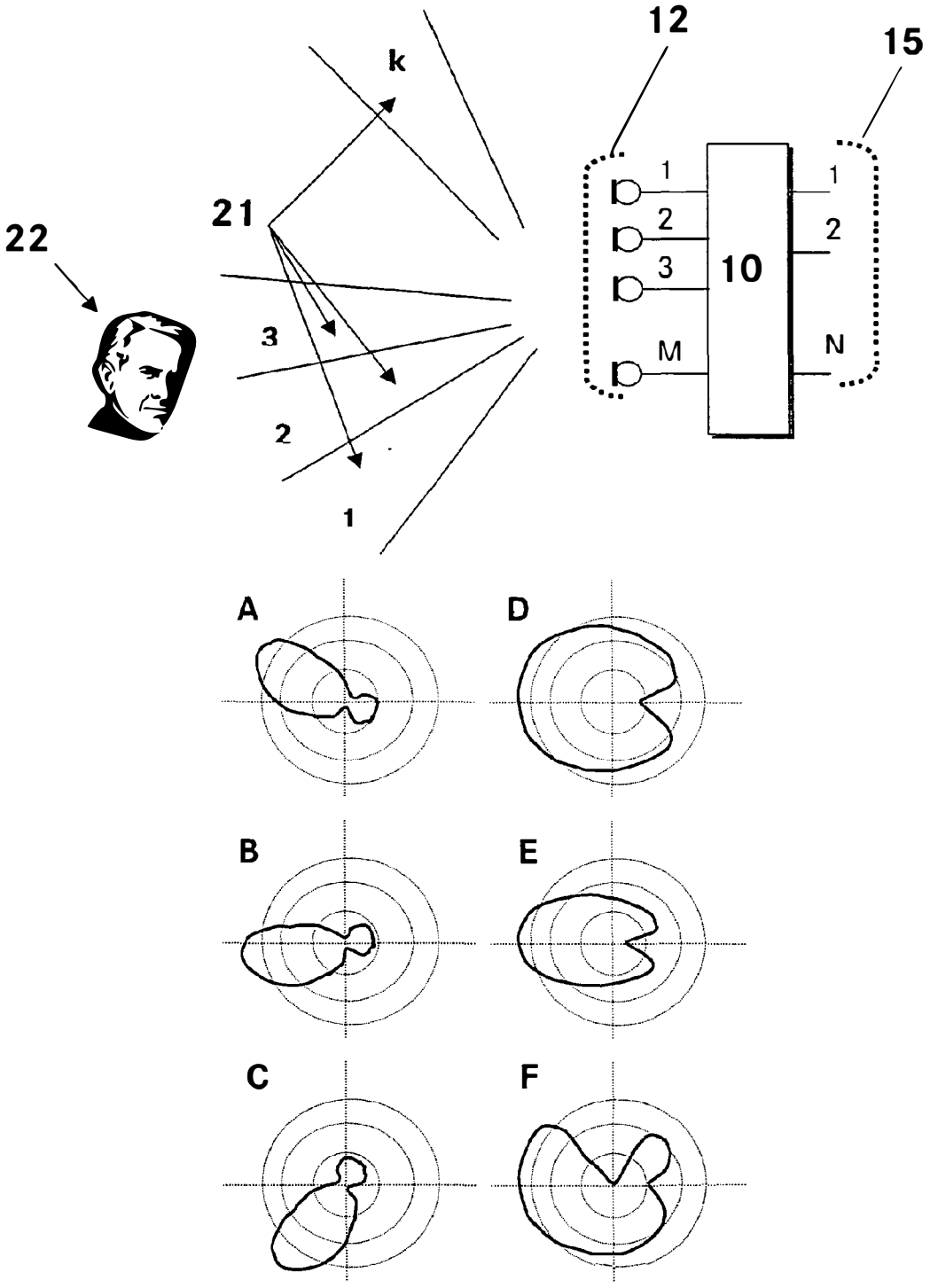
den Fall dass die empfangenen Sprachsignale mehreren Sprechern zuzuordnen sind wenigstens ein weiterer Spracherkenner zugeordnet werden kann, welcher im wesentlichen die selben Funktionalitäten wie der bereits im Spracherkennungssystem enthaltene Spracherkenner (11) aufweist,
und welcher mit der Optimierungseinheit (10) dergestalt in Verbindung steht, dass ihm diejenigen Sprachsignale zugeleitet werden, welche aus den Raumrichtungen stammen, welche wenigstens einem der mehreren Sprecher zugeordnet sind.

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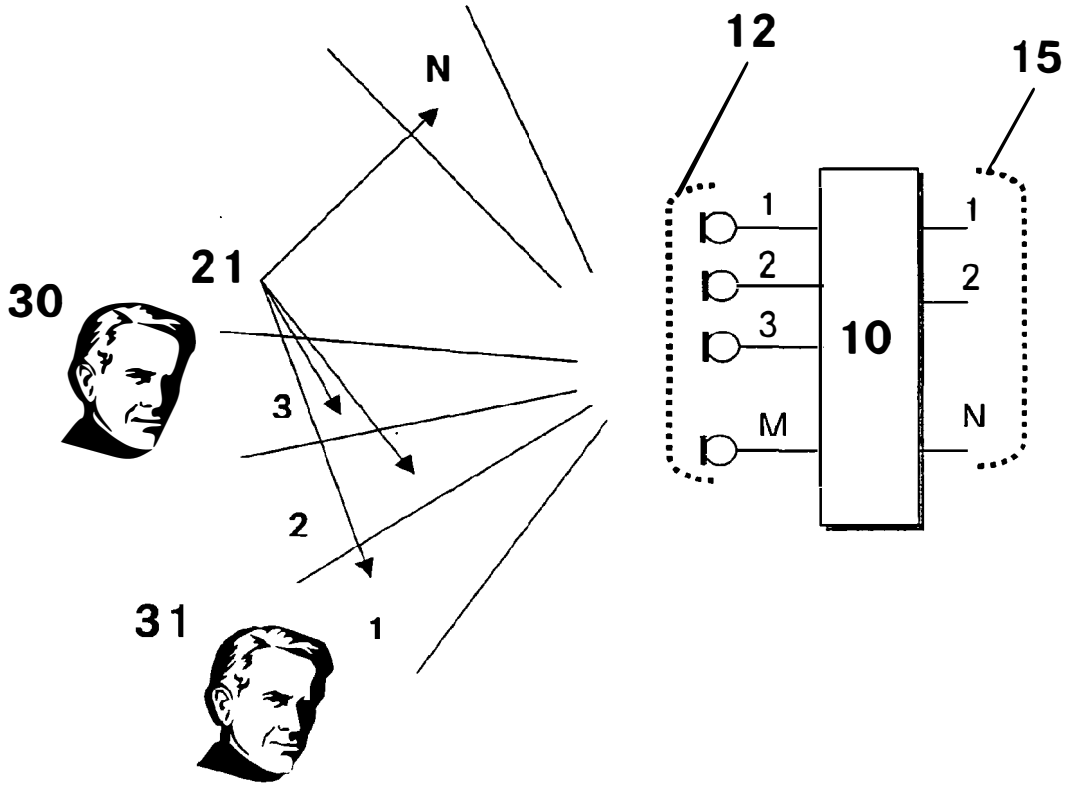
Figur 1

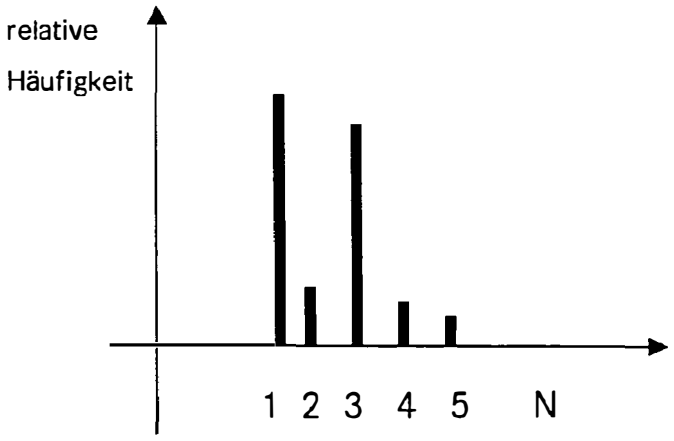
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Figur 2

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Figur 3

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Europäisches Patentamt

EUROPÄISCHER RECHERCHENBERICHT

Nummer der Anmeldung
EP 04 01 3378

EINSCHLÄGIGE DOKUMENTE

Kategorie	Kennzeichnung des Dokuments mit Angabe, soweit erforderlich, der maßgeblichen Teile	Betrifft Anspruch	KLASSIFIKATION DER ANMELDUNG (Int.Cl.7)
A	SHIMIZU Y ET AL: "Speech recognition based on space diversity using distributed multi-microphone" IEEE ICASSP 2000, Bd. 3, 5. Juni 2000 (2000-06-05), Seiten 1747-1750, XP010507697 * Absatz [05.1] *	1,6	G10L15/20
A	SELTZER M L ET AL: "Speech recognizer-based microphone array processing for robust hands-free speech recognition" 2002 IEEE INTERNATIONAL CONFERENCE ON ACOUSTICS, SPEECH, AND SIGNAL PROCESSING. PROCEEDINGS (CAT. NO.02CH37334) IEEE PISCATAWAY, NJ, USA, Bd. 1, 13. Mai 2002 (2002-05-13), - 17. Mai 2002 (2002-05-17) Seiten 897-900, XP002310104 ORLANDO FL ISBN: 0-7803-7402-9 * Abbildung 1b * * Zusammenfassung *	1,6	RECHERCHIERTE SACHGEBIETE (Int.Cl.7) G10L
D,A	EP 1 081 682 A (PIONEER CORP) 7. März 2001 (2001-03-07) * Absätze [0069] - [0071], [0080] * * Abbildung 10 *	1,6	
A	US 5 684 924 A (STANLEY BARBARA ANN ET AL) 4. November 1997 (1997-11-04) * Abbildungen 2,3 *	1,6	
A	US 6 122 613 A (BAKER JAMES K) 19. September 2000 (2000-09-19) * Zusammenfassung *		

Der vorliegende Recherchenbericht wurde für alle Patentansprüche erstellt

Recherchenort	Abschlußdatum der Recherche	Prüfer
München	10. Dezember 2004	Krembel, L

KATEGORIE DER GENANNTEN DOKUMENTE

X : von besonderer Bedeutung allein betrachtet
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& : Mitglied der gleichen Patentfamilie, übereinstimmendes Dokument

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ANHANG ZUM EUROPÄISCHEN RECHERCHENBERICHT ÜBER DIE EUROPÄISCHE PATENTANMELDUNG NR. EP 04 01 3378

In diesem Anhang sind die Mitglieder der Patentfamilien der im obengenannten europäischen Recherchenbericht angeführten Patentdokumente angegeben.
Die Angaben über die Familienmitglieder entsprechen dem Stand der Datei des Europäischen Patentamts am
Diese Angaben dienen nur zur Unterrichtung und erfolgen ohne Gewähr.

10-12-2004

Im Recherchenbericht angeführtes Patentdokument	Datum der Veröffentlichung	Mitglied(er) der Patentfamilie	Datum der Veröffentlichung
EP 1081682 A	07-03-2001	JP 2001075594 A	23-03-2001
		EP 1081682 A2	07-03-2001
US 5684924 A	04-11-1997	KEINE	
US 6122613 A	19-09-2000	DE 69814589 D1	18-06-2003
		DE 69814589 T2	25-03-2004
		EP 0954848 A1	10-11-1999
		WO 9834217 A1	06-08-1998

EPO FORM P0461

Für nähere Einzelheiten zu diesem Anhang : siehe Amtsblatt des Europäischen Patentamts, Nr.12/82

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EAST Search History

EAST Search History (Prior Art)

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
S1	84	("20100185448" | "20110054899" | "20130080167" | "20130080171" | "20130289994" | "20130339028" | "20140012573" | "20140012586" | "5428707" | "5774859" | "5802305" | "5983186" | "6070140" | "6092043" | "6397186" | "6408396" | "6411926" | "6449496" | "6594630" | "6756700" | "6941265" | "6965786" | "7114090" | "7567827" | "7720683" | "7774204" | "8056070" | "8181046" | "8190420" | "8285545" | "8666751").PN.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2014/09/11 15:08
S2	1	"US 20140274203"	US-PGPUB; USPAT; USOCR; DERWENT	OR	OFF	2014/09/25 13:39
S3	6	"8094838"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2014/09/25 13:54
S4	6	"8094838"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2014/09/25 13:54
S5	6	"8094838"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2014/09/25 14:38
S6	36	(jacoby near2 keith).in.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2014/09/25 14:39

S7	3	"US 20080172221"	US-PGPUB; USPAT; USOCR; DERWENT	OR	OFF	2014/09/25 14:39
S8	3	"20140012573"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2014/09/29 17:24
S9	5	"20030040339"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2014/09/29 19:50
S10	5	"20030040339"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2014/09/29 19:50
S11	903	455/563.ccls.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2014/09/29 20:36
S12	239	S11 and (voice near3 command)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2014/09/29 20:37
S13	162	S12 and (GPS location)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2014/09/29 20:38
S14	18	S13 and (acceleration accelerometer)	US-PGPUB; USPAT; USOCR; FPRS; EPO;	OR	OFF	2014/09/29 20:39

			JPO; DERWENT; IBM_TDB			
S15	14	S14 and (@ad<"20130312" @rlad<"20130312")	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2014/09/29 20:39
S16	4	S15 and (vehicle vehicular automobile car)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2014/09/29 20:40
S17	10,166	379/88.01-88.2.cds.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2014/09/29 21:23
S18	1,003	S17 and (voice near3 command)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2014/09/29 21:23
S19	367	S18 and (voice near3 recogniz$5)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2014/09/29 21:24
S20	7	S19 and (acceleration accelerometer)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2014/09/29 21:24
S21	253	S19 and (GPS location)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO;	OR	OFF	2014/09/29 21:24

			DERWENT; IBM_TDB			
S22	6	S15 and (vehicle vehicular automobile car home office)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2014/09/29 21:25
S23	211	S21 and (vehicle vehicular automobile car home office)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2014/09/29 21:25
S24	211	S23 and (@ad<"20130312" @rlad<"20130312")	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2014/09/29 21:25
S25	13	S24 and (low$2 near3 (power energy))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2014/09/29 21:26
S26	2	"20130289994"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2014/09/29 23:54
S27	2	2013/0080171	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2014/09/29 23:54
S28	55	((William) near2 (Ganong)).INV.	US-PGPUB; USPAT; USOCR	OR	OFF	2014/09/29 23:55

S29	5	((Paul) near2 ("Van Mulbregt")).INV.	US-PGPUB; USPAT; USOCR	OR	OFF	2014/09/29 23:55
S30	31	((Vladimir) near2 (Sejnoha)).INV.	US-PGPUB; USPAT; USOCR	OR	OFF	2014/09/29 23:55
S31	25	((Glen) near2 (Wilson)).INV.	US-PGPUB; USPAT; USOCR	OR	OFF	2014/09/29 23:55
S32	2	"US 20140274203"	US-PGPUB; USPAT; USOCR; DERWENT	OR	OFF	2015/04/12 23:29
S33	2	"US 20140274203"	US-PGPUB; USPAT; USOCR; DERWENT	OR	ON	2015/07/23 09:19
S34	3	"20070129949"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2015/07/23 09:21
S35	2	"US 20140274203"	US-PGPUB; USPAT; USOCR; DERWENT	OR	ON	2015/07/24 17:00
S36	1	detect$3 with (voice near3 command) with (cue hint) with (motion move) with (device apparatus)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2015/07/24 17:09
S37	1	S36 and (@ad<"20130312" @rlad<"20130312")	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2015/07/24 17:10
S38	1	detect$3 with ((speech voice) near3 command) with (cue hint) with (motion move) with (device apparatus)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2015/07/24 17:13

S39	25	detect$3 same ((speech voice) near3 command) same (cue hint) same (motion move) same (device apparatus)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2015/07/24 17:14
S40	21	S39 and (@ad<"20130312" @rlad<"20130312")	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2015/07/24 17:14
S41	2	"US 20140274203"	US-PGPUB; USPAT; USOCR; DERWENT	OR	OFF	2015/10/05 14:08
S42	1,571	(voice near3 command) and ((idl$3 inactive) near3 (mode state))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2015/11/14 16:18
S43	1,440	S42 and (@ad<"20130312" @rlad<"20130312")	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2015/11/14 16:18
S44	0	S43 and (accoustic)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2015/11/14 16:19
S45	322	S43 and (acoustic)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2015/11/14 16:19
S46	194	S45 and (sensor)	US-PGPUB; USPAT; USOCR; FPRS; EPO;	OR	OFF	2015/11/14 16:19

			JPO; DERWENT; IBM_TDB			
S47	278	(voice near3 command) same (idl$3 inactive power$saving low$power) same (mode status state mood)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2015/11/24 00:42
S48	237	S47 and (@ad<"20130312" @rlad<"20130312")	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2015/11/24 00:42
S49	113	S48 and ((mobile cellular) near5 (device equipment phone telephone))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2015/11/24 00:43
S50	3	S49 and (hint cue)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2015/11/24 00:43
S51	22	S49 and (acoustic)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2015/11/24 00:44
S52	2	"US 20140274203"	US-PGPUB; USPAT; USOCR; DERWENT	OR	OFF	2015/12/20 22:35
S53	119	("6397186" | "6411926" | "6449496" | "8285545" | "20110054899" | "6070140" | "7567827" | "8181046" | "8190420" | "20100124896" | "20130080171" | "20140012586" | "5428707" | "5774859" | "5983186" | "6965786" | "20140278435" | "20130080167" | "20140012573" |	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2015/12/20 22:38

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S54	2	"US 20140274203"	US-PGPUB; USPAT; USOCR; DERWENT	OR	OFF	2016/06/12 23:25
S55	4	"8977255"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2016/06/12 23:42
S56	3,459	379/88.01-88.03.ccls.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2016/06/13 00:03
S57	3,267	S56 and (@ad<"20130312" @rlad<"20130312")	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2016/06/13 00:03
S58	614	S57 and (voice near3 recogniz$5)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2016/06/13 00:03
S59	220	S58 and (voice near3 command)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2016/06/13 00:03

S60	4	S59 and (device near5 (moving motion))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2016/06/13 00:05
S61	6	"8977255"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2016/11/05 23:44
S62	14	"9112984"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2016/11/05 23:59
S63	2	"US 20140274203"	US-PGPUB; USPAT; USOCR; DERWENT	OR	OFF	2016/11/05 23:59
S64	6	"9361885"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2016/11/06 00:00
S65	24,643	(379/88.01-88.02 |G10L15/20 |G10L15/22 |G10L15/24 |G10L15/25 |G10L2015/223 |G10L2015/226 |H04M2250/74).ccls,cpc.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2017/04/10 21:15
S66	18,768	S65 and (@ad<"20130312" @rlad<"20130312")	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2017/04/10 21:22
S67	2,890	S66 and ((acoustic sound noise) near4 (environment input surround$3))	US-PGPUB; USPAT; USOCR; FPRS; EPO;	OR	OFF	2017/04/10 21:26

			JPO; DERWENT; IBM_TDB			
S68	641	S67 and (voice near3 command)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2017/04/10 21:27
S69	818	S67 and ((voice speech) near3 command)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2017/04/10 21:27
S70	2	("20140274203").PN.	US-PGPUB; USPAT; USOCR; DERWENT	OR	OFF	2017/04/10 21:28
S71	10	S68 and (non$acoustic)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2017/04/10 21:37
S72	10	S68 and ((cue hint) near6 (command))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2017/04/10 21:47
S73	142	S68 and ((trigger$3 indicat$3 sign$2) near8 (activit$3 location time day motion event) near8 (device phone telephone))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2017/04/10 21:48
S74	117	S68 and ((trigger$3 indicat$3 sign$2) near6 (activit$3 location time day motion event) near6 (device phone telephone))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2017/04/10 21:49

S75	6	S74 and ((low$2 saving) near6 (power battery energy) near6 (mode status state))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2017/04/10 21:50
S76	25	S74 and ((low$2 saving idl$3 sleep$3 in$active) near6 (mode status state))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2017/04/10 21:53
S77	967	("20010047264" | "20020002461" | "20020010584" | "20020031262" | "20020032564" | "20020035474" | "20020042707" | "20020046025" | "20020059066" | "20020059068" | "20020067308" | "20020069063" | "20020077817" | "20020091511" | "20020099552" | "20020103641" | "20020116171" | "20020116185" | "20020116189" | "20020128827" | "20020133347" | "20020135565" | "20020138265" | "20020143551" | "20020154160" | "20020164000" | "20020184189" | "20020198714" | "20030078766" | "20030088414" | "20030097210" | "20030099335" | "20030120494" | "20030135740" | "20030167335" | "20030190074" | "20030212961" | "20030233230" | "20030234824" | "20040054535" | "20040054690" | "20040085162" | "20040106432" | "20040135701" | "20040145607" | "20040162741" | "20040176958" | "20040186714" | "20040193420" | "20040199387" | "20040220798" | "20040236778" | "20050002507" | "20050015772" | "20050027385" | "20050033582" | "20050045373" | "20050049880" | "20050055403" | "20050058438" | "20050071332" | "20050080625" | "20050086059" | "20050091118" | "20050100214" | "20050102614" | "20050108001" | "20050108074" | "20050114124" | "20050114140" | "20050119897" | "20050125235" | "20050132301" | "20050143972" | "20050152602" | "20050165607" |	US-PGPUB; USPAT; USOCR	OR	OFF	2017/04/10 22:13

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S78	43	("8977255" | "9112984" | "9361885" | "20070129949" | "20120329389" | "7574361" | "20100124896" | "20030040339" | "20100289994" | "20140274211" | "20140278435" | "8548176" | "20100185448" | "20110054899" | "20130080167" | "20130080171" | "20130289994" | "20130339028" | "20140012573" | "20140012586" | "5428707" | "5774859" | "5802305" | "5983186" | "6070140" | "6092043" | "6397186" | "6408396" | "6411926" | "6449496" | "6594630" | "6756700" | "6941265" | "6965786" | "7114090" | "7567827" | "7720683" | "7774204" | "8056070" | "8181046" | "8190420" | "8285545" | "8666751").PN.	US-PGPUB; USPAT	OR	OFF	2017/04/19 12:58
S79	2	("20140274203").PN.	US-PGPUB; USPAT; USOCR; DERWENT	OR	OFF	2017/04/19 12:59
S80	24,710	(379/88.01-88.02 |G10L15/20 |G10L15/22 |G10L15/24 |G10L15/25 |G10L2015/223 |G10L2015/226 |H04M2250/74).cds,cpc.	US-PGPUB; USPAT; USOCR; FPRS; EPO;	OR	OFF	2017/04/19 13:26

			JPO; DERWENT; IBM_TDB			
S81	18,782	S80 and (@ad<"20130312" @rlad<"20130312")	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2017/04/19 13:26
S82	2,893	S81 and ((acoustic sound noise) near4 (environment input surround$3))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2017/04/19 13:26
S83	643	S82 and (voice near3 command)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2017/04/19 13:26
S84	161	S83 and ((low$2 saving) near6 (power battery energy mode state))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2017/04/19 13:26
S85	69	S84 and (device near4 (movement sens$3 event activit$3 time night day hour))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2017/04/19 13:28
S86	33	S85 and (gestur$3)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2017/04/19 13:40
S87	3	"9646610"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO;	OR	OFF	2017/09/13 20:06

			DERWENT; IBM_TDB			
S88	2	"20150340042"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2017/09/13 20:15
S89	23	"9112984"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2017/09/13 20:19
S90	182,473	(379/88.01-88.02 |G10L15/20 |G10L15/22 |G10L15/24 |G10L15/25 |G10L2015/223 |G10L2015/226 |H04M2250/74 |H04W52/0251 |H04W52/0254 |H04W52/0261 |H04W88/02 |Y02B60/50).cds,cpc.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2017/09/13 20:37
S91	2	("20140274203").PN.	US-PGPUB; USPAT; USOCR; DERWENT	OR	OFF	2017/09/13 20:39
S92	140,674	S90 and (@ad<"20130312" @rlad<"20130312")	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2017/09/13 20:39
S93	10,645	S92 and ((voice audio acoustic sound) near3 (input recogniz$5))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2017/09/13 20:41
S94	1,247	S93 and ((voice speech) near5 (command) near6 (recogniz$5 determin$5))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2017/09/13 20:42

S95	15	S94 and ((low power) near5 (saving save) near5 (mode status state stage))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2017/09/13 20:42
S96	0	S94 and ((low idle idling inactive) near6 (power energy battery) near6 (saving save))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2017/09/13 20:43
S97	110	S94 and ((low idle idling inactive) near6 (power energy battery))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2017/09/13 20:44
S98	0	S97 and ((hint cue) same (motion date time activity location) same (event trigger$3))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2017/09/13 20:45
S99	0	S97 and ((hint cue) same (event trigger$3))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2017/09/13 20:45
S100	3	S97 and (hint cue)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2017/09/13 20:46
S101	54	S97 and ((motion date time activity location) same (event trigger$3))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2017/09/13 20:46

S102	2	"20030216909"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2018/03/08 11:45
S103	2	("20140274203").PN.	US-PGPUB; USPAT; USOCR; DERWENT	OR	ON	2018/03/08 12:03
S104	2	("20140274203").PN.	US-PGPUB; USPAT; USOCR; DERWENT	OR	ON	2018/04/11 18:36
S105	2	"20030216909"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2018/04/11 19:35
S106	3	"20150340042"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2018/04/11 19:38
S107	31	"9112984"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2018/04/11 19:39
S108	36,513	((speech voice audio) near6 (order command trigger) near6 (recogniz$5 recognition realliz$5))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2018/04/11 21:03
S109	27,698	((speech voice audio) near4 (order command trigger) near4 (recogniz$5 recognition realliz$5))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2018/04/11 21:04

S110	71	((speech voice audio) near4 (order command trigger) near4 (recogniz$5 recognition realliz$5)) same ((idl$3 low$power$2) near4 (mode state))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2018/04/11 21:05
S111	46	S110 and (@ad<"20130312" @rlad<"20130312")	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2018/04/11 21:06
S112	15	S111 and ((time location environment event) near4 (factor value parameter cue hint context))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2018/04/11 21:07
S113	2	("20140274203").PN.	US-PGPUB; USPAT; USOCR; DERWENT	OR	ON	2018/04/12 09:47
S114	120,858	(H04W52/0251 |H04M1/72519 |G10L15/02 |H04W52/0261 |H04W40/005 |G10L15/30 |G10L15/22 |H04W52/0254 |H04M2250/74 |G10L2015/226 |G10L2015/223 |H04W88/02).cpc.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2018/04/12 09:56
S115	201,998	(H04W52/0251 |H04M1/72519 |G10L15/02 |H04W52/0261 |H04W40/005 |G10L15/30 |G10L15/22 |H04W52/0254 |Y02D70/00 |H04M2250/74 |G10L2015/226 |G10L2015/223 |H04W88/02 |Y02D70/164 |Y02D70/142 |Y02D70/144).cpc.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2018/04/12 09:56
S116	204,975	(379/88.01-88.02 |H04W52/0251 |H04M1/72519 |G10L15/02 |H04W52/0261 |H04W40/005 |G10L15/30 |G10L15/22 |H04W52/0254 |Y02D70/00 |H04M2250/74 |G10L2015/226 |G10L2015/223 |H04W88/02 |Y02D70/164 |Y02D70/142 |Y02D70/144).ccls,cpc.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2018/04/12 09:56

S117	6,349	S116 and ((speech voice audio) near6 (order command trigger) near6 (recogniz$5 recognition realliz$5))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2018/04/12 10:01
S118	5,190	S117 and ((speech voice audio) near4 (order command trigger) near4 (recogniz$5 recognition realliz$5))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2018/04/12 10:02
S119	3,583	S118 and (@ad<"20130312" @rlad<"20130312")	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2018/04/12 10:02
S120	683	S119 and ((time location environment event) near4 (factor value parameter cue hint context))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2018/04/12 10:02
S121	38	S120 and ((idl$3 low$power$2) near4 (mode state))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2018/04/12 10:03
S122	2	("20140274203").PN.	US-PGPUB; USPAT; USOCR; DERWENT	OR	ON	2019/10/30 16:11
S123	2	("20140274203").PN.	US-PGPUB; USPAT; USOCR; DERWENT	OR	ON	2019/10/30 22:00
S124	2	("20140274203").PN.	US-PGPUB; USPAT; USOCR; DERWENT	OR	ON	2020/02/10 10:54
S125	2	("20140274203").PN.	US-PGPUB; USPAT;	OR	ON	2020/05/15 19:39

			USOCR; DERWENT			
S126	170	"6006175"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2020/05/15 23:04
S127	73	"6859776"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2020/05/15 23:05
S128	11	"9087520"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2020/05/15 23:06
S129	24	"9558749"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2020/05/15 23:09
S130	59	"9747899"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2020/05/15 23:10
S131	15	"10332525"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2020/05/15 23:36
S132	3	"20120281885"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO;	OR	ON	2020/05/15 23:37

			DERWENT; IBM_TDB			
S133	6	"20140039888"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2020/05/15 23:38
S134	3	"20140163978"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2020/05/15 23:43
S135	6	"20150006176"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2020/05/15 23:48
S136	5	"20150053779"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2020/05/15 23:57
S137	5	"20160073999"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2020/05/15 23:58
S138	6	"20160078869"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2020/05/15 23:59
S139	3	"20190073999"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO;	OR	ON	2020/05/16 00:01

			DERWENT; IBM_TDB			
S140	2	"20190287526"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2020/05/16 00:01
S141	2	"20190311715"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2020/05/16 00:02
S142	2	"20190355365"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2020/05/16 00:02
S143	4	"20080118080"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2020/05/16 00:05
S144	36	"20090055178"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2020/05/16 00:06
S145	4	"20120197637"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2020/05/16 00:06
S146	3	"20120310646"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO;	OR	ON	2020/05/16 00:07

			DERWENT; IBM_TDB			
S147	5	"20150106085"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2020/05/16 00:08
S148	5	"20160039356"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2020/05/16 00:10
S149	10	"20170116983"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2020/05/16 00:11
S150	2	("20140274203").PN.	US-PGPUB; USPAT; USOCR; DERWENT	OR	ON	2020/05/19 16:02
S151	2	("20140274203").PN.	US-PGPUB; USPAT; USOCR; DERWENT	OR	ON	2020/05/30 13:07

5/30/2020 4:37:47 PM
C:\Users\hho3\Documents\EAST_OLD2\Workspaces\13795933.wsp

Index of Claims	Application/Control No.	Applicant(s)/Patent Under Reexamination
	13/795,933	Ganong et al.
	Examiner	Art Unit
	HUY C HO	2644

✓	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	10/29/2019	10/29/2019	10/29/2019	10/29/2019	10/29/2019	10/29/2019	05/18/2020		
	1	✓	✓	✓	✓	✓	✓	✓		
	2	✓	✓	✓	✓	✓	✓	✓		
	3	✓	✓	✓	✓	-	-	-		
	4	✓	✓	✓	✓	✓	✓	✓		
	5	✓	✓	✓	✓	✓	✓	✓		
	6	✓	✓	✓	✓	✓	✓	✓		
	7	✓	✓	✓	✓	✓	✓	✓		
	8	✓	✓	✓	✓	✓	✓	✓		
	9	✓	✓	✓	✓	✓	✓	✓		
	10	✓	✓	✓	✓	✓	✓	✓		
	11	✓	✓	✓	✓	✓	✓	✓		
	12	✓	✓	✓	✓	✓	✓	✓		
	13	✓	✓	✓	✓	✓	✓	✓		
	14	✓	✓	✓	✓	✓	✓	✓		
	15	✓	✓	✓	✓	✓	✓	✓		
	16	✓	✓	✓	✓	✓	✓	✓		
	17	✓	✓	✓	✓	✓	✓	✓		
	18	✓	✓	✓	✓	✓	✓	✓		
	19	✓	✓	✓	✓	✓	✓	✓		
	20	✓	✓	✓	✓	✓	✓	✓		

FORM PTO-1449/A and B (modified PTO/SB/08)	APPLICATION NO.: 13/795,933	ATTY. DOCKET NO.: N0484.71090US01
INFORMATION DISCLOSURE STATEMENT BY APPLICANT	FILING DATE: March 12, 2013	CONFIRMATION NO.: 2321
	FIRST NAMED INVENTOR: William F. Ganong	
Sheet 1 of 1	GROUP ART UNIT: 2644	EXAMINER: H. C. Ho

U.S. PATENT DOCUMENTS

Examiner's Initials #	Cite No.	U.S. Patent Document Number	Kind Code	Name of Patentee or Applicant of Cited Document	Date of Publication or Issue of Cited Document MM-DD-YYYY
		2008-0118080	A1	Gratke et al.	05-22-2008
		2009-0055178	A1	Coon	02-26-2009
		2012-0197637	A1	Gratke et al.	08-02-2012
		2012-0310646	A1	Hu et al.	12-06-2012
		2015-0106085	A1	Lindahl	04-16-2015
		2016-0039356	A1	Talwar et al.	02-11-2016
		2017-0116983	A1	Furukawa et al.	04-27-2017

FOREIGN PATENT DOCUMENTS

Examiner's Initials #	Cite No.	Foreign Patent Document Office/ Country	Number	Kind Code	Name of Patentee or Applicant of Cited Document	Date of Publication of Cited Document MM-DD-YYYY	Translation (Y/N)
		EP	1511010	A1	Daimler Chrysler Ag	03-02-2005	Y-Abstract Only

OTHER ART – NON PATENT LITERATURE DOCUMENTS

Examiner's 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, page(s), volume-issue number(s), publisher, city and/or country where published.	Translation (Y/N)
		International Preliminary Report on Patentability for International Application No. PCT/US2016/017317 mailed August 23, 2018 (N0484.71176WO00).	
		International Search Report and Written Opinion for International Application No. PCT/US2016/017317 mailed May 12, 2016 (N0484.71176WO00).	

[NOTE – No copies of U.S. patents, published U.S. patent applications, or pending, unpublished patent applications stored in the USPTO's Image File Wrapper (IFW) system, are included. See 37 CFR § 1.98 and 1287OG163. Copies of all other patent(s), publication(s), unpublished, pending U.S. patent applications, or other information listed are provided as required by 37 CFR § 1.98 unless 1) such copies were provided in an IDS in an earlier application that complies with 37 CFR § 1.98, and 2) the earlier application is relied upon for an earlier filing date under 35 U.S.C. § 120.]

EXAMINER:	DATE CONSIDERED:
/HUY C HO/	05/18/2020

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

8061296.1

ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /H.C.H/

Search Notes	Application/Control No.	Applicant(s)/Patent Under Reexamination
	13/795,933	Ganong et al.
	Examiner	Art Unit
	HUY C HO	2644

CPC - Searched*		
Symbol	Date	Examiner
H04W52/0251; H04M1/72519; G10L15/02; H04W52/0261; H04W40/005; G10L15/30; G10L15/22; H04W52/0254; Y02D70/00; H04M2250/74; G10L2015/226; G10L2015/223; H04W88/02; Y02D70/164; Y02D70/142; Y02D70/144	9/25/2014	HH

CPC Combination Sets - Searched*		
Symbol	Date	Examiner

US Classification - Searched*			
Class	Subclass	Date	Examiner
455	563	9/25/2014	HH

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

/HUY C HO/ Primary Examiner.Art Unit 2644	

Search Notes	Application/Control No.	Applicant(s)/Patent Under Reexamination
	13/795,933	Ganong et al.
	Examiner	Art Unit
	HUY C HO	2644

Search Notes		
Search Notes	**Date**	**Examiner**
EAST Database Search	9/25/2014	HH
Inventor Search	9/25/2014	HH
Search update	4/12/2015	HH
Search update	7/24/2015	HH
Search update	12/27/2015	HH
Search update	6/12/2016	HH
Search update	11/18/2016	HH
Search update	9/13/2017	HH
Search update	4/11/2018	HH
Search update	10/30/2019	HH
Search update	05/18/2020	HH

Interference Search			
US Class/CPC Symbol	**US Subclass/CPC Group**	**Date**	**Examiner**
455	79	9/25/2014	HH
379	88.01, 88.02	9/25/2014	HH

/HUY C HO/ Primary Examiner.Art Unit 2644	

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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
13/795,933	03/12/2013	William F. Ganong III	N0484.71090US01	2321

91337 7590 06/05/2020

Nuance Communications, Inc.
c/o Wolf, Greenfield & Sacks, P.C.
600 Atlantic Avenue
Boston, MA 02210-2206

EXAMINER
HO, HUY C

ART UNIT	PAPER NUMBER
2644	

NOTIFICATION DATE	DELIVERY MODE
06/05/2020	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):

IP.Inbox@nuance.com
N0484_eOfficeAction@WolfGreenfield.com
Patents_eOfficeAction@wolfgreenfield.com

Office Action Summary	Application No. 13/795,933	Applicant(s) Ganong et al.	
	Examiner HUY C HO	Art Unit 2644	AIA (FITF) Status No

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

Period for Reply

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

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

Status

1)☑ Responsive to communication(s) filed on 02 March 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) 1-2 and 4-20 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) 1-2 and 4-20 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 12 March 2013 is/are: a)☑ accepted or b)☐ objected to by the Examiner.

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

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

Priority under 35 U.S.C. § 119

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

Certified copies:

a)☐ All b)☐ Some** c)☐ None of the:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. ____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

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

Attachment(s)

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

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

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

4) ☐ Other: _____.

DETAILED ACTION

Notice of Pre-AIA or AIA Status

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

Response to Arguments

2. Applicant's arguments filed on 03/02/2020 have been fully considered but they are moot because claims 1, 19 and 20 have been amended, and the arguments are not persuasive for the following reasons.

With respect to the arguments for the independent claims 1, 19 and 20, that reference LeBeau discloses a device is only capable of monitoring acoustic input after its microphone has been activated. The device uses contextual cues to determine whether or not to enable itself to receive acoustic input, i.e., by turning on its microphone. LeBeau says nothing about using at least one contextual cue to assist in detecting whether acoustic input which has already been received includes a voice command as the independent claims 1, 19 and 20 recited in the amended claims set filed on 03/02/2020.

The examiner respectfully disagrees because:

First of all, the claimed limitations are recited as follows:

"receiving acoustic input from the environment of the mobile device while the mobile device is operating in the idle mode; and

detecting whether the received acoustic input includes a voice command at least by:

performing a plurality of processing stages on the acoustic input, wherein at least one of the plurality of processing stages is performed while the mobile device is operating in the idle mode; and

using at least one contextual cue to assist in detecting whether the received acoustic input includes a voice command while the mobile device is operating in the idle mode,…"

These limitations, in other words, say a device receives an acoustic input while on an idle mode, the device detects whether the received acoustic input includes a voice command at least by: performing a plurality of processing stages on the acoustic input and using at least one contextual cue to assist in detecting whether the received acoustic input includes a voice command while the mobile device is operating in the idle mode,…"

LeBeau teaches a mobile device monitors for voice input with the aid of contexts such as current locations of the device, date and time during a day, calendar schedules, or power source of the device (Figure 1B). LeBeau discloses that the contexts are in various scenarios such as: when the device is

located in a working office (Figure 1C, context A), or in a car (context B), or at home (context C) or at a shopping center (context D). These scenario likelihoods are smartly recognized by the mobile device as additional aid to the function of monitoring the voice input from the environment (Figure 1C, pp [50]-[54]). In addition, the mobile device is also re-configured to change these contexts for providing different responses to the environment (LeBeau, pp [55]).

LeBeau in all, teaches a smart mobile device which is configured to use contexts as an additional option to monitor for voice input from the environment. The mobile device is configured to recognize its locations, time during a day, current power resource, and even scheduled calendar, to help the device to monitor the voice input.

Therefore, LeBeau teaches and discloses the argued limitations and features, i.e., "receiving acoustic input from the environment of the mobile device while the mobile device is operating in the idle mode; and detecting whether the received acoustic input includes a voice command at least by: performing a plurality of processing stages on the acoustic input, wherein at least one of the plurality of processing stages is performed while the mobile device is operating in the idle mode; and using at least one contextual cue to assist in detecting whether the

received acoustic input includes a voice command while the mobile device is operating in the idle mode,…"

Claim Rejections - 35 USC § 103

3. 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.

4. 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.

5. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under pre-AIA 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.

2. Ascertaining the differences between the prior art and the claims at issue.

3. Resolving the level of ordinary skill in the pertinent art.

4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

6. This application currently names joint inventors. In considering patentability of the claims under pre-AIA 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of pre-AIA 35 U.S.C. 103(c) and potential pre-AIA 35 U.S.C. 102(e), (f) or (g) prior art under pre-AIA 35 U.S.C. 103(a).

7. Claims 1, 2 and 4-20 are rejected under pre-AIA 35 U.S.C. 103(a) as being unpatentable over Freeman et al. (U.S. Publication No. 8,977,255) and further in view of LeBeau et al. (U.S. Publication. No. 2012/0034904).

Regarding claim 1, (Currently Amendment) Freeman teaches a method of monitoring an acoustic environment of a mobile device for voice commands when the mobile device is operating in the idle mode (*Freeman, the Abstract*), the method comprising:

receiving acoustic input from the environment of the mobile device while the mobile device is operating in the idle mode (*Freeman, Figures 4 and 5, Col. 6 Lines 22-67, Col. 7 Lines 1-10)*; and

detecting whether the <u>received</u> acoustic input includes a voice command at least by:

performing a plurality of processing stages on the received acoustic input, wherein at least one of the plurality of processing stages is performed while the mobile device is operating in the idle mode (*Freeman, Figures 4 and 5, Col. 6 Lines 22-67, Col. 7 Lines 1-10*).

Freeman does not teach "using at least one contextual cue to assist in detecting whether the received acoustic input includes a voice command while the mobile device is operating in the idle mode, the at least one contextual cue comprising information other than content of the acoustic input and comprising a time the acoustic input was received, motion of the mobile device, location of the mobile device, occurrence of an event on the mobile device, recent activity on the mobile device, a stored sample of the acoustic environment of the mobile device and/or a power source of the mobile device."

LeBeau teaches "using at least one contextual cue to assist in detecting whether the received acoustic input includes a voice command while the mobile device is operating in the idle mode, the at least one contextual cue comprising information other than content of the acoustic input and comprising a time the acoustic input was received, motion of the mobile device, location of the mobile device, occurrence of an event on the mobile device, recent activity on the mobile device, a stored sample of the acoustic environment of the mobile device and/or a

power source of the mobile device." (*LeBeau, Figure 1B, pp [41]-[43]; Figure 1C, pp [50]-[55]).*

Therefore, it would have been obvious to a person of ordinary skill in the art at the time of the invention was made to modify Freeman by incorporating the teachings of LeBeau, method and system for automatically monitoring ambient sounds for voice commands based on context hints to provide appropriate performances for a mobile computing device thus providing a high advancement for monitoring audio inputs from environment surrounding a mobile computing device besides the conventional monitoring manners such as user's manual special key inputs to cause proper operations for the mobile computing device and therefore, equipping the mobile computing device with the best capability to obtain the most sufficient surrounding information from the environment in order to respond with the most effective and appropriate manner.

Regarding claim 19, (Currently Amendment) Freeman teaches at least one non-transitory computer readable medium encoded with instructions that, when executed in a mobile device configured to receive an acoustic input, causes the mobile device to perform a method of monitoring an acoustic environment (*Freeman, the Abstract, Figures 4 and 5, Col. 6 Lines 22-67, Col. 7 Lines 1-10*), the method comprising:

in response to the mobile device receiving acoustic input

from the environment while operating in the idle mode, detecting whether the received acoustic input includes a voice command at least by:

performing a plurality of processing stages on the acoustic input, wherein at least one of the plurality of processing stages is performed while the mobile device is operating in the idle mode (*Freeman, Figures 4 and 5, Col. 6 Lines 22-67, Col. 7 Lines 1-10*).

Freeman does not teach "using at least one contextual cue to assist in detecting whether the received acoustic input includes a voice command while the mobile device is operating in the idle mode, the at least one contextual cue comprising information other than content of the acoustic input and comprising a time the acoustic input was received, motion of the mobile device, location of the mobile device, occurrence of an event on the mobile device, recent activity on the mobile device, a stored sample of the acoustic environment of the mobile device and/or a power source of the mobile device."

LeBeau teaches "using at least one contextual cue to assist in detecting whether the received acoustic input includes a voice command while the mobile device is operating in the idle mode, the at least one contextual cue comprising information other than content of the acoustic input and comprising a time the acoustic input was received, motion of the mobile device,

location of the mobile device, occurrence of an event on the mobile device, recent activity on the mobile device, a stored sample of the acoustic environment of the mobile device and/or a power source of the mobile device." (*LeBeau, Figure 1B, pp [41]-[43]; Figure 1C, pp [50]-[55]).*

Therefore, it would have been obvious to a person of ordinary skill in the art at the time of the invention was made to modify Freeman by incorporating the teachings of LeBeau, method and system for automatically monitoring ambient sounds for voice commands based on context hints to provide appropriate performances for a mobile computing device thus providing a high advancement for monitoring audio inputs from environment surrounding a mobile computing device besides the conventional monitoring manners such as user's manual special key inputs to cause proper operations for the mobile computing device and therefore, equipping the mobile computing device with the best capability to obtain the most sufficient surrounding information from the environment in order to respond with the most effective and appropriate manner.

Regarding claim 20, (Currently Amendment) Freeman teaches a mobile device (*Freeman, the Abstract*), comprising:

at least one processor configured to:

in response to the mobile device receiving acoustic input from the environment while operating in the idle mode, detecting

whether the received acoustic input includes a voice command at least by:

performing a plurality of processing stages on the received acoustic input, wherein at least one of the plurality of processing stages is performed while the mobile device is operating in the idle mode (*Freeman, Figures 4 and 5, Col. 6 Lines 22-67, Col. 7 Lines 1-10*).

Freeman does not teach "using at least one contextual cue to assist in detecting whether the received acoustic input includes a voice command while the mobile device is operating in the idle mode, the at least one contextual cue comprising information other than content of the acoustic input and comprising a time the acoustic input was received, motion of the mobile device, location of the mobile device, occurrence of an event on the mobile device, recent activity on the mobile device, a stored sample of the acoustic environment of the mobile device and/or a power source of the mobile device."

LeBeau teaches "using at least one contextual cue to assist in detecting whether the received acoustic input includes a voice command while the mobile device is operating in the idle mode, the at least one contextual cue comprising information other than content of the acoustic input and comprising a time the acoustic input was received, motion of the mobile device, location of the mobile device, occurrence of an event on the

mobile device, recent activity on the mobile device, a stored sample of the acoustic environment of the mobile device and/or a power source of the mobile device." (*LeBeau, Figure 1B, pp [41]-[43]; Figure 1C, pp [50]-[55])*.

Therefore, it would have been obvious to a person of ordinary skill in the art at the time of the invention was made to modify Freeman by incorporating the teachings of LeBeau, method and system for automatically monitoring ambient sounds for voice commands based on context hints to provide appropriate performances for a mobile computing device thus providing a high advancement for monitoring audio inputs from environment surrounding a mobile computing device besides the conventional monitoring manners such as user's manual special key inputs to cause proper operations for the mobile computing device and therefore, equipping the mobile computing device with the best capability to obtain the most sufficient surrounding information from the environment in order to respond with the most effective and appropriate manner.

Regarding claim 2, (Currently Amended) Freeman, as modified by LeBeau, teaches the method of claim 1, further comprising transitioning the mobile device from the idle mode to an active mode in response to detecting that the acoustic input includes a voice command (*Freeman, Figure 5, Col. 6 Lines 48-67, Col. 7 Lines 1-30)*.

Regarding claim 4, (Currently Amended) Freeman, as modified by LeBeau, teaches the method of claim 1, wherein the at least one contextual cue includes the time the acoustic input was received, and the method comprises influencing evaluation of at least one of the plurality of processing stages based on the time the acoustic input was received (*LeBeau, Figure 1B, pp [41]-[43]).*

Regarding claim 5, (Currently Amended) Freeman, as modified by LeBeau, teaches the method of claim 1, wherein the at least one contextual cue includes recent activity on the mobile device, and the method comprises evaluation of at least one of the plurality of processing stages based on at least one of how recently the user activated the mobile device, how recently the user issued a voice command and how recently the user performed at least one action on the mobile device (*LeBeau, pp [82]-[83]).*

Regarding claim 6, (Currently Amended) Freeman, as modified by LeBeau, teaches the method of claim 1, wherein the at least one contextual cue includes an occurrence of an event on the mobile device, and the method comprises influencing evaluation of at least one of the plurality of processing stages based on whether the acoustic input is received proximate in time with the occurrence of the event (*LeBeau, Figure 1B, pp [41]-[43]; Figures 3A, 3B and 3C, pp [82]-[83], [85]-[87]).*

Regarding claim 7, (Currently Amended) Freeman, as modified by LeBeau, teaches the method of claim 1, wherein the at least one contextual cue includes motion of the mobile device received as an input from an accelerometer of the mobile device, and the method comprises influencing evaluation of at least one of the plurality of processing stages based on an assessment of whether the user moved the mobile device proximate in time with receiving the acoustic input based, at least in part, on the input from the accelerometer (*LeBeau, pp [21]-[22]).*

Regarding claim 8, (Currently Amended) Freeman, as modified by LeBeau, teaches the method of claim 1, wherein the at least one contextual cue includes the location of the mobile device, and the method comprises influencing evaluation of at least one of the plurality of processing stages based on determining whether the mobile device is located in at least one of a vehicle, a home or a place of work of the user of the mobile device (*LeBeau, Figure 1B, pp [41]-[43]; Figures 3A, 3B and 3C, pp [82]-[83], [85]-[87]).*

Regarding claim 9, (Currently Amended) Freeman, as modified by LeBeau, teaches the method of claim 1, wherein the at least one contextual cue includes the power source of the mobile device, and the method comprises influencing evaluation of at least one of the plurality of processing stages based on at least one of determining whether the mobile device is being

powered using the battery or connected to wall power, and a state of the battery if the mobile device is being powered using the battery (*LeBeau, Figure 1B, pp [41]-[43]; Figures 3A, 3B and 3C, pp [82]-[83], [85]-[87]).*

Regarding claim 10, (Currently Amended) Freeman, as modified by LeBeau, teaches the method of claim 1, wherein the at least one contextual cue includes the sample of the acoustic environment obtained by the mobile device by storing acoustic input previously received by the mobile device and determined not to include a voice command, and the method comprises subtracting the sample of the acoustic environment from the acoustic input (*LeBeau, Figure 1B, pp [41]-[43]).*

Regarding claim 11, (Original) Freeman, as modified by LeBeau, teaches the method of claim 1, wherein a sequence of performing the plurality of processing stages is determined, at least in part, by the at least one contextual cue (*Freeman, Figures 4 and 5, Col. 6 Lines 22-67, Col. 7 Lines 1-10; and LeBeau Figures 3A, 3B and 3C, pp [82]-[83], [85]-[87]).*

Regarding claim 12, (Original) Freeman, as modified by LeBeau, teaches the method of claim 1, wherein the mobile device includes a primary processor and a secondary processor, and wherein at least one first processing stage of the plurality of processing stages is performed by the secondary processor prior to engaging the primary processor to process the acoustic

input (*LeBeau, Figure 5, pp [127], [133]*).

Regarding claim 13, (Original) Freeman, as modified by LeBeau, teaches the method of claim 12, wherein at least one second processing stage of the plurality of processing stages is performed by the primary processor only after the at least one first processing stage is performed and neither concludes that the acoustic input includes a voice command nor concludes that the acoustic input is the result of spurious acoustic activity (*Freeman, Figures 4, 5 and 6, Col. 6 Lines 15-67, Col. 7 Lines 1-45; LeBeau Figures 3A, 3B and 3C, pp [82]-[83], [85]-[87]*).

Regarding claim 14, (Previously presented) Freeman, as modified by LeBeau, teaches the method of claim 12, wherein performing the at least one first processing stage includes performing at least one voice activity detection processing stage including performing at least one of spectral analysis on the acoustic input to evaluate whether a spectrum of the acoustic input is indicative of voice activity, periodicity analysis to evaluate whether signal periodicity of the acoustic input is indicative of voice activity, and phone loop analysis to evaluate whether the acoustic input includes speech (*Freeman, Figures 4, 5 and 6, Col. 6 Lines 15-67, Col. 7 Lines 1-45; and LeBeau, pp [36], [44], [58]*).

Regarding claim 15, (Original) Freeman, as modified by LeBeau, teaches the method of claim 12, wherein performing the

at least one first processing stage comprises performing limited vocabulary automatic speech recognition on the acoustic input to detect whether the acoustic input includes an explicit voice trigger (*Freeman, Figures 4 and 5, Col. 6 Lines 22-67, Col. 7 Lines 1-10*).

Regarding claim 16, (Original) Freeman, as modified by LeBeau, teaches the method of claim 12, wherein performing the at least one second processing stage comprises performing at least one speech processing stage including at least one of automatic speech recognition on the acoustic input and at least one natural language processing stage to understand the meaning of the voice command (*Freeman, Figures 4 and 5, Col. 6 Lines 22-67, Col. 7 Lines 1-10*).

Regarding claim 17, (Currently Amended) Freeman, as modified by LeBeau, teaches the method of claim 1, wherein the mobile device is capable of connecting to at least one server via a network, and the method comprises transmitting at least a portion of the acoustic information to the at least one server via the network for processing by the at least one server (*LeBeau, pp [26], [39], [47]*).

Regarding claim 18, (Currently Amended) Freeman, as modified by LeBeau, teaches the method of claim 1, comprising performing one or more default actions when a specific task

could not be ascertained from the acoustic input (*LeBeau, pp [23]-[24], [43], [53], [64]*).

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 HUY C HO whose telephone number is (571)270-1108. The examiner can normally be reached on M-F 8AM-5PM.

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, KATHY WANG-HURST can be reached on (571)270-5371. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/HUY C HO/
Primary Examiner, Art Unit 2644

FORM PTO-1449/A and B (modified PTO/SB/08)	APPLICATION NO.: 13/795,933	ATTY. DOCKET NO.: N0484.71090US01
INFORMATION DISCLOSURE STATEMENT BY APPLICANT	FILING DATE: March 12, 2013	CONFIRMATION NO.: 2321
	FIRST NAMED INVENTOR: William F. Ganong	
Sheet 1 of 1	GROUP ART UNIT: 2644	EXAMINER: H. C. Ho

U.S. PATENT DOCUMENTS

Examiner's Initials #	Cite No.	U.S. Patent Document Number	U.S. Patent Document Kind Code	Name of Patentee or Applicant of Cited Document	Date of Publication or Issue of Cited Document MM-DD-YYYY
		6,006,175	A	Holzrichter	12-21-1999
		6,859,776	B1	Cohen et al.	02-22-2005
		9,087,520	B1	Salvador	07-21-2015
		9,558,749	B1	Secker-Walker et al.	01-31-2017
		9,747,899	B2	Pogue et al.	08-29-2017
		10,332,525	B2	Secker-Walker et al.	06-25-2019
		2012-0281885	A1	Syrdal et al.	11-08-2012
		2014-0039888	A1	Taubman et al.	02-06-2014
		2014-0163978	A1	Basye et al.	06-12-2014
		2015-0006176	A1	Pogue et al.	01-01-2015
		2015-0053779	A1	Adamek et al.	02-26-2015
		2016-0078869	A1	Syrdal et al.	03-17-2016
		2019-0073999	A1	Premont et al.	03-07-2019
		2019-0287526	A1	Ren et al.	09-19-2019
		2019-0311715	A1	Pfeffinger et al.	10-10-2019
		2019-0355365	A1	Kim et al.	11-21-2019

FOREIGN PATENT DOCUMENTS

Examiner's Initials #	Cite No.	Foreign Patent Document Office/ Country	Foreign Patent Document Number	Foreign Patent Document Kind Code	Name of Patentee or Applicant of Cited Document	Date of Publication of Cited Document MM-DD-YYYY	Translation (Y/N)

OTHER ART – NON PATENT LITERATURE DOCUMENTS

Examiner's 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, page(s), volume-issue number(s), publisher, city and/or country where published.	Translation (Y/N)
		International Preliminary Report on Patentability for International Application No. PCT/CN2016/105343 mailed May 23, 2019 (N0484.71177WO00).	

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EXAMINER:	DATE CONSIDERED:
/HUY C HO/	05/18/2020

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

7977476.1

ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /H.C.H/

Bibliographic Data

Application No: 13/795,933

Foreign Priority claimed: ○ Yes ◉ No

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

Verified and Acknowledged: Examiner's Signature | Initials

Title: METHODS AND APPARATUS FOR DETECTING A VOICE COMMAND

FILING or 371(c) DATE	CLASS	GROUP ART UNIT	ATTORNEY DOCKET NO.
03/12/2013	455	2644	N0484.71090US01
RULE			

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CONTINUING DATA

FOREIGN APPLICATIONS

IF REQUIRED, FOREIGN LICENSE GRANTED**

04/02/2013

STATE OR COUNTRY

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FILING FEE RECEIVED

$1,740

Electronic Patent Application Fee Transmittal

Application Number:	13795933
Filing Date:	12-Mar-2013
Title of Invention:	METHODS AND APPARATUS FOR DETECTING A VOICE COMMAND
First Named Inventor/Applicant Name:	William F. Ganong
Filer:	David Scott Gesner/Patricia McDonald
Attorney Docket Number:	N0484.71090US01

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($)
Extension - 2 months with $0 paid	1252	1	640	640
Miscellaneous:				
			Total in USD ($)	**640**

EXPEDITED PROCEDURE
RESPONSE AFTER FINAL UNDER 37 C.F.R. §1.116
ART UNIT: 2644

Docket No.: N0484.71090US01
(PATENT)

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

First Named Inventor:	William F. Ganong, III
Application No.:	13/795,933
Confirmation No.:	2321
Filed:	March 12, 2013
For:	METHODS AND APPARATUS FOR DETECTING A VOICE COMMAND
Examiner:	H. C. Ho
Art Unit:	2644

Certificate of Electronic Filing under 37 C.F.R. § 1.8
I hereby certify that this paper (along with any paper referred to as being attached or enclosed) is being transmitted via the Office's electronic filing system in accordance with 37 C.F.R. § 1.6(a)(4).

Dated: October 28, 2020 Electronic Signature for : /Trish McDonald/

RESPONSE TO FINAL OFFICE ACTION

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

Dear Sir:

INTRODUCTORY COMMENTS

In response to the Office Action dated June 5, 2020, please amend the above-identified U.S. patent application as follows:

Claim Amendments are reflected in the claim listing which begins on page 2 of this paper.

Remarks/Arguments begin on page 7 of this paper.

REMARKS

In response to the Office Action of June 5, 2020, reconsideration is respectfully requested. To further the prosecution of this application, amendments have been made in the claims, and each of the rejections set forth in the Office Action has been carefully considered and is addressed below. The claims as presented are believed to be in condition for allowance.

Claims 1-2 and 4-20 were previously pending in this application. Claims 1, 19 and 20 are amended herein. No claims are added or cancelled. As a result, claims 1-2 and 4-20 remain pending for examination, with claims 1, 19, and 20 being independent. No new matter has been added.

Claim Rejections under 35 U.S.C. §103

Each of independent claims 1, 19 and 20 is rejected under 35 U.S.C. §103 as purportedly being obvious over U.S. Patent No. 8,977,255 to Freeman et al. (hereinafter "Freeman") in view of U.S. Patent Publication No. 2012/0034904 to LeBeau et al. (hereinafter "LeBeau"). The rejection of each of independent claims 1, 19 and 20 is respectfully traversed.

A. Rejection Of Independent Claim 1

Claim 1 recites a method of monitoring an acoustic environment of a mobile device for voice commands when the mobile device is operating in an idle mode. The method comprises: receiving acoustic input from the environment of the mobile device while the mobile device is operating in the idle mode; and in response to receiving the acoustic input, determining whether the received acoustic input includes a voice command by processing the received acoustic input, the processing employing at least one contextual cue, the at least one contextual cue comprising information other than content of the acoustic input and comprising a time the acoustic input was received, motion of the mobile device, location of the mobile device, occurrence of an event on the mobile device, recent activity on the mobile device, a stored sample of the acoustic environment of the mobile device and/or a power source of the mobile device, the processing of the received

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acoustic input comprising a plurality of processing stages, at least one of the processing stages being performed while the mobile device is operating in the idle mode.

The Office Action contends that Freeman satisfies all of the limitations of previously pending claim 1, except for those which are directed to using at least one contextual cue to assist in detecting whether acoustic input, received from an environment of a mobile device, includes a voice command, while a mobile device is operating in idle mode. The Office Action also contends that LeBeau satisfies these limitations of previously pending claim 1. Additionally, the Office Action contends that one skilled in the art would have found it obvious to modify the system of Freeman according to the teachings of LeBeau for the purpose of "automatically monitoring ambient sounds for voice commands based on context hints" (Office Action, p. 8).

1. Even If The References Could Properly Be Combined For The Manner Asserted, The Result Of The Combination Would Not Satisfy All Of The Limitations Of Claim 1

Respectfully, the Office Action's contention that LeBeau satisfies the limitations of previously pending claim 1 directed to using at least one contextual cue to assist in detecting whether acoustic input, received from an environment of a mobile device, includes a voice command are unsupported by the reference. LeBeau discloses using context to determine whether a mobile device ***should expend the power necessary to monitor audio signals in the environment*** (Fig. 1B; ¶¶[0041]-[0043]). Specifically, LeBeau discloses that if the context suggests that the user is more likely to supply voice commands to the device, the device turns on its microphone, so that it can receive acoustic input (¶[0044]). LeBeau also expressly discloses that the device is only capable of monitoring acoustic input after its microphone has been activated (¶¶[0046]-[0047]).

Thus, LeBeau discloses a device using contextual cues to determine ***whether or not to enable itself to receive acoustic input*** (i.e., by turning on its microphone).

By contrast, previously pending claim 1 recites ***using at least one contextual cue to assist in detecting whether acoustic input which has already been received includes a voice command***.

Nonetheless, claim 1 is amended herein to make even clearer the distinctions over the technique disclosed by LeBeau, solely to advance prosecution and without prejudice or disclaimer.

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Amended claim 1 explicitly recites ***processing, which employs at least one contextual cue, being used to determine whether acoustic input which has already been received from an environment of a mobile device includes a voice command***. As discussed above, LeBeau explicitly discloses using contextual cues to determine whether or not to turn on a device's microphone – i.e., ***before any acoustic input is received from the environment of the device*** - so LeBeau clearly does not satisfy these limitations of amended claim 1.

Amended claim 1 also recites that the processing which employs at least one contextual cue is performed ***in response to receiving the acoustic input from the environment of the mobile device***. Again, because LeBeau explicitly discloses that the processing which considers context is performed prior to the device's microphone being turned on, this processing necessarily is not performed in response to receiving acoustic input from the environment of the mobile device, as amended claim 1 recites.

The Office Action concedes that Freeman says nothing about using at least one contextual cue to assist in detecting whether acoustic input includes a voice command. As such, Freeman necessarily does not satisfy the limitations of amended claim 1 discussed above. Consequently, even if the asserted references could properly be combined (which the Assignee does not concede), the result of the combination would not satisfy all of the limitations recited by amended claim 1. For at least this reason, the rejection of claim 1 as purportedly being obvious over Freeman in view of LeBeau should be withdrawn.

2. The Purported Rationale For The Combination Would Not Have Led One Skilled In The Art To Combine The References In The Manner Asserted

Additionally, the rejection of claim 1 should be withdrawn because the purported rationale for the combination which is set forth in the Office Action would not have led one skilled in the art to combine the references in the manner asserted. In this respect, the Office Action contends that one skilled in the art would have found it obvious to modify Freeman according to the teachings of LeBeau for the purpose of "automatically monitoring ambient sounds for voice commands based on context hints" (Office Action, p. 8). However, as discussed above, LeBeau does not disclose or

suggest automatically monitoring ambient sounds. Instead, LeBeau explicitly discloses turning on a device's microphone (and thus capturing sounds) ***only after the context suggests that those sounds are less likely to be ambient***, and more likely to be voice commands from the user (Fig. 1B; ¶¶[0041]-[0043]). The whole point of LeBeau's technique is to avoid capturing sounds which are ambient, and to instead only expend the energy to turn on the microphone and capture sounds when those sounds are more likely to include voice commands.

As such, the rationale for the combination set forth in the Office Action would not have motivated one skilled in the art to combine the references in the manner asserted. For this additional reason, the rejection of claim 1 as purportedly being obvious over Freeman in view of LeBeau is improper and should be withdrawn.

3. Conclusion Regarding Claim 1

For all of the reasons discussed above, withdrawal of the rejection of claim 1 as purportedly being obvious over Freeman in view of LeBeau is respectfully requested.

Claims 2 and 4-18 depend from claim 1, and are allowable for at least the same reasons as claim 1.

B. Rejection Of Independent Claim 19

Claim 19 recites at least one non-transitory computer readable medium encoded with instructions that, when executed in a mobile device configured to receive an acoustic input, causes the mobile device to perform a method of monitoring an acoustic environment. The method comprises: in response to the mobile device receiving acoustic input from the environment while operating in the idle mode, determining whether the received acoustic input includes a voice command by processing the received acoustic input, the processing employing at least one contextual cue, the at least one contextual cue comprising information other than content of the acoustic input and comprising a time the acoustic input was received, motion of the mobile device, location of the mobile device, occurrence of an event on the mobile device, recent activity on the

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mobile device, a stored sample of the acoustic environment of the mobile device and/or a power source of the mobile device, the processing of the received acoustic input comprising a plurality of processing stages, at least one of the processing stages being performed while the mobile device is operating in the idle mode.

It should be appreciated from the discussion above regarding claim 1 that, even if Freeman and LeBeau could properly be combined in the manner asserted (which the Assignee does not concede), the result of the combination would not satisfy the limitations of claim 19 directed to processing that employs at least one contextual cue for determining whether acoustic input received from an environment of a mobile device includes a voice command, or the processing being performed in response to the mobile device receiving the acoustic input. Accordingly, withdrawal of the rejection of claim 19 as purportedly being obvious over Freeman in view of LeBeau is respectfully requested.

C. Rejection Of Independent Claim 20

Claim 20 recites a mobile device comprising: at least one processor configured to: in response to the mobile device receiving acoustic input from the environment while operating in the idle mode, determine whether the received acoustic input includes a voice command by processing the received acoustic input, the processing employing at least one contextual cue, the at least one contextual cue comprising information other than content of the acoustic input and comprising a time the acoustic input was received, motion of the mobile device, location of the mobile device, occurrence of an event on the mobile device, recent activity on the mobile device, a stored sample of the acoustic environment of the mobile device and/or a power source of the mobile device, the processing of the received acoustic input comprising a plurality of processing stages, at least one of the processing stages being performed while the mobile device is operating in the idle mode.

It should be appreciated from the discussion above regarding claim 1 that, even if Freeman and LeBeau could properly be combined in the manner asserted (which the Assignee does not concede), the result of the combination would not satisfy the limitations of claim 20 directed to processing which employs at least one contextual cue for determining whether acoustic input

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received from an environment of a mobile device includes a voice command, or the processing being performed in response to the mobile device receiving the acoustic input. Accordingly, withdrawal of the rejection of claim 20 as purportedly being obvious over Freeman in view of LeBeau is respectfully requested.

General Comments on Dependent Claims

As each of the dependent claims depends from a base claim that is believed to be in condition for allowance, the Assignee believes that arguing the further distinguishing features of all of the dependent claims is unnecessary at this time. However, the Assignee does not necessarily concur with the interpretation of any of the dependent claims as set forth in the Office Action, nor does the Assignee necessarily concur that the basis for the rejection of any of the dependent claims is proper. Therefore, the Assignee reserves the right to address in the future the further patentability of the dependent claims not specifically addressed herein.

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CONCLUSION

In view of the foregoing, this application should now be in condition for allowance. A notice to this effect is respectfully requested. If the Examiner believes, after this response, the application is not in condition for allowance, the Examiner is requested to call the undersigned at the telephone number indicated below to discuss any outstanding issues.

Dated: October 28, 2020

Respectfully submitted,

By: _/David S. Gesner/___
David S. Gesner
Registration No.: 72,100
WOLF, GREENFIELD & SACKS, P.C.
600 Atlantic Avenue
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Petitioner Exhibit 1004, Page 1274 of 1518

Doc Code: TRAN.LET
Document Description: Transmittal Letter

USED IN LIEU OF PTO/SB/21 (07-09)

TRANSMITTAL FORM

(to be used for all correspondence after initial filing)

Application Number	13/795,933-Conf. #2321
Filing Date	March 12, 2013
First Named Inventor	William F. Ganong, III
Art Unit	2644
Examiner Name	H. C. Ho
Attorney Docket Number	N0484.71090US01

Total Number of Pages in This Submission

ENCLOSURES (*Check all that apply*)

- [X] Fee Transmittal Form
  - [ ] Fee Attached
- [X] Amendment/Reply
  - [X] After Final
  - [ ] Affidavits/declaration(s)
- [X] Extension of Time Request
- [ ] Express Abandonment Request
- [ ] Information Disclosure Statement
- [ ] Certified Copy of Priority Document(s)
- [ ] Reply to Missing Parts/ Incomplete Application
  - [ ] Reply to Missing Parts under 37 CFR 1.52 or 1.53
- [ ] Drawing(s)
- [ ] Licensing-related Papers
- [ ] Petition
- [ ] Petition to Convert to a Provisional Application
- [ ] Power of Attorney, Revocation Change of Correspondence Address
- [ ] Terminal Disclaimer
- [ ] Request for Refund
- [ ] CD, Number of CD(s) _____
  - [ ] Landscape Table on CD
- [ ] After Allowance Communication to TC
- [ ] Appeal Communication to Board of Appeals and Interferences
- [ ] Appeal Communication to TC **(Appeal Notice, Brief, Reply Brief)**
- [ ] Proprietary Information
- [ ] Status Letter
- [ ] Other Enclosure(s) (please Identify below):

Remarks

SIGNATURE OF APPLICANT, ATTORNEY, OR AGENT

Firm Name	WOLF, GREENFIELD & SACKS, P.C.		
Signature	/David S. Gesner/		
Printed name	David S. Gesner		
Date	October 28, 2020	Reg. No.	72,100

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Dated: October 28, 2020 Electronic Signature for : /Trish McDonald/

8478118.1

Electronic Acknowledgement Receipt

EFS ID:	40975958
Application Number:	13795933
International Application Number:	
Confirmation Number:	2321
Title of Invention:	METHODS AND APPARATUS FOR DETECTING A VOICE COMMAND
First Named Inventor/Applicant Name:	William F. Ganong
Customer Number:	91337
Filer:	David Scott Gesner/Patricia McDonald
Filer Authorized By:	David Scott Gesner
Attorney Docket Number:	N0484.71090US01
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The Director of the USPTO is hereby authorized to charge indicated fees and credit any overpayment as follows:

37 CFR 1.17 (Patent application and reexamination processing fees)

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Miscellaneous Incoming Letter	N048471090US01-TRN-DSG.pdf	25834 f38d3d0ca2f1153597b8172124377d424a8df859	no	1
Warnings:					
Information:					
2	Extension of Time	N048471090US01-EXT-DSG.pdf	24787 5ecba4f98c172c3cdff62d9e0a3fcf6122577327	no	1
Warnings:					
Information:					
3	Fee Worksheet (SB06)	N048471090US01-FEE-DSG.pdf	37033 1fbbb4b4bf82423a0a0f12c519fda98605ec65ee	no	1
Warnings:					
Information:					
4		N048471090US01-116AMN-DSG.pdf	72033 5ef88ab839cef48b94b768b7b1274ad75af71ba6	yes	13

Multipart Description/PDF files in .zip description

Document Description	Start	End
Applicant Arguments/Remarks Made in an Amendment	7	13
Claims	2	6
Response After Final Action	1	1

Warnings:					
Information:					
5	Fee Worksheet (SB06)	fee-info.pdf	31012 f7ae56090c18acccbd99fa9bb6d67736ca166072	no	2

Warnings:	
Information:	
Total Files Size (in bytes):	190699

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.

FEE TRANSMITTAL

Complete if known	
Application Number	13/795,933-Conf. #2321
Filing Date	March 12, 2013
First Named Inventor	William F. Ganong, III
Examiner Name	H. C. Ho
Art Unit	2644
Practitioner Docket No.	N0484.71090US01

[ ] Applicant asserts small entity status. See 37 CFR 1.27.

[ ] Applicant certifies micro entity status. See 37 CFR 1.29. Form PTO/SB/15A or B or equivalent must either be enclosed or have been submitted previously.

TOTAL AMOUNT OF PAYMENT ($)640.00

METHOD OF PAYMENT (check all that apply)

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

[X] Deposit Account Deposit Account Number: 23/2825 Deposit Account Name: Wolf, Greenfield & Sacks, P.C.

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

[ ] Charge fee(s) indicated below

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

[X] Charge any additional fee(s) or underpayment of fee(s) under 37 CFR 1.16 and 1.17, **except for any excess claims fees or multiple dependent claim fee**

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

[X] Credit any overpayment of fee(s)

WARNING: Information on this form may become public. Credit card information should not be included on this form. Provide credit card information and authorization on PTO-2038.

FEE CALCULATION

1. BASIC FILING, SEARCH, AND EXAMINATION FEES (U = undiscounted fee; S = small entity fee; M = micro entity fee)

	FILING FEES			SEARCH FEES			EXAMINATION FEES			
Application Type	**U ($)**	**S ($)**	**M ($)**	**U ($)**	**S ($)**	**M ($)**	**U ($)**	**S ($)**	**M ($)**	**Fees Paid ($)**
Utility	320	160*	80	700	350	175	800	400	200	
Design	220	110	55	160	80	40	640	320	160	
Plant	220	110	55	440	220	110	660	330	165	
Reissue	320	160	80	700	350	175	2,320	1,160	580	
Provisional	300	150	75	0	0	0	0	0	0	

* The $160 small entity status filing fee for a utility application is further reduced to $80 for a small entity status applicant who files the application via EFS-Web.

2. EXCESS CLAIM FEES

Fee Description	**Undiscounted Fee ($)**	**Small Entity Fee ($)**	**Micro Entity Fee ($)**
Each claim over 20 (including Reissues)	100	50	25
Each independent claim over 3 (including Reissues)	480	240	120
Multiple dependent claims	860	430	215

Total Claims	**Extra Claims**	**Fee ($)**	**Fee Paid ($)**
_____ - or HP =	_____ x	_____ =	_____

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

Indep. Claims	**Extra Claims**	**Fee ($)**	**Fee Paid ($)**
_____ - or HP =	_____ x	_____ =	_____

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

Multiple Dependent Claims	
Fee ($)	**Fee Paid ($)**

3. APPLICATION SIZE FEE

If the specification and drawings exceed 100 sheets of paper (excluding electronically filed sequence or computer listings under 37 CFR 1.52(e)), the application size fee due is $420 ($210 for small entity) ($105 for micro entity) for each additional 50 sheets or fraction thereof. See 35 U.S.C. 41(a)(1)(G) and 37 CFR 1.16(s).

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

4. OTHER FEE(S)

	Fees Paid ($)
Non-English specification, $130 fee (no small or micro entity discount)	
Non-electronic filing fee under 37 CFR 1.16(t) for a utility application, $400 fee ($200 small or micro entity)	
Other (e.g., late filing surcharge): 1252 Extension for response within second month	640.00

SUBMITTED BY

Signature	/David S. Gesner/	Registration No. (Attorney/Agent)	72,100	Telephone	617.646.8000
Name (Print/Type)	David S. Gesner			Date	October 28, 2020

Certificate of Electronic Filing under 37 C.F.R. § 1.8

I hereby certify that this paper (along with any paper referred to as being attached or enclosed) is being transmitted via the Office's electronic filing system in accordance with 37 C.F.R. § 1.6(a)(4).

Dated: October 28, 2020 Electronic Signature for : /Trish McDonald/

8640252.1

PTO/AIA/22 (10-20)
Approved for use through 11/30/2020. OMB 0651-0031
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

PETITION FOR EXTENSION OF TIME UNDER 37 CFR 1.136(a)	Docket Number (Optional) N0484.71090US01
Application Number 13/795,933-Conf. #2321	Filed March 12, 2013
For METHODS AND APPARATUS FOR DETECTING A VOICE COMMAND	
Art Unit 2644	Examiner H. C. Ho

This is a request under the provisions of 37 CFR 1.136(a) to extend the period for filing a reply in the above-identified application.

The requested extension and fee are as follows (check time period desired and enter the appropriate fee below):

	Fee	Small Entity Fee	Micro Entity Fee	
☐ One month (37 CFR 1.17(a)(1))	$220	$110	$55	$
☒ Two months (37 CFR 1.17(a)(2))	$640	$320	$160	$ 640.00
☐ Three months (37 CFR 1.17(a)(3))	$1,480	$740	$370	$
☐ Four months (37 CFR 1.17(a)(4))	$2,320	$1,160	$580	$
☐ Five months (37 CFR 1.17(a)(5))	$3,160	$1,580	$790	$

☐ Applicant asserts small entity status. See 37 CFR 1.27.

☐ Applicant certifies micro entity status. See 37 CFR 1.29.
Form PTO/SB/15A or B or equivalent must either be enclosed or have been submitted previously.

☐ A check in the amount of the fee is enclosed.

☒ Payment by credit card. ~~Form PTO-2038 is attached~~.

☐ The Director has already been authorized to charge fees in this application to a Deposit Account.

☒ The Director is hereby authorized to charge any fees which may be required, or credit any overpayment, to Deposit Account Number 23/2825 .

☒ Payment made via EFS-Web.

WARNING: Information on this form may become public. Credit card information should not be included on this form. Provide credit card information and authorization on PTO-2038.

I am the

☐ applicant.

☐ attorney or agent of record. Registration number _____.

☒ attorney or agent acting under 37 CFR 1.34. Registration number 72,100 .

/David S. Gesner/ — Signature
October 28, 2020 — Date

David S. Gesner — Typed or printed name
617.646.8000 — Telephone Number

NOTE: This form must be signed in accordance with 37 CFR 1.33. See 37 CFR 1.4 for signature requirements and certifications. Submit multiple forms if more than one signature is required, see below*.

☐ * Total of 1 forms are submitted.

Certificate of Electronic Filing under 37 C.F.R. § 1.8

I hereby certify that this paper (along with any paper referred to as being attached or enclosed) is being transmitted via the Office's electronic filing system in accordance with 37 C.F.R. § 1.6(a)(4).

Dated: October 28, 2020 Electronic Signature for : /Trish McDonald/

8640254.1

CLAIMS

1. (Currently amended) A method of monitoring an acoustic environment of a mobile device for voice commands when the mobile device is operating in an idle mode, the method comprising:

receiving acoustic input from the environment of the mobile device while the mobile device is operating in the idle mode; and

in response to receiving the acoustic input, determining ~~detecting~~ whether the received acoustic input includes a voice command ~~at least~~ by processing the received acoustic input, the processing employing ~~: performing a plurality of processing stages on the received acoustic input, wherein at least one of the plurality of processing stages is performed while the mobile device is operating in the idle mode; and using~~ at least one contextual cue, ~~to assist in detecting whether the received acoustic input includes a voice command while the mobile device is operating in the idle mode,~~ the at least one contextual cue comprising information other than content of the acoustic input and comprising a time the acoustic input was received, motion of the mobile device, location of the mobile device, occurrence of an event on the mobile device, recent activity on the mobile device, a stored sample of the acoustic environment of the mobile device and/or a power source of the mobile device, the processing of the received acoustic input comprising a plurality of processing stages, at least one of the processing stages being performed while the mobile device is operating in the idle mode.

2. (Previously presented) The method of claim 1, further comprising transitioning the mobile device from the idle mode to an active mode in response to detecting that the acoustic input includes a voice command.

3. (Canceled)

4. (Previously presented) The method of claim 1, wherein the at least one contextual cue includes the time the acoustic input was received, and the method comprises influencing evaluation

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of at least one of the plurality of processing stages based on the time the acoustic input was received.

5. (Previously presented) The method of claim 1, wherein the at least one contextual cue includes recent activity on the mobile device, and the method comprises evaluation of at least one of the plurality of processing stages based on at least one of how recently the user activated the mobile device, how recently the user issued a voice command and how recently the user performed at least one action on the mobile device.

6. (Previously presented) The method of claim 1, wherein the at least one contextual cue includes an occurrence of an event on the mobile device, and the method comprises influencing evaluation of at least one of the plurality of processing stages based on whether the acoustic input is received proximate in time with the occurrence of the event.

7. (Previously presented) The method of claim 1, wherein the at least one contextual cue includes motion of the mobile device received as an input from an accelerometer of the mobile device, and the method comprises influencing evaluation of at least one of the plurality of processing stages based on an assessment of whether the user moved the mobile device proximate in time with receiving the acoustic input based, at least in part, on the input from the accelerometer.

8. (Previously presented) The method of claim 1, wherein the at least one contextual cue includes the location of the mobile device, and the method comprises influencing evaluation of at least one of the plurality of processing stages based on determining whether the mobile device is located in at least one of a vehicle, a home or a place of work of the user of the mobile device.

9. (Previously presented) The method of claim 1, wherein the at least one contextual cue

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includes the power source of the mobile device, and the method comprises influencing evaluation of at least one of the plurality of processing stages based on at least one of determining whether the mobile device is being powered using the battery or connected to wall power, and a state of the battery if the mobile device is being powered using the battery.

10. (Previously presented) The method of claim 1, wherein the at least one contextual cue includes the sample of the acoustic environment obtained by the mobile device by storing acoustic input previously received by the mobile device and determined not to include a voice command, and the method comprises subtracting the sample of the acoustic environment from the acoustic input.

11. (Original) The method of claim 1, wherein a sequence of performing the plurality of processing stages is determined, at least in part, by the at least one contextual cue.

12. (Original) The method of claim 1, wherein the mobile device includes a primary processor and a secondary processor, and wherein at least one first processing stage of the plurality of processing stages is performed by the secondary processor prior to engaging the primary processor to process the acoustic input.

13. (Original) The method of claim 12, wherein at least one second processing stage of the plurality of processing stages is performed by the primary processor only after the at least one first processing stage is performed and neither concludes that the acoustic input includes a voice command nor concludes that the acoustic input is the result of spurious acoustic activity.

14. (Previously presented) The method of claim 12, wherein performing the at least one first processing stage includes performing at least one voice activity detection processing stage including performing at least one of spectral analysis on the acoustic input to evaluate whether a spectrum of

Petitioner Exhibit 1004, Page 1283 of 1518

the acoustic input is indicative of voice activity, periodicity analysis to evaluate whether signal periodicity of the acoustic input is indicative of voice activity, and phone loop analysis to evaluate whether the acoustic input includes speech.

15. (Original) The method of claim 12, wherein performing the at least one first processing stage comprises performing limited vocabulary automatic speech recognition on the acoustic input to detect whether the acoustic input includes an explicit voice trigger.

16. (Original) The method of claim 12, wherein performing the at least one second processing stage comprises performing at least one speech processing stage including at least one of automatic speech recognition on the acoustic input and at least one natural language processing stage to understand the meaning of the voice command.

17. (Previously presented) The method of claim 1, wherein the mobile device is capable of connecting to at least one server via a network, and the method comprises transmitting at least a portion of the acoustic information to the at least one server via the network for processing by the at least one server.

18. (Previously presented) The method of claim 1, comprising performing one or more default actions when a specific task could not be ascertained from the acoustic input.

19. (Currently amended) At least one non-transitory computer readable medium encoded with instructions that, when executed in a mobile device configured to receive an acoustic input, causes the mobile device to perform a method of monitoring an acoustic environment, the method comprising:

in response to the mobile device receiving acoustic input from the environment while

Petitioner Exhibit 1004, Page 1284 of 1518

operating in the idle mode, determining ~~detecting~~ whether the received acoustic input includes a voice command ~~at least~~ by processing the received acoustic input, the processing employing [[:]] ~~performing a plurality of processing stages on the received acoustic input, wherein at least one of the plurality of processing stages is performed while the mobile device is operating in the idle mode; and using~~ at least one contextual cue, ~~to assist in detecting whether the received acoustic input includes a voice command while the mobile device is operating in the idle mode,~~ the at least one contextual cue comprising information other than content of the acoustic input and comprising a time the acoustic input was received, motion of the mobile device, location of the mobile device, occurrence of an event on the mobile device, recent activity on the mobile device, a stored sample of the acoustic environment of the mobile device and/or a power source of the mobile device, the processing of the received acoustic input comprising a plurality of processing stages, at least one of the processing stages being performed while the mobile device is operating in the idle mode.

20. (Currently amended) A mobile device comprising:

at least one processor configured to:

in response to the mobile device receiving acoustic input from the environment while operating in the idle mode, determine ~~detect~~ whether the received acoustic input includes a voice command ~~at least~~ by processing the received acoustic input, the processing employing ~~: performing a plurality of processing stages on the received acoustic input, wherein at least one of the plurality of processing stages is performed while the mobile device is operating in the idle mode; and using~~ at least one contextual cue, ~~to assist in detecting whether the received acoustic input includes a voice command while the mobile device is operating in the idle mode,~~ the at least one contextual cue comprising information other than content of the acoustic input and comprising a time the acoustic input was received, motion of the mobile device, location of the mobile device, occurrence of an event on the mobile device, recent activity on the mobile device, a stored sample of the acoustic environment of the mobile device and/or a power source of the mobile device, the processing of the received acoustic input comprising a plurality of processing stages, at least one of the processing stages being performed while the mobile device is operating in the idle mode.

Petitioner Exhibit 1004, Page 1285 of 1518

PTO/SB/06 (09-11)
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PATENT APPLICATION FEE DETERMINATION RECORD Substitute for Form PTO-875	Application or Docket Number 13/795,933	Filing Date 03/12/2013	☐ 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 $62 =	
INDEPENDENT CLAIMS (37 CFR 1.16(h))	minus 3 =	*		x $250 =	
☐ APPLICATION SIZE FEE (37 CFR 1.16(s))	If the specification and drawings exceed 100 sheets of paper, the application size fee due is $310 ($155 for small entity) for each additional 50 sheets or fraction thereof. See 35 U.S.C. 41(a)(1)(G) and 37 CFR 1.16(s).				
☐ MULTIPLE DEPENDENT CLAIM PRESENT (37 CFR 1.16(j))					
* If the difference in column 1 is less than zero, enter "0" in column 2.				TOTAL	

APPLICATION AS AMENDED - PART II

		(Column 1)		(Column 2)	(Column 3)			
AMENDMENT	10/28/2020	CLAIMS REMAINING AFTER AMENDMENT		HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA		RATE ($)	ADDITIONAL FEE ($)
	Total (37 CFR 1.16(i))	* 19	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.**

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

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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
13/795,933	03/12/2013	William F. Ganong III	N0484.71090US01	2321

91337 7590 12/02/2020

Nuance Communications, Inc.
c/o Wolf, Greenfield & Sacks, P.C.
600 Atlantic Avenue
Boston, MA 02210-2206

EXAMINER
HO, HUY C

ART UNIT	PAPER NUMBER
2644	

NOTIFICATION DATE	DELIVERY MODE
12/02/2020	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):

IP.Inbox@nuance.com
N0484_eOfficeAction@WolfGreenfield.com
Patents_eOfficeAction@wolfgreenfield.com

Advisory Action Before the Filing of an Appeal Brief	Application No. 13/795,933	Applicant(s) Ganong et al.	
	Examiner HUY C HO	Art Unit 2644	AIA (FITF) Status No

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

THE REPLY FILED 28 October 2020 FAILS TO PLACE THIS APPLICATION IN CONDITION FOR ALLOWANCE.

NO NOTICE OF APPEAL FILED

1. ☑ The reply was filed after a final rejection. No Notice of Appeal has been filed. To avoid abandonment of this application, applicant must timely file one of the following replies: (1) an amendment, affidavit, or other evidence, which places the application in condition for allowance; (2) a Notice of Appeal (with appeal fee) in compliance with 37 CFR 41.31; or (3) a Request for Continued Examination (RCE) in compliance with 37 CFR 1.114 if this is a utility or plant application. Note that RCEs are not permitted in design applications. The reply must be filed within one of the following time periods:
   a) ☑ The period for reply expires 3 months from the mailing date of the final rejection.
   b) ☐ The period for reply expires on: (1) the mailing date of this Advisory Action; or (2) the date set forth in the final rejection, whichever is later. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of the final rejection.
   c) ☐ A prior Advisory Action was mailed more than 3 months after the mailing date of the final rejection in response to a first after-final reply filed within 2 months of the mailing date of the final rejection.The current period for reply expires ____ months from the mailing date of *the prior Advisory Action* or SIX MONTHS from the mailing date of the final rejection, whichever is earlier.
   Examiner Note: If box 1 is checked, check either box (a), (b) or (c). ONLY CHECK BOX (b) WHEN THIS ADVISORY ACTION IS THE FIRST RESPONSE TO APPLICANTS FIRST AFTER-FINAL REPLY WHICH WAS FILED WITHIN TWO MONTHS OF THE FINAL REJECTION. ONLY CHECK BOX (c) IN THE LIMITED SITUATION SET FORTH UNDER BOX (c). See MPEP 706.07(f).

Extensions of time may be obtained under 37 CFR 1.136(a). The date on which the petition under 37 CFR 1.136(a) and the appropriate extension fee have been filed is the date for purposes of determining the period of extension and the corresponding amount of the fee. The appropriate extension fee under 37 CFR 1.17(a) is calculated from: (1) the expiration date of the shortened statutory period for reply originally set in the final Office action; or (2) as set forth in (b) or (c) above, if checked. Any reply received by the Office later than three months after the mailing date of the final rejection, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

NOTICE OF APPEAL

2. ☐ The Notice of Appeal was filed on _____. A brief in compliance with 37 CFR 41.37 must be filed within two months of the date of filing the Notice of Appeal (37 CFR 41.37(a)), or any extension thereof (37 CFR 41.37(e)), to avoid dismissal of the appeal. Since a Notice of Appeal has been filed, any reply must be filed within the time period set forth in 37CFR 41.37(a).

AMENDMENTS

3. ☑ The proposed amendments filed after a final rejection, but prior to the date of filing a brief, will not be entered because
   a) ☑ They raise new issues that would require further consideration and/or search (see NOTE below);
   b) ☐ They raise the issue of new matter (see NOTE below);
   c) ☐ They are not deemed to place the application in better form for appeal by materially reducing or simplifying the issues for appeal; and/or
   d) ☐ They present additional claims without canceling a corresponding number of finally rejected claims.
   NOTE: See Continuation Sheet (See 37CFR 1.116 and 41.33(a)).
4. ☐ The amendments are not in compliance with 37CFR 1.121. See attached Notice of Non-Compliant Amendment (PTOL-324).
5. ☐ Applicants reply has overcome the following rejection(s): _____
6. ☐ Newly proposed or amended claim(s) _____ would be allowable if submitted in a separate, timely filed amendment canceling the non-allowable claim(s).
7. ☑ For purposes of appeal, the proposed amendment(s):(a) ☑ will not be entered, or (b) ☐ will be entered, and an explanation of how the new or amended claims would be rejected is provided below or appended.

AFFIDAVIT OR OTHER EVIDENCE

8. ☐ A declaration(s)/affidavit(s) under **37 CFR 1.130(b)** was/were filed on ____
9. ☐ The affidavit or other evidence filed after final action, but before or on the date of filing a Notice of Appeal will not be entered because applicant failed to provide a showing of good and sufficient reasons why the affidavit or other evidence is necessary and was not earlier presented. See 37 CFR 1.116(e).
10. ☐ The affidavit or other evidence filed after the date of filing the Notice of Appeal, but prior to the date of filing a brief, will not be entered because the affidavit or other evidence failed to overcome all rejections under appeal and/or appellant fails to provide a showing of good and sufficient reasons why it is necessary and was not earlier presented. See 37 CFR 41.33(d)(1).
11. ☐ The affidavit or other evidence is entered. An explanation of the status of the claims after entry is below or attached.

REQUEST FOR RECONSIDERATION/OTHER

12. ☐ The request for reconsideration has been considered but does NOT place the application in condition for allowance because: _____.
13. ☐ Note the attached Information *Disclosure Statement*(s). (PTO/SB/08) Paper No(s). _____
14. ☐ Other: _____

STATUS OF CLAIMS

15. The status of the claim(s) is (or will be) as follows:
    Claim(s) allowed:_____.
    Claim(s) objected to:_____.
    Claim(s) rejected:1-2 and 4-20.
    Claim(s) withdrawn from consideration:_____.

/HUY C HO/
Primary Examiner, Art Unit 2644

Continuation of 3. NOTE: The amended features and languages have raised new issues that the amended claim 1 processing the received acoustic input by employing at least one contextual cue. This new limitation and feature are different from the previous limitations which claimed detecting whether the received acoustic input includes a voice command at least by performing a plurality of stages on the received acoustic input, and using at least one context cue to assist in detecting whether the received input includes a voice command. The difference is the new amended limitation determining whether the acoustic input includes a voice command by performing at least one contextual cue, but the previous limitation requires the process of detecting the acoustic input by performing a plurality of stages on the acoustic input, then in addition to the plurality of stages, performing at least one contextual cue in order to assist in the detection process. Therefore, the new written claimed languages for claim 1 have raised new issues and need further search and consideration.

DO NOT ENTER: /H.C.H/

EXPEDITED PROCEDURE
RESPONSE AFTER FINAL UNDER 37 C.F.R. §1.116
ART UNIT: 2644

Docket No.: N0484.71090US01
(PATENT)

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

First Named Inventor:	William F. Ganong, III
Application No.:	13/795,933
Confirmation No.:	2321
Filed:	March 12, 2013
For:	METHODS AND APPARATUS FOR DETECTING A VOICE COMMAND
Examiner:	H. C. Ho
Art Unit:	2644

Certificate of Electronic Filing under 37 C.F.R. § 1.8
I hereby certify that this paper (along with any paper referred to as being attached or enclosed) is being transmitted via the Office's electronic filing system in accordance with 37 C.F.R. § 1.6(a)(4).

Dated: October 28, 2020 Electronic Signature for : /Trish McDonald/

RESPONSE TO FINAL OFFICE ACTION

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

Dear Sir:

INTRODUCTORY COMMENTS

In response to the Office Action dated June 5, 2020, please amend the above-identified U.S. patent application as follows:

Claim Amendments are reflected in the claim listing which begins on page 2 of this paper.

Remarks/Arguments begin on page 7 of this paper.

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.
13/795,933	03/12/2013	William F. Ganong III	N0484.71090US01	2321

91337 7590 12/31/2020

Nuance Communications, Inc.
c/o Wolf, Greenfield & Sacks, P.C.
600 Atlantic Avenue
Boston, MA 02210-2206

EXAMINER
HO, HUY C

ART UNIT	PAPER NUMBER
2644	

NOTIFICATION DATE	DELIVERY MODE
12/31/2020	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):

IP.Inbox@nuance.com
N0484_eOfficeAction@WolfGreenfield.com
Patents_eOfficeAction@WolfGreenfield.com

Notice of Abandonment	Application No.	Applicant(s)
	13/795,933	Ganong et al.
	Examiner	Art Unit
	HUY C HO	2644

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

This application is abandoned in view of:

1. ☑ Applicant's failure to timely file a proper reply to the Office letter mailed on 02 December 2020.
   (a) ☐ A reply was received on _____ (with a Certificate of Mailing or Transmission dated _____), which is after the expiration of the period for reply (including a total extension of time of _____ month(s)) which expired on _____.
   (b) ☐ A proposed reply was received on _____, but it does not constitute a proper reply under 37 CFR 1.113 to the final rejection. (A proper reply under 37 CFR 1.113 to a final rejection consists only of:(1) a timely filed amendment which places the application in condition for allowance; (2) a timely filed Notice of Appeal (with appeal fee); or (3) if this is utility or plant application, a timely filed Request for Continued Examination (RCE) in compliance with 37 CFR 1.114. Note that RCEs are not permitted in design applications.)
   (c) ☐ A reply was received on _____ but it does not constitute a proper reply, or a bona fide attempt at a proper reply, to the non-final rejection. See 37 CFR 1.85(a) and 1.111. (See explanation in box 8 below).
   (d) ☑ No reply has been received.

2. ☐ Applicant's failure to timely pay the required issue fee and publication fee, if applicable, within the statutory period of three months from the mailing date of the Notice of Allowance (PTOL-85).
   (a) ☐ The issue fee and publication fee, if applicable, was received on _____ (with a Certificate of Mailing or Transmission dated _____), which is after the expiration of the statutory period for payment of the issue fee (and publication fee) set in the Notice of Allowance (PTOL-85).
   (b) ☐ The submitted fee of $ _____ is insufficient. A balance of $ _____ is due.
   The issue fee required by 37CFR 1.18 is $ _____ . The publication fee, if required by 37 CFR 1.18(d), is $ _____ .
   (c) ☐ The issue fee and publication fee, if applicable, has not been received.

3. ☐ Applicant's failure to timely file corrected drawings as required by, and within the three-month period set in, the Notice of Allowability (PTO-37).
   (a) ☐ Proposed corrected drawings were received on _____ (with a Certificate of Mailing or Transmission dated _____), which is after the expiration of the period for reply.
   (b) ☐ No corrected drawings have been received.

4. ☐ The letter of express abandonment which is signed by the attorney or agent of record or other party authorized under 37 CFR 1.33 (b). See 37 CFR 1.138(b).

5. ☐ The letter of express abandonment which is signed by an attorney or agent (acting in a representative capacity under 37 CFR 1.34) upon the filing of a continuing application.

6. ☐ The decision by the Patent Trial and Appeal Board rendered on _____ and because the period for seeking court review of the decision has expired and there are no allowed claims.

7. ☐ The dismissal of the appeal in an application having no allowed claims. (When an appeal is dismissed in an application having no allowed claims the application stands abandoned. See MPEP 1215.04 subsections I-V for an explanation of the reasons why an appeal is dismissed.)

8. ☐ The reason(s) below:

_____

/HUY C HO/
Primary Examiner, Art Unit 2644

Petitions to revive under 37 CFR 1.137, or requests to withdraw the holding of abandonment under 37 CFR 1.181, should be promptly filed to minimize any negative effects on patent term.

Electronic Acknowledgement Receipt

EFS ID:	42551649
Application Number:	13795933
International Application Number:	
Confirmation Number:	2321
Title of Invention:	METHODS AND APPARATUS FOR DETECTING A VOICE COMMAND
First Named Inventor/Applicant Name:	William F. Ganong
Customer Number:	91337
Filer:	Rachel Ann Smith/Kristine Grand
Filer Authorized By:	Rachel Ann Smith
Attorney Docket Number:	N0484.71090US01
Receipt Date:	26-APR-2021
Filing Date:	12-MAR-2013
Time Stamp:	15:30:10
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	no

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Power of Attorney	TRANSMITTAL_POA_CERN0105PUS_120291USORG2.PDF	985541 fee97c277aca04b912319bdf9c610bd387d0446c	no	2

Warnings:

Information:	
Total Files Size (in bytes):	985541

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.

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	13/795,933
Filing Date	March 12, 2013
First Named Inventor	William F. Ganong III
Title	METHODS AND APPARATUS FOR DETECTING A VOICE COMMAND
Art Unit	2644
Examiner Name	Huy C. Ho
Attorney Docket Number	CERN0105PUSA (12-0291-US-ORG2)

SIGNATURE of Applicant or Patent Practitioner

Signature	/Rachel A. Smith/	Date	
Name	Rachel A. Smith	Telephone	248-358-4400
Registration Number	66,437		

NOTE: This form must be signed in accordance with 37 CFR 1.33. See 37 CFR 1.4(d)

* Total of 1 Power of Attorney form is attached

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

PTO/AIA/82B (07-13)
Approved for use through 01/31/2018. OMB 0651-0035
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
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POWER OF ATTORNEY BY APPLICANT

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

Application Number	Filing Date

(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: 179598

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):

CERENCE OPERATING COMPANY

☐ 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	/Leanne Fitzgerald/	Date (Optional)	2021-04-21
Name	Leanne Fitzgerald		
Title	General Counsel and Secretary		

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.

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.

UNITED STATES PATENT AND TRADEMARK OFFICE

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

APPLICATION NUMBER	FILING OR 371(C) DATE	FIRST NAMED APPLICANT	ATTY. DOCKET NO./TITLE
13/795,933	03/12/2013	William F. Ganong III	N0484.71090US01

CONFIRMATION NO. 2321

IMPROPER CPOA LETTER

91337
Nuance Communications, Inc.
c/o Wolf, Greenfield & Sacks, P.C.
600 Atlantic Avenue
Boston, MA 02210-2206

OC000000125293929

Date Mailed: 05/03/2021

NOTICE REGARDING POWER OF ATTORNEY

This is in response to the power of attorney filed 04/26/2021. The power of attorney in this application is not accepted for the reason(s) listed below:

- The power of attorney is from an assignee and the statement required by 37 CFR 3.73(c) has not been received.

/vostuart/

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

179598
Brooks Kushman / Cerence
1000 Town Center
22nd Floor
Southfield, MI 48075
UNITED STATES

Electronic Acknowledgement Receipt

EFS ID:	42619453
Application Number:	13795933
International Application Number:	
Confirmation Number:	2321
Title of Invention:	METHODS AND APPARATUS FOR DETECTING A VOICE COMMAND
First Named Inventor/Applicant Name:	William F. Ganong
Customer Number:	91337
Filer:	Rachel Ann Smith/Kristine Grand
Filer Authorized By:	Rachel Ann Smith
Attorney Docket Number:	N0484.71090US01
Receipt Date:	04-MAY-2021
Filing Date:	12-MAR-2013
Time Stamp:	17:01:09
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	no

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Power of Attorney	TRANSMITTAL_POA_CERN0105PUS_120291USORG2.PDF	985541 fee97c277aca04b912319bdf9c610bd387d0446c	no	2

Warnings:

Information:					
2	Assignee showing of ownership per 37 CFR 3.73	373_STATEMENT_CERN0105PUS.PDF	129253 d3542cf5ac1eadced2fd57c95a4e13137d67ad7c	no	3
Warnings:					
Information:					
		Total Files Size (in bytes):	1114794		

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

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

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New International Application Filed with the USPTO as a Receiving Office

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PTO/AIA/96 (08-12)
Approved for use through 11/30/2020. OMB 0651-0031
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

STATEMENT UNDER 37 CFR 3.73(c)

Applicant/Patent Owner: CERENCE OPERATING COMPANY

Application No./Patent No.: 13/795,933 Filed/Issue Date: 3/12/2013

Titled: METHODS AND APPARATUS FOR DETECTING A VOICE COMMAND

CERENCE OPERATING COMPANY, 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: William F. Ganong III; Paul A. Van Mulbregt; Vladimir Sejnoha; Glen Wilson To: NUANCE COMMUNICATIONS, INC.

   The document was recorded in the United States Patent and Trademark Office at
   Reel 030096, Frame 0850, or for which a copy thereof is attached.

2. From: NUANCE COMMUNICATIONS, INC. To: CERENCE OPERATING COMPANY

   The document was recorded in the United States Patent and Trademark Office at
   Reel 055927, Frame 0620, or for which a copy thereof is attached.

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

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

PTO/AIA/96 (08-12)
Approved for use through 11/30/2020. OMB 0651-0031
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

STATEMENT UNDER 37 CFR 3.73(c)

3. From: _____ To: _____

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

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

4. From: _____ To: _____

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

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

5. From: _____ To: _____

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

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

6. From: _____ To: _____

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

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

☐ Additional documents in the chain of title are listed on a supplemental sheet(s).

☐ As required by 37 CFR 3.73(c)(1)(i), the documentary evidence of the chain of title from the original owner to the assignee was, or concurrently is being, submitted for recordation pursuant to 37 CFR 3.11.

[NOTE: A separate copy (i.e., a true copy of the original assignment document(s)) must be submitted to Assignment Division in accordance with 37 CFR Part 3, to record the assignment in the records of the USPTO. See MPEP 302.08]

The undersigned (whose title is supplied below) is authorized to act on behalf of the assignee.

/Rachel A. Smith/	5/3/2021
Signature	Date
Rachel A. Smith	66,437
Printed or Typed Name	Title or Registration Number

Privacy Act Statement

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

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

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

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	13/795,933
Filing Date	March 12, 2013
First Named Inventor	William F. Ganong III
Title	METHODS AND APPARATUS FOR DETECTING A VOICE COMMAND
Art Unit	2644
Examiner Name	Huy C. Ho
Attorney Docket Number	CERN0105PUSA (12-0291-US-ORG2)

SIGNATURE of Applicant or Patent Practitioner

Signature	/Rachel A. Smith/	Date	
Name	Rachel A. Smith	Telephone	248-358-4400
Registration Number	66,437		

NOTE: This form must be signed in accordance with 37 CFR 1.33. See 37 CFR 1.4(d)

* Total of 1 Power of Attorney form is attached

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

PTO/AIA/82B (07-13)
Approved for use through 01/31/2018. 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

(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: 179598

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:

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

CERENCE OPERATING COMPANY

☐ Inventor or Joint Inventor (title not required below)

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

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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		Date (Optional)	2021-04-21
Name	Leanne Fitzgerald		
Title	General Counsel and Secretary		

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.

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

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Doc code: RCEX
Doc description: Request for Continued Examination (RCE)

PTO/SB/30EFS (02-18)
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REQUEST FOR CONTINUED EXAMINATION(RCE)TRANSMITTAL
(Submitted Only via EFS-Web)

Application Number	13/795,933	Filing Date	2013-03-12	Docket Number (if applicable)	CERN0105PUS	Art Unit	2644
First Named Inventor	William F. GANONG III			Examiner Name	Huy C. Ho		

This is a Request for Continued Examination (RCE) under 37 CFR 1.114 of the above-identified application.
Request for Continued Examination (RCE) practice under 37 CFR 1.114 does not apply to any utility or plant application filed prior to June 8 1995, or to any design application. The Instruction Sheet for this form is located at WWW.USPTO.GOV

SUBMISSION REQUIRED UNDER 37 CFR 1.114

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

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

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

☐ Other _____

☒ Enclosed

☒ Amendment/Reply

☐ Information Disclosure Statement (IDS)

☐ Affidavit(s)/ Declaration(s)

☐ Other _____

MISCELLANEOUS

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

☐ Other _____

FEES

The RCE fee under 37 CFR 1.17(e) is required by 37 CFR 1.114 when the RCE is filed.

☒ The Director is hereby authorized to charge any underpayment of fees, or credit any overpayments, to Deposit Account No 023978

SIGNATURE OF APPLICANT, ATTORNEY, OR AGENT REQUIRED

☒ Patent Practitioner Signature

Applicant Signature

EFS - Web 2.1.16

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Signature of Registered U.S. Patent Practitioner			
Signature	/Rachel A. Smith/	Date (YYYY-MM-DD)	2021-05-07
Name	Rachel A. Smith	Registration Number	66437

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 t 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 estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Tim will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions fo 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.

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

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

Amendments to the Claims:

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

1. (Currently Amended) A method of monitoring an acoustic environment of a mobile device for voice commands when the mobile device is operating in a low power mode, the method comprising:

receiving acoustic input from the environment of the mobile device while the mobile device is operating in idle mode; and

in response to receiving the acoustic input, determining~~detecting~~ whether the received acoustic input includes a voice command ~~at least~~ by processing the received acoustic input, the processing employing ~~: performing a plurality of processing stages on the received acoustic input, wherein at least one of the plurality of processing stages is performed while the mobile device is operating in the idle mode; and using~~ at least one contextual cue, ~~to assist in detecting whether the received acoustic input includes a voice command while the mobile device is operating in the idle mode,~~ the at least one contextual cue comprising information other than content of the acoustic input and comprising a time the acoustic input was received, motion of the mobile device, location of the mobile device, occurrence of an event on the mobile device, recent activity on the mobile device, a stored sample of the acoustic environment of the mobile device and/or a power source of the mobile device, the processing of the received acoustic input comprising a plurality of processing stages, at least one of the processing stages being performed while the mobile device is operating in the idle mode.

2. (Previously Presented) The method of claim 1, further comprising transitioning the mobile device from the idle mode to an active mode in response to detecting that the acoustic input includes a voice command.

3. (Canceled).

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4. (Currently Amended) The method of ~~claim 3~~claim 1, wherein the at least one contextual cue includes the time the acoustic input was received, and the method comprises influencing evaluation of at least one of the plurality of processing stages based on the time the acoustic input was received.

5. (Previously Presented) The method of claim 1, wherein the at least one contextual cue includes recent activity on the mobile device, the method further comprising evaluation of at least one of the plurality of processing stages based on at least one of how recently the user activated the mobile device, how recently the user issued a voice command and how recently the user performed at least one action on the mobile device.

6. (Previously Presented) The method of claim 1, wherein the at least one contextual cue includes an occurrence of an event on the mobile device, and the method comprises influencing evaluation of at least one of the plurality of processing stages based on whether the acoustic input is received proximate in time with the occurrence of the event.

7. (Previously Presented) The method of claim 1, wherein the at least one contextual cue includes motion of the mobile device received as an input from an accelerometer of the mobile device, the method comprises influencing evaluation of at least one of the plurality of processing stages based on an assessment of whether the user moved the mobile device proximate in time with receiving the acoustic input based, at least in part, on the input from the accelerometer.

8. (Previously Presented) The method of claim 1, wherein the at least one contextual cue includes the location of the mobile device, and the method comprises influencing evaluation of at least one of the plurality of processing stages based on determining whether the mobile device is located in at least one of a vehicle, a home or a place of work of the user of the mobile device.

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9. (Currently Amended) The method of claim 1, wherein the at least one contextual cue includes the power source of the mobile device, and the method comprises influencing evaluation of at least one of the plurality of processing stages based on at least one of determining whether the mobile device is being powered using ~~the battery or connected to~~a battery or wall power, and a state of the battery if the mobile device is being powered using the battery.

10. (Previously Presented) The method of claim 1, wherein the at least one contextual cue includes the sample of the acoustic environment obtained by the mobile device by storing acoustic input previously received by the mobile device and determined not to include a voice command, and the method comprises subtracting the sample of the acoustic environment from the acoustic input.

11. (Original) The method of claim 1, wherein a sequence of performing the plurality of processing stages is determined, at least in part, by the at least one contextual cue.

12. (Original) The method of claim 1, wherein the mobile device includes a primary processor and a secondary processor, and wherein at least one first processing stage of the plurality of processing stages is performed by the secondary processor prior to engaging the primary processor to process the acoustic input.

13. (Original) The method of claim 12, wherein at least one second processing stage of the plurality of processing stages is performed by the primary processor only after the at least one first processing stage is performed and neither concludes that the acoustic input includes a voice command nor concludes that the acoustic input is the result of spurious acoustic activity.

14. (Previously Presented) The method of claim 12, wherein performing the at least one first processing stage includes performing at least one voice activity detection processing stage including performing at least one of spectral analysis on the acoustic input to evaluate whether a spectrum of the acoustic input is indicative of voice activity, periodicity

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analysis to evaluate whether signal periodicity of the acoustic input is indicative of voice activity, and phone loop analysis to evaluate whether the acoustic input includes speech.

15. (Original) The method of claim 12, wherein performing the at least one first processing stage comprises performing limited vocabulary automatic speech recognition on the acoustic input to detect whether the acoustic input includes an explicit voice trigger.

16. (Original) The method of claim 12, wherein performing the at least one second processing stage comprises performing at least one speech processing stage including at least one of automatic speech recognition on the acoustic input and at least one natural language processing stage to understand the meaning of the voice command.

17. (Currently Amended) The method of claim 1, wherein the mobile device is capable of connecting to at least one server via a network, and the method comprises transmitting at least a portion of the acoustic input ~~information~~ to the at least one server via the network for processing by the at least one server.

18. (Previously Presented) The method of claim 1, comprising performing one or more default actions when a specific task could not be ascertained from the acoustic input.

19. (Currently Amended) At least one computer readable medium encoded with instructions that, when executed in a mobile device configured to receive an acoustic input, causes the mobile device to perform a method of monitoring an acoustic environment, the method comprising:

in response to the mobile device receiving acoustic input from the environment while operating in an ~~in the~~ idle mode, ~~detecting~~ determining whether the received acoustic input includes a voice command ~~at least~~ by processing the received acoustic input, the processing employing: ~~performing a plurality of processing stages on the received acoustic input, wherein at least one of the plurality of processing stages is performed while the mobile device is operating in~~

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~~the idle mode; and using~~ at least one contextual cue, ~~to assist in detecting whether the received acoustic input includes a voice command while the mobile device is operating in the idle mode,~~ the at least one contextual cue comprising information other than content of the acoustic input and comprising a time the acoustic input was received, motion of the mobile device, location of the mobile device, occurrence of an event on the mobile device, recent activity on the mobile device, a stored sample of the acoustic environment of the mobile device and/or a power source of the mobile device, the processing of the received acoustic input comprising a plurality of processing stages, at least one of the processing stages being performed while the mobile device is operating in the idle mode.

20. (Currently Amended) A mobile device comprising:

at least one processor configured to:

in response to the mobile device receiving acoustic input from the environment while operating ~~in the~~in an idle mode, ~~detect~~ determine whether the received acoustic input includes a voice command ~~at least~~ by processing the received acoustic input, the processing employing: ~~performing a plurality of processing stages on the received acoustic input, wherein at least one of the plurality of processing stages is performed while the mobile device is operating in the idle mode; and using~~ at least one contextual cue, ~~to assist in detecting whether the received acoustic input includes a voice command while the mobile device is operating in the idle mode,~~ the at least one contextual cue comprising information other than content of the received acoustic input and comprising a time the acoustic input was received, motion of the mobile device, location of the mobile device, occurrence of an event on the mobile device, recent activity on the mobile device, a stored sample of the acoustic environment of the mobile device and/or a power source of the mobile device, the processing of the received acoustic input comprising a plurality of processing stages, at least one of the processing stages being performed while the mobile device is operating in the idle mode.

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Remarks

Applicant requests reconsideration of this application in view of the above amendments to the claims and the following remarks. Claims 1–2, and 4–20 were pending in this application, all of which now stand rejected. In an effort to further prosecution, each of the independent claims, 1, 19 and 20 have been amended. Various dependent claims have been amended for minor corrections and readability. No new matter has been added by way of these amendments. For at least the following reasons, the pending claims are in condition for allowance.

Petition for Revival

Applicant is filing concurrently with this Response a Petition for Revival.

Claim Rejections – 35 USC § 103

Claims 1, 2 and 4–20 stand rejected under 35 U.S.C. § 103 as being unpatentable over U.S. Patent No. 8,977,255 to Freeman et al. (hereinafter "*Freeman*") and further in view of U.S. Publication No. 2012/0034904 to LeBeau et al. (hereinafter "*LeBeau*").

By way of background, Applicant's previous representative, in response to the Final Office Action, amended several of the claims and argued that "LeBeau discloses a device using contextual cues to determine whether or not to enable itself to receive acoustic input (i.e., by turning on its microphone" and "[b]y contrast, ... claim 1 recites using at least one contextual cue to assist in detecting whether the acoustic input which has already been received includes a voice command." Response to Final Office Action dated November 1, 2019, page 8.

In response to these amendments, the Examiner did not enter the amendments and in the Advisory Action, indicated that the "amended features and languages have raised new issues that amended claim 1 processes [of] the received acoustic input by employing at least one contextual clue." "This new limitation and feature {sic: is} different from the previous limitations. ... Therefore, new written claimed languages for claim 1 have raised new issues and need further search and consideration." Advisory Action, page 2.

In view of this, Applicant's new representative presents the enclosed claim amendments to further prosecution. For example, claim 1 has been amended and now recites in part "in response to receiving the acoustic input, determining whether the received acoustic input includes a voice

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command by processing the received acoustic input, the processing employing at least one contextual cue, the at least one contextual cue comprising information other than content of the acoustic input and comprising a time the acoustic input was received, motion of the mobile device, location of the mobile device, occurrence of an event on the mobile device, recent activity on the mobile device, a stored sample of the acoustic environment of the mobile device and/or a power source of the mobile device, the processing of the received acoustic input comprising a plurality of processing stages, at least one of the processing stages being performed while the mobile device is operating in the idle mode."

None of the references teach or suggest at least these recitations. First, the Examiner admits that *Freeman* fails to disclose any "using at least one contextual cue to assist in detecting whether the received acoustic input includes a voice command while the mobile device is operating in the idle mode." Final Office Action, page 7. Second, for reasons previously stated during prosecution, as well as the Examiner's admission that new issues are raised by the amendments, *LeBeau* fails to cure the deficiencies of *Freemen*.

For example, *LeBeau* discloses two modes of operation for a mobile device, where the mobile device determines "based on the current context, whether to switch the mobile computing device from a current mode of operation to a second mode of operation during which the mobile computing device monitors ambient sounds for voice input that indicates a request to perform an operation." Abstract. "Contexts within which the mobile computing device 172 monitors for user requests can differ among devices and/or associated users, and they can change over time. A feedback loop can be used to continually refine the contexts within which the mobile computing device 172 monitors for voice input. For instance, if a user does not provide many voice-based requests to the computing device 172 in the context C 178 over time, the mobile computing device 172 may stop monitoring for voice input in the context C 178." Para. 55.

Thus, *LeBeau* discloses using "a current context" to "activat[e] one or more microphones and a speech analysis subsystem." The "current context" in *LeBeau* does not teach or suggest "determining whether the received acoustic input includes a voice command by processing the received acoustic input, the processing employing at least one contextual cue," within the context of claim 1. To the contrary, *LeBeau* uses a "current context" to determine whether to even begin receiving ambient noise, and is not used to "determin[e] whether the received acoustic input

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includes a voice command." Examiner's citation to paragraph 55 of *LeBeau* further reiterates that *LeBeau* is concerned with when to monitor for "user request" and when to activate the microphone. Again, *Lebeau* fails to use "at least one contextual cue" to "determin[e] whether the received acoustic input includes a voice command," within the context of the claims. Accordingly, *LeBeau* fails to cure the deficiencies of *Freeman*.

Furthermore, claim 1 further recites that "the processing of the received acoustic input comprising a plurality of processing stages, at least one of the processing stages being performed while the mobile device is operating in the idle mode." Again, the modes in *LeBeau* cannot teach or suggest at least this recitation at least because *LeBeau* fails to process any stages in an idle mode. Freeman also fails to teach or suggest this recitation.

For at least these reasons, claim 1 is in condition for allowance.

Independent claim 19 has been amended and now recites in part "in response to the mobile device receiving acoustic input from the environment while operating in an idle mode, determining whether the received acoustic input includes a voice command by processing the received acoustic input, the processing employing at least one contextual cue, the at least one contextual cue comprising information other than content of the acoustic input and comprising a time the acoustic input was received, motion of the mobile device, location of the mobile device, occurrence of an event on the mobile device, recent activity on the mobile device, a stored sample of the acoustic environment of the mobile device and/or a power source of the mobile device, the processing of the received acoustic input comprising a plurality of processing stages, at least one of the processing stages being performed while the mobile device is operating in the idle mode."

Independent clam 20 has been amended and now recites in part "in response to the mobile device receiving acoustic input from the environment while operating in an idle mode, determine whether the received acoustic input includes a voice command by processing the received acoustic input, the processing employing at least one contextual cue, the at least one contextual cue comprising information other than content of the received acoustic input and comprising a time the acoustic input was received, motion of the mobile device, location of the mobile device, occurrence of an event on the mobile device, recent activity on the mobile device, a stored sample of the acoustic environment of the mobile device and/or a power source of the mobile device, the processing of the received acoustic input comprising a plurality of processing stages, at least one

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of the processing stages being performed while the mobile device is operating in the idle mode." Although patentably distinct, claims 19 and 20 are also patentable over the cited references for a least the reasons set forth above with respect to claim 1.

The dependent claims are patentable over the cited references at least by virtue of their dependence on a patentable independent claim. However, each of the dependent claims further recite patentable subject matter.

Conclusion

Applicant has made a genuine effort to respond to each of the Examiner's objections and rejections in advancing the prosecution of this case. Applicant believes that all formal and substantive requirements for patentability have been met and that this case is in condition for allowance, which action is respectfully requested. If any additional issues need to be resolved, the Examiner is invited to contact the undersigned at Examiner's earliest convenience.

Please charge any fees or credit any overpayments as a result of the filing of this paper to our Deposit Account No. 02-3978.

Respectfully submitted,

William F. GANONG III

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